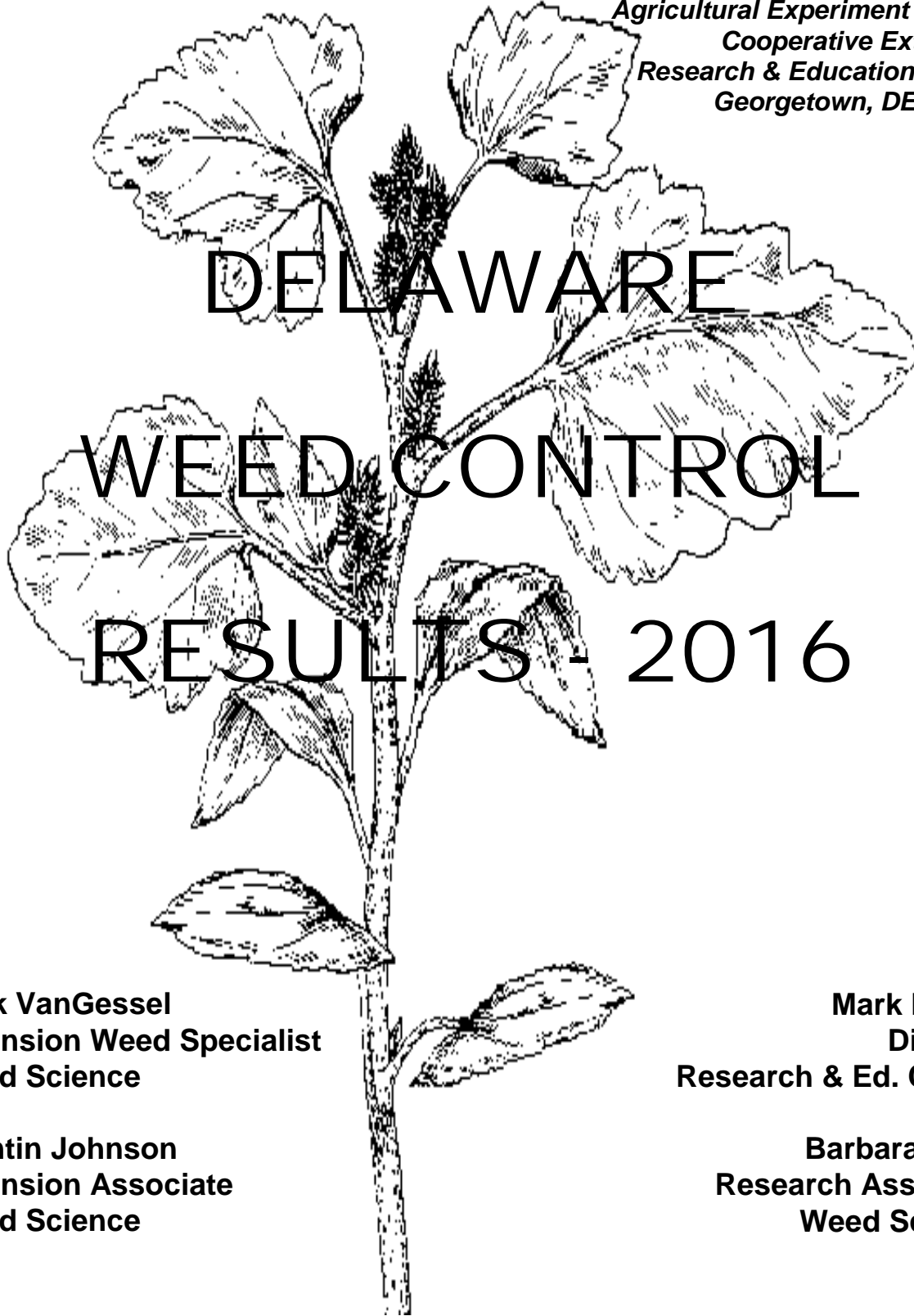


*University of Delaware  
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**DELAWARE  
WEED CONTROL  
RESULTS - 2016**

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## WEED CONTROL RESULTS

Mark VanGessel, Mark Isaacs, Quintin Johnson, Barbara Scott

The purpose of this report is to present results and details of many of the 2016 weed control field trials conducted by Cooperative Extension at the University of Delaware. Results are summarized from data obtained at the Georgetown Research and Education Center and other test locations throughout the state. These results, as well as results from previous years back to 2002, are available at the UD Weed Science web site; <http://extension.udel.edu/ag/weed-science/>.

The results obtained and any conclusions stated are not published herein as recommended practices. The data in this report are especially intended for use by cooperators, commercial field workers, county agents, agricultural teachers, and researchers. They will also be of value to growers who are interested in following closely the development of new herbicides and weed control systems.

Treatments are listed by trade names to facilitate reading by non-technical people. No discrimination is intended and no endorsement is implied by the University of Delaware. Chemical index is cross-referenced by common and trade names.

Many of the chemicals listed are actually a combination of two or more herbicides. Where this is the case, the name of the combination is usually followed by the word "Premix". The common names of the herbicides in that premix are listed in the Index of Chemicals at the front of this document. In addition, the name of the combination is often followed by the herbicides that make up that combination. For example, Bicep II Magnum is a combination of s-metolachlor and atrazine, so Bicep II Magnum will be listed as such:

Bicep II Magnum Premix	5.5 L	2.2 lb ai/A
---s-metolachlor	2.4	0.96
---atrazine	3.1	1.24

This quickly illustrates that Bicep II Magnum (5.5 L lb a.i./gal) contains 2.4 lb a.i./gal of s-metolachlor and 3.1 lb a.i./gal of atrazine, and that Bicep II Magnum applied at a rate of 2.2 lb a.i./A is equivalent to an application of s-metolachlor at 0.96 lb a.i./A and atrazine at 1.24 lb a.i./A.

When analyzing the information in this report, we strongly urge you to read carefully the site description section of each study. We trust you will find the information in this report useful and accurate.

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## WEED INDEX

<u>Common Name</u>	<u>WSSA Code</u>	<u>Scientific Name</u>	<u>Trial</u>
Amaranth, Palmer	AMAPA	Amaranthus palmeri S.Wats.	Corn1, 2, 3, 5, 7, 9a, 10a, 12, 13, SCRNI, 4, Milo2, DSB2, 3, 7, 8, 15, Soy1, 2, 3, 5a, 9, 10, 11, 12, 13, 14, 15, 19, 20, 25, 27, 28, 40, Bean4, Lima2, 4, MELN3, NonCrp1, Pmkn1, Swpot1, 2, 3, Tom1, 2, Veg5b, 8
Barley	HORVX	Hordeum vulgare L.	DSB2
Bluegrass, Annual	POAAN	Poa annua L.	SG7, 21, 21a, 21c
Buttercup, Tall	RANAC	Ranunculus acris L.	For1
Carpetweed	MOLVE	Mollugo verticillata L.	Corn9a, 11, Soy10, Lima2, SwPot1, Tom2, Veg8
Chickweed, Common	STEME	Stellaria media (L.) Vill./cyr.	SG2, 4, 5a, 7, 8, 21a, 23, 25a
Chickweed, Jagged	HLOUM	Holosteum umbellatum L.	SG1, 5a, 19
Chickweed, Mouseear	CERVU	Cerastium vulgatum L.	For1, SG1, 4, 7, 19, 24, 29
Clover, Crimson	TRFIE	Trifolium incarnatum L.	Cover7, 8
Clover, Dutch White	TRFRE	Trifolium repens L.	For1
Cocklebur, Common	XANST	Xanthium strumariumL.	Corn11
Cornflower	CENCY	Centaurea cyanus L.	SG25a
Crabgrass, Large	DIGSA	Digitaria sanguinalis (L.) Scop.	Corn1, 2, 3, 5, 7, 8a, 8b, 10a, 12, SCRNI, 4, Milo2, For1, 2, 3, DSB2, 3, 7, 8, 9, Soy1, 3, 11, 12, 13, 25, 26, 28, 40, Pmkn1
Dock, Curly	RUMCR	Rumex crispus L.	For2, 3, DSB2

<u>Common Name</u>	<u>WSSA Code</u>	<u>Scientific Name</u>	<u>Trial</u>
E.primrose, Cutleaf	OEOLA	Oenothera laciniata Hill	Cover3, SG8, 19, DSB2, Soy13, 28, NonCrp1, Veg5b
Filaree, Redstem	EROCI	Erodium cicutarium (L)L'H?r	DSB2, Veg5b
Foxtail, Giant	SETFA	Setaria faberi Herm.	Soy14, 19
Goosegrass	ELEIN	Elusine indica (L) Gaertn.	Soy12, 13, MELN3, SwPot1, 2, Tom1, 2
Grape-hyacinth	MUSBO	Muscari botryoides (L) Mill.	Soy29
Grass, Annual	GGGAN		Corn9a, 11, SCR4, Soy19, 20, 26, 27, Bean4, MELN3, Tom1, 2
Henbit	LAMAM	Lamium amplexicaule L.	Cover3, SG1, 4, 5a, 7, 8, 19, 20, 21a, DSB2
Horsenettle	SOLCA	Solanum carolinense L.	For2, 3, Lima3c
Horseweed	ERICA	Erigeron canadensis L.	Cover3, 7, 8, SG24, DSB2, 3, 9, Soy4, 21, 25, NonCrp1
Knawel	SCRAN	Scleranthus annuus L.	Cover3, SG1, 2, 8, DSB2
Lambsquarters, Cmn.	CHEAL	Chenopodium album L.	Corn8b, SCR1, DSB15
Morningglory Species	IPOSS	Ipomoea ssp.	Corn1, 2, 3, 5, 7, 8a, 9a, 10a, 11, 12, 13, SCR1, 4, Milo1, 2, DSB2, 3, 8, 15, Soy1, 2, 3, 5a, 9, 10, 11, 12, 13, 14, 15, 19, 20, 25, 26, 27, 28, 40, Bean4, Lima4, MELN3, SwPot1, 2, Tom1, 2, Veg5b
Nutsedge, Yellow	CYPES	Cyperus esculentus L.	Corn1, For2, 3, DSB2, Soy12, SwPot2
Panicum, Fall	PANDI	Panicum dichotomiflorum (L.) Michx.	Corn8a, Soy13, 40, SwPot1, 2

<b><u>Common Name</u></b>	<b><u>WSSA Code</u></b>	<b><u>Scientific Name</u></b>	<b><u>Trial</u></b>
Pansy, Field	VIORA	Viola rafinesquii Greene	SG1, 2, 4, 7, 8, 19, 20, DSB2, Soy13, 21
Pepperweed, Virginia	LEPVI	Lepidium virginicum L.	Soy13
Pigweed, Smooth	AMACH	Amaranthus hybridus L.	Corn8b
Plantain, Buckhorn	PLALA	Plantago lanceolate L.	For1
Purselane, Common	POROL	Portulaca oleracea L.	Corn8b
Ragweed, Common	AMBEL	Ambrosia elatior L.	Corn8a, 9a, 11, DSB2, Soy15, 21, 22, 23, 24, 27, 28, MELN3
Ryegrass, Annual	LOLMU	Lolium multiflorum Lam.	Cover3, SG13, 21
Speedwell, Ivyleaf	VERHE	Veronica, hederifolia L.	SG19, 20, 21a
Speedwell, Purselane	VERPG	Veronica, peregrina L.	Soy13
Stinkgrass	ERAME	Eragrostis cilianensis (All.) Vignlo ex Janch	Meln3, Tom1, 2, Veg5b
Vetch, Hairy	VICVI	Vicia villosa Roth	SG2, 4, 7, 8, DSB2
Woodsorrel, Yellow	OXAST	Oxalis stricta L.	For2

## CHEMICAL INDEX

<u>Trade Name</u>	<u>Common Name</u>	<u>Trial</u>
A16003	“experimental”	SwPot2
A21472 Premix	“experimental”	Soy14
Accent Q	nicosulfuron	SCRN4
Acuron Flexi Premix	bicyclopyrone + mesotrione + s-metolachlor	Corn2, 5, 8a, 8b
Acuron Premix	atrazine + bicyclopyrone + mesotrione + s-metolachlor	Corn2, 5, 8a, 8b, 12, SCRN4, Milo3, Cover7, 8
Afforia Premix	flumioxazin + thifensulfuron + tribenuron	SG1, 5a, 5b, Soy28
Aim	carfentrazone	DSB9, Soy29, SwPot2
Alion	indaziflam	For1
Anthem Flexx Premix	pyroxasulfone + carfentrazone	SG1, 4
Anthem Maxx Premix	pyroxasulfone + fluthiacet	Corn12, SCRN2, Soy26, 27
Anthem Premix	pyroxasulfone + fluthiacet	DSB9, Lima2
Armezon Pro Premix	topramezone + dimethenamid-p	SCRN4
Atrazine	atrazine	Corn3, 5, 7, 8a, 8b, 9a, 10a, 11, 12, 13, SCRN1, 4, Milo1, 2, 3
Authority Elite Premix	sulfentrazone + s-metolachlor	Soy10, 20, 26
Authority First Premix	sulfentrazone + cloransulam	Soy5a, 10, 26
Authority MTZ Premix	sulfentrazone + metribuzin	SG4, DSB7, 9, Soy5a, 10, 11, 26, 27, Tom2
Authority XL Premix	sulfentrazone + chlorimuron	DSB7, Soy5a, 11, 26, 27
Avenger AG	d-limonene	SwPot3
Axial XL	pinoxaden	SG13
Axiom Premix	flufenacet + metribuzin	SG1, 8, 13, 21a
Balance Flexx	isoxaflutole	Corn1, 7
Basagran	bentazon	SCRN1, Soy24, Bean4, Lima3c
Basis Blend Premix	rimsulfuron + thifensulfuron	Milo2, Soy3

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Bicep II Magnum Premix	s-metolachlor + atrazine	Corn7, 8a, 8b, 9a, 10a, 13, SCR2, 4, Milo3, Cover7
Boundary Premix	s-metolachlor + metribuzin	Soy1, 2, 5a, 8a, 8b, 15, 20
BroadAxe Premix	sulfentrazone + s-metolachlor	Soy2
Buctril	bromoxynil	Milo1
Cadet	fluthiacet	SCR1
Callisto	mesotrione	Corn5, 10a, 11, 13, DSB7
Canopy Blend Premix	chlorimuron + metribuzin	Soy3
Canopy EX Premix	chlorimuron + tribenuron	DSB2
Canopy Premix	chlorimuron + metribuzin	DSB2, 7, 9, Soy1, 4, 5a, 8a, 8b, 10, 11
Capreno Premix	tembotrione + thiencazone + isoxadifen	Corn1, 7
Cinch ATZ Premix	s-metolachlor + atrazine	SCR4, Milo2
Cinch	s-metolachlor	Soy12, 13
Clarity	dicamba	Milo1, For1, SG2, 12, 20, 24, Soy4, 12, 13, 14, 19, 20, 26, 28, 29
Classic	chlorimuron	Soy1, 9, 22, 28
Cobra	lactofen	Soy12,13, 22, 40
Command	clomazone	Soy23, 26, 27, Lima2, 4, Pmkn1, SwPot2
Corvus Premix	thiencazone + isoxaflutole	Corn2, 7, 8a, 8b, 12
Curbit	ethalfluralin	Pmkn1
Devrinol 2-XT	napropamide	SwPot2, Tom2
DiFlexx	dicamba	Corn7, Milo1
Diligent Premix	flumioxazin + rimsulfuron + chlorimuron	Soy3
Dual II Magnum	s-metolachlor	Corn11, SCR1, Milo3, Veg8
Dual Magnum	s-metolachlor	Soy1, Bean4, Lima2, 4, MELN3, SwPot1, 2, Tom1, 2, Veg9I, 9p

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Durango DMA	glyphosate	Corn3, Soy2
Engenia	dicamba	Soy25
Enlite	chlorimuron + flumioxazin + thifensulfuron	Soy12, 13
Envive Premix	chlorimuron + flumioxazin + thifensulfuron	DSB3, Soy3, 8a, 8b, 12, 13, 25, 28
Facet L	quinclorac	Milo1, For3
Fierce Premix	flumioxazin + pyroxasulfone	Milo3, Soy5a, 10, 19, 20
Fierce XLT Premix	flumioxazin + pyroxasulfone + chlorimuron	Soy5a, 20
Finale	glufosinate	NonCrp1
Finesse Premix	chlorsulfuron + metsulfuron	SG20, Soy29
FirstRate	cloransulam	Soy2, 22, 40, Lima3c
Flexstar	fomesafen	Soy14, 26
Flexstar GT Premix	fomesafen + glyphosate	DSB15, Soy2
Glory	metribuzin	SG1, 2, 8, 19, 21a, 21c, 24, 25a
Glyphosate	glyphosate	SG21
Gramoxone SL	paraquat	Corn13, Cover7, DSB2, 7, 9, Soy4, 21, 29, MELN3, Tom1, 2
Halex GT Premix	s-metolachlor + glyphosate + mesotrione	Corn3, 5, 10a, 11, 12, 13
Harmony Extra SG Premix	thifensulfuron + tribenuron	SG2, 4, 7, 8, 13, 19, 20, 23, 24, 25a, 29
Harmony SG	thifensulfuron	Soy7, 28
Harness Xtra 5.6L Premix	acetochlor + atrazine	Corn3, 9a, 10a
Hornet WDG Premix	flumetsulam + clopyralid	Corn3, 12
Huskie Premix	pyrasulfotole + bromoxynil	Milo1, SG2, 4, 8, 19, 20, 24, 25a, 29, Soy29
Impact	topramezone	Corn3, 11, SCR1, 4
Instigate Premix	rimsulfuron + mesotrione	Corn2, 8a, 8b

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Interline	glufosinate	Soy15, 24
Keystone LA NXT Premix	acetochlor + atrazine	Corn3
Keystone NXT Premix	acetochlor + atrazine	Corn3
KFD-195-02	“experimental”	Soy15
KFD-240-01	“experimental”	Soy15
Lexar EZ Premix	s-metolachlor + mesotrione + atrazine	Corn8a, 8b, 9a, 13, Cover8
Liberty 280	glufosinate	Corn1, SCR1, 4, DSB7, 8, 9, Soy4, 10, 11, 24, 27
Linex / Lorox	linuron	Soy23, SwPot1
Lumax EZ Premix	s-metolachlor + mesotrione + atrazine	Corn8a, 8b, 9a, 10a, 13, SCR1, Milo3, Cover8
Matrix	rimsulfuron	Tom2
Maverick	sulfosulfuron	SG21, Soy29
Method	aminocyclopyrachlor	NonCrp1
Metribuzin	metribuzin	SG4, 7, 20, 23, DSB15, Soy1, 2, 5a, 9, 10, 25
Metsulfuron	metsulfuron	For1, Soy7, 29
MON 76980	“experimental”	Soy40
Olympus Flex Premix	mesosulfuron + propoxycarbazone	SG21c
Olympus	propoxycarbazone	SG21c
Osprey	mesosulfuron	SG2, 4, 8, 13, 20, 21, 21c
Outlook	dimethenamid-p	Soy25, Bean4, Veg9l, 9p
Permit	halosulfuron	Milo1
PowerFlex HL	pyroxsulam	SG2, 7, 13, 19, 20, 21, 21c
Prefix Premix	s-metolachlor + fomesafen	Soy2, 5a
Prequel Premix	rimsulfuron + isoxaflutole	Corn8a, 8b
Prowl H <sub>2</sub> O	pendimethalin	Corn7, 8a, 8b, 9a, 10a, 13, SCR1, 4, For1, 2, 3, Tom1, Veg9l, 9p

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Pursuit	imazethapyr	Lima2, 4
Quelex Premix	florasulam + halauxifen	SG2, 7, 19, 20, 23, 24, 25a, 29, Soy29
Raptor	imazamox	DSB8, Lima3c
Razor Pro	glyphosate	NonCrp1
Realm Q Premix	rimsulfuron + mesotrione	Corn10a
Reflex	fomesafen	Soy3, 12, 13, 22, 24, 25, 27, Bean4, MELN1, 3, Pmkn1, 3, SwPot1, Tom2, Veg5b
Reglone	diquat	Tom1, 2
Rely 280	glufosinate	MELN3
Resicore Premix	acetochlor + mesotrione + clopyralid	Corn2, 8a, 8b, SCR4
Resolve SG	rimsulfuron	Corn9a, 10a
Revulin Q Premix	nicosulfuron + mesotrione	SCR4
Roundup PowerMax	glyphosate	Corn3, 5, 11, 12, Cover7, 8, SG5a, DSB3, 7, 8, 9, Soy2, 3, 4, 7, 12, 13, 14, 19, 20, 21, 25, 26, 28, 29, 40
Roundup WeatherMax	glyphosate	Corn7, 10a, 13, SG1, DSB2
Rowel	flumioxazin	Soy20, 26
Sandea	halosulfuron	For1, Lima3c, Pmkn1, Tom1
Satellite Hydro	pendimethalin	Soy15
Scepter	imazaquin	Soy1
Select Max	clethodim	Soy40, Pmkn1
Sentrallis Premix	thifensulfuron + fluroxypyr	SG23, Soy7
Sequence Premix	glyphosate + s-metolachlor	Soy2
Sharpen	saflufenacil	SCR1, Milo3, For1, SG1, 5a, 5b, 21, DSB9, Soy4
Simazine	simazine	Corn9a, 13
Solstice Premix	fluthiacet + mesotrione	Corn12, SCR4



<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Sonic Premix	sulfentrazone + cloransulam	Soy2
SP1171	fluridone	SwPot1
Spartan Charge Premix	carfentrazone + sulfentrazone	Lima2, 4
Spartan	sulfentrazone	DSB15, Soy9, 21, 22, 23, Tom1
Starane Ultra	fluroxypyr	SCRN1, Milo1, SG2, 12, 19, 24, 25a
Status Premix	diflufenzopyr + dicamba + safener	Corn3, 10a, 11
Steadfast Q Premix	nicosulfuron + rimsulfuron + safener	Corn11
Stinger	clopyralid	Cover7
Storm Premix	bentazon + acifluorfen	DSB8
SureStart II Premix	acetochlor + clopyralid + flumetsulam	Corn2, 3, 8a, 8b
Surpass NXT	acetochlor	Corn11
Surveil Premix	cloransulam + flumioxazin	Soy2
Synchrony XP Premix	chlorimuron + thifensulfuron	DSB8, Soy3
Talinor Premix	bicyclopyrone + bromoxynil	SG24, 29
Tolpyralate	tolpyralate	Corn11, Lima2, SwPot1, Veg5b
Travallas Premix	metsulfuron + thifensulfuron + fluroxypyr	SG23, Soy7
Tricor DF	metribuzin	Cover7, DSB7, 9, Soy5a, 15, 21, 22, 23, 28, Tom2
Trivence Premix	chlorimuron + metribuzin + flumioxazin	Soy2, 3, 5a, 12, 13, 27, 28
Ultra Blazer	acifluorfen	DSB8, Soy22
Unison	2,4-D acid	Soy20
Valor SX	flumioxazin	SG1, 5a, 5b, 13, DSB2, 7, 9, 15, Soy1, 3, 4, 5a, 9, 10, 19, 21, 22, 23, 28, SwPot1, 2
Valor XLT Premix	flumioxazin + chlorimuron	DSB7, Soy5a, 10, 11
Verdict Premix	saflufenacil + dimethenamid-p	Corn2, 5, 9a, 12, SCR4
Warrant	acetochlor	Soy19, 20, 26, 40, Bean4

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Warrant Ultra Premix	acetochlor + fomesafen	Soy14, 40
Zest	nicosulfuron	Milo2
Zidua	pyrooxasulfone	Corn5, 7, 9a, SCR1, 4, Milo3, SG1, 13, 21, 21a, DSB15, Soy5a, 19, 25, 28, Bean4
2,4-D amine	2,4-D amine	For1, SG2, 12, 20, 24
2,4-D ester	2,4-D ester	Cover7, SG7, 23, 25a, DSB2, 3, Soy4, 13, 21, 25, 28

Daily Weather Data 09/01/15 to 11/30/16  
 University of Delaware Research and Education Center  
 Georgetown, Delaware

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm	
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Cloud	Soil		Temp	Scaled Soil	Scaled Soil
											Cover	Temp		Moisture	Moisture	
9/1/2015	0.23	IN	rain	68	91	F	77	1	16	7	mph	40	80	F	0.26	0.27
9/2/2015	0	IN	rain	70	90	F	73	1	16	8	mph	38	80	F	0.25	0.26
9/3/2015	0	IN	rain	71	92	F	70	1	12	7	mph	21	81	F	0.24	0.24
9/4/2015	0	IN	rain	69	89	F	77	5	15	10	mph	33	80	F	0.22	0.23
9/5/2015	0	IN	rain	65	80	F	73	5	18	11	mph	42	78	F	0.21	0.22
9/6/2015	0	IN	rain	63	82	F	79	3	10	7	mph	26	76	F	0.19	0.21
9/7/2015	0	IN	rain	62	89	F	73	0	12	6	mph	22	77	F	0.18	0.19
9/8/2015	0	IN	rain	66	91	F	71	5	13	8	mph	10	79	F	0.16	0.18
9/9/2015	0	IN	rain	74	91	F	76	4	10	7	mph	28	82	F	0.15	0.17
9/10/2015	1.63	IN	rain	71	80	F	87	5	12	8	mph	66	80	F	0.42	0.2
9/11/2015	0	IN	rain	64	78	F	83	4	12	8	mph	68	76	F	0.56	0.24
9/12/2015	0.69	IN	rain	61	77	F	92	4	11	8	mph	73	74	F	0.63	0.26
9/13/2015	0	IN	rain	59	71	F	74	4	13	8	mph	62	71	F	0.66	0.28
9/14/2015	0	IN	rain	54	75	F	62	5	15	10	mph	2	67	F	0.51	0.27
9/15/2015	0	IN	rain	52	82	F	64	0	11	5	mph	2	68	F	0.43	0.25
9/16/2015	0	IN	rain	56	85	F	65	1	9	5	mph	17	70	F	0.36	0.22
9/17/2015	0	IN	rain	59	84	F	68	1	10	6	mph	24	71	F	0.3	0.19
9/18/2015	0	IN	rain	56	83	F	76	1	11	5	mph	7	72	F	0.24	0.17
9/19/2015	0	IN	rain	61	86	F	77	2	13	6	mph	41	74	F	0.21	0.15
9/20/2015	0	IN	rain	63	75	F	80	1	15	8	mph	75	73	F	0.18	0.14
9/21/2015	0	IN	rain	65	72	F	71	7	18	12	mph	86	71	F	0.16	0.13
9/22/2015	0	IN	rain	66	73	F	77	7	16	12	mph	96	71	F	0.15	0.13
9/23/2015	0	IN	rain	57	75	F	71	6	16	11	mph	40	71	F	0.13	0.12
9/24/2015	0	IN	rain	55	76	F	75	5	19	11	mph	29	68	F	0.12	0.11
9/25/2015	0	IN	rain	64	74	F	74	7	21	13	mph	76	70	F	0.11	0.11
9/26/2015	0	IN	rain	66	72	F	66	12	22	16	mph	71	71	F	0.09	0.1
9/27/2015	0	IN	rain	66	74	F	78	8	17	12	mph	79	71	F	0.07	0.09
9/28/2015	0	IN	rain	66	82	F	85	5	13	8	mph	79	73	F	0.07	0.08

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm	
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Unit	Cloud		Soil	Scaled Soil	Scaled Soil
											Cover	Temp		Moisture	Moisture	
9/29/2015	1.26	IN	rain	69	83	F	88	4	15	10	mph	86	76	F	0.13	0.08
9/30/2015	0.04	IN	rain	66	79	F	91	5	13	9	mph	98	77	F	0.7	0.2
10/1/2015	0.82	IN	rain	57	66	F	93	10	20	14	mph	100	67	F	0.74	0.22
10/2/2015	1.84	IN	rain	55	59	F	96	15	30	20	mph	100	62	F	1	0.43
10/3/2015	0.55	IN	rain	58	64	F	98	18	26	22	mph	99	63	F	0.95	0.51
10/4/2015	0.05	IN	rain	57	62	F	88	16	25	21	mph	94	63	F	0.86	0.52
10/5/2015	0	IN	rain	54	62	F	82	5	18	12	mph	92	62	F	0.76	0.52
10/6/2015	0	IN	rain	50	71	F	78	2	9	6	mph	13	62	F	0.7	0.51
10/7/2015	0	IN	rain	54	72	F	81	1	12	7	mph	24	64	F	0.64	0.5
10/8/2015	0	IN	rain	52	74	F	81	1	11	5	mph	31	65	F	0.6	0.49
10/9/2015	0.2	IN	rain	59	80	F	81	5	20	11	mph	43	68	F	0.6	0.48
10/10/2015	0	IN	rain	46	63	F	76	4	13	8	mph	57	64	F	0.69	0.49
10/11/2015	0	IN	rain	41	68	F	76	1	9	5	mph	10	60	F	0.61	0.48
10/12/2015	0	IN	rain	45	75	F	75	0	10	5	mph	8	61	F	0.57	0.47
10/13/2015	0.07	IN	rain	60	77	F	79	2	15	9	mph	32	66	F	0.55	0.47
10/14/2015	0	IN	rain	53	69	F	70	2	12	7	mph	59	64	F	0.51	0.46
10/15/2015	0	IN	rain	45	66	F	71	2	12	7	mph	12	59	F	0.48	0.45
10/16/2015	0	IN	rain	45	64	F	70	3	10	7	mph	35	58	F	0.45	0.44
10/17/2015	0	IN	rain	39	58	F	70	2	13	7	mph	42	54	F	0.43	0.43
10/18/2015	0.02	IN	rain	37	51	F	68	4	12	7	mph	37	50	F	0.4	0.42
10/19/2015	0	IN	rain	33	53	F	70	1	9	6	mph	8	49	F	0.38	0.41
10/20/2015	0	IN	rain	39	68	F	67	5	16	10	mph	6	52	F	0.36	0.4
10/21/2015	0	IN	rain	41	74	F	68	5	13	8	mph	6	56	F	0.35	0.39
10/22/2015	0	IN	rain	48	76	F	70	4	13	9	mph	10	59	F	0.35	0.38
10/23/2015	0	IN	rain	48	65	F	66	3	12	8	mph	19	60	F	0.34	0.37
10/24/2015	0	IN	rain	41	63	F	79	3	12	7	mph	42	56	F	0.33	0.36
10/25/2015	0.01	IN	rain	54	65	F	81	2	13	8	mph	85	59	F	0.31	0.36
10/26/2015	0	IN	rain	40	57	F	70	5	14	9	mph	47	55	F	0.29	0.34
10/27/2015	0	IN	rain	39	62	F	84	4	15	9	mph	82	53	F	0.25	0.32
10/28/2015	0.63	IN	rain	60	71	F	90	9	19	15	mph	98	63	F	0.41	0.32
10/29/2015	0.01	IN	rain	56	75	F	71	1	17	10	mph	70	68	F	0.48	0.32
10/30/2015	0	IN	rain	43	60	F	58	3	14	8	mph	15	57	F	0.4	0.3

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm	
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Cloud	Soil		Temp	Scaled Soil	Scaled Soil
											Cover	Temp		Moisture	Moisture	
10/31/2015	0	IN	rain	37	61	F	70	3	7	5	mph	18	55	F	0.36	0.29
11/1/2015	0	IN	rain	51	67	F	81	6	19	11	mph	83	57	F	0.34	0.29
11/2/2015	0	IN	rain	50	63	F	82	2	12	7	mph	88	60	F	0.32	0.29
11/3/2015	0	IN	rain	40	71	F	75	2	8	4	mph	7	57	F	0.29	0.28
11/4/2015	0	IN	rain	43	75	F	79	1	13	6	mph	18	57	F	0.25	0.28
11/5/2015	0.04	IN	rain	54	72	F	93	3	11	7	mph	89	62	F	0.37	0.29
11/6/2015	0	IN	rain	64	77	F	87	5	18	11	mph	64	68	F	0.44	0.3
11/7/2015	0.29	IN	rain	53	70	F	85	4	11	7	mph	88	64	F	0.48	0.3
11/8/2015	0	IN	rain	38	56	F	66	2	10	6	mph	34	54	F	0.47	0.3
11/9/2015	0.18	IN	rain	36	60	F	84	2	13	7	mph	81	50	F	0.45	0.29
11/10/2015	1.87	IN	rain	58	65	F	97	1	18	10	mph	99	61	F	1	0.52
11/11/2015	0.01	IN	rain	49	60	F	84	4	14	9	mph	78	58	F	0.78	0.57
11/12/2015	0.04	IN	rain	46	63	F	87	3	14	9	mph	54	56	F	0.69	0.55
11/13/2015	0	IN	rain	49	61	F	49	5	21	12	mph	8	54	F	0.63	0.54
11/14/2015	0	IN	rain	36	53	F	47	6	17	10	mph	16	48	F	0.59	0.52
11/15/2015	0	IN	rain	30	61	F	63	3	14	8	mph	3	46	F	0.57	0.51
11/16/2015	0	IN	rain	42	68	F	54	3	11	6	mph	2	50	F	0.55	0.51
11/17/2015	0	IN	rain	42	59	F	77	3	16	9	mph	34	50	F	0.52	0.5
11/18/2015	0	IN	rain	47	66	F	79	4	17	9	mph	71	55	F	0.5	0.49
11/19/2015	0.52	IN	rain	59	66	F	88	3	30	15	mph	97	60	F	0.66	0.5
11/20/2015	0	IN	rain	34	65	F	63	6	36	19	mph	19	55	F	0.8	0.55
11/21/2015	0	IN	rain	35	56	F	71	8	27	17	mph	39	48	F	0.64	0.54
11/22/2015	0.06	IN	rain	39	53	F	70	6	22	15	mph	84	49	F	0.63	0.54
11/23/2015	0	IN	rain	28	41	F	55	14	26	20	mph	8	40	F	0.59	0.54
11/24/2015	0	IN	rain	24	52	F	64	1	22	8	mph	24	39	F	0.55	0.53
11/25/2015	0	IN	rain	29	57	F	77	2	14	7	mph	4	43	F	0.51	0.53
11/26/2015	0	IN	rain	38	67	F	85	1	17	8	mph	10	48	F	0.48	0.52
11/27/2015	0	IN	rain	40	68	F	85	1	13	8	mph	31	50	F	0.45	0.51
11/28/2015	0	IN	rain	48	70	F	81	2	15	8	mph	60	53	F	0.43	0.5
11/29/2015	0.12	IN	rain	45	58	F	91	5	16	9	mph	100	51	F	0.51	0.5
11/30/2015	0.07	IN	rain	44	53	F	80	14	26	19	mph	98	48	F	0.48	0.5
12/1/2015	0.55	IN	rain	54	59	F	95	2	27	14	mph	99	55	F	0.87	0.56

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm	
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Cloud	Soil		Scaled Soil	Scaled Soil	
											Cover	Temp		Moisture	Moisture	
12/2/2015	0.03	IN	rain	54	61	F	93	5	18	11	mph	100	57	F	0.74	0.6
12/3/2015	0	IN	rain	40	56	F	63	6	20	12	mph	35	50	F	0.72	0.62
12/4/2015	0	IN	rain	33	51	F	70	3	11	7	mph	5	44	F	0.59	0.6
12/5/2015	0	IN	rain	30	52	F	79	2	9	6	mph	0	41	F	0.54	0.58
12/6/2015	0	IN	rain	28	54	F	80	2	8	5	mph	13	41	F	0.51	0.56
12/7/2015	0	IN	rain	31	52	F	82	5	14	9	mph	63	42	F	0.48	0.55
12/8/2015	0	IN	rain	31	51	F	72	5	18	12	mph	8	43	F	0.43	0.53
12/9/2015	0	IN	rain	29	59	F	84	2	26	14	mph	38	44	F	0.37	0.51
12/10/2015	0	IN	rain	42	64	F	82	1	23	10	mph	36	50	F	0.3	0.49
12/11/2015	0	IN	rain	41	64	F	87	4	18	11	mph	26	50	F	0.25	0.47
12/12/2015	0	IN	rain	45	72	F	85	3	18	9	mph	40	53	F	0.23	0.46
12/13/2015	0	IN	rain	55	71	F	90	3	16	10	mph	65	57	F	0.25	0.45
12/14/2015	0.02	IN	rain	55	72	F	83	12	23	17	mph	77	61	F	0.28	0.44
12/15/2015	0	IN	rain	49	69	F	63	6	18	12	mph	29	61	F	0.27	0.43
12/16/2015	0	IN	rain	39	53	F	79	1	9	6	mph	59	51	F	0.24	0.42
12/17/2015	1.43	IN	rain	41	60	F	97	4	16	8	mph	91	52	F	0.67	0.45
12/18/2015	0.01	IN	rain	38	54	F	76	4	16	9	mph	86	50	F	0.71	0.51
12/19/2015	0	IN	rain	29	41	F	57	6	19	13	mph	26	40	F	0.53	0.5
12/20/2015	0	IN	rain	28	44	F	60	4	13	8	mph	10	37	F	0.45	0.5
12/21/2015	0	IN	rain	32	58	F	78	7	37	19	mph	68	44	F	0.38	0.49
12/22/2015	0.49	IN	rain	56	63	F	89	9	33	22	mph	99	55	F	0.79	0.53
12/23/2015	1.42	IN	rain	57	69	F	95	3	32	15	mph	100	58	F	1	0.65
12/24/2015	0.68	IN	rain	64	71	F	91	14	28	21	mph	91	66	F	1	0.81
12/25/2015	0.05	IN	rain	66	72	F	90	6	22	13	mph	94	67	F	0.86	0.87
12/26/2015	0	IN	rain	53	67	F	87	5	34	19	mph	97	60	F	0.69	0.86
12/27/2015	0.11	IN	rain	53	71	F	90	4	30	21	mph	74	61	F	0.61	0.86
12/28/2015	0.09	IN	rain	43	57	F	75	11	27	17	mph	97	52	F	0.6	0.87
12/29/2015	0.41	IN	rain	49	62	F	92	3	19	10	mph	96	56	F	0.81	0.93
12/30/2015	0	IN	rain	46	57	F	94	5	12	7	mph	90	54	F	0.6	0.93
12/31/2015	0.05	IN	rain	43	59	F	83	3	9	6	mph	96	54	F	0.56	0.91
1/1/2016	0	IN	rain	34	44	F	72	3	13	8	mph	77	46	F	0.48	0.86
1/2/2016	0	IN	rain	28	45	F	71	2	15	8	mph	6	40	F	0.41	0.8

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Cloud	Soil		Temp	Scaled Soil
		Unit									Cover	Temp	Unit	Moisture	Moisture
1/3/2016	0	IN	rain	28	52	F	69	5	13	8	mph	3	F	0.37	0.75
1/4/2016	0	IN	rain	19	36	F	52	5	28	15	mph	35	F	0.32	0.72
1/5/2016	0	IN	rain	15	30	F	45	3	28	14	mph	16	F	0.29	0.69
1/6/2016	0	IN	rain	13	42	F	55	1	12	6	mph	22	F	0.26	0.65
1/7/2016	0	IN	rain	32	50	F	67	2	17	10	mph	86	F	0.24	0.61
1/8/2016	0	IN	rain	40	50	F	85	9	17	14	mph	93	F	0.23	0.58
1/9/2016	0	IN	rain	42	57	F	92	6	20	13	mph	94	F	0.18	0.54
1/10/2016	0.57	IN	rain	42	64	F	74	2	30	18	mph	68	F	0.59	0.6
1/11/2016	0	IN	rain	24	40	F	45	3	30	18	mph	5	F	0.35	0.58
1/12/2016	0	IN	rain	22	48	F	53	2	20	12	mph	43	F	0.22	0.56
1/13/2016	0	IN	rain	21	32	F	40	1	19	12	mph	11	F	0.13	0.54
1/14/2016	0	IN	rain	20	51	F	49	3	14	8	mph	37	F	0.1	0.52
1/15/2016	1.19	IN	rain	35	56	F	69	3	14	9	mph	56	F	0.33	0.51
1/16/2016	0.21	IN	rain	43	53	F	80	5	17	11	mph	86	F	0.6	0.71
1/17/2016	0.2	IN	rain	28	43	F	84	2	11	7	mph	85	F	0.52	0.71
1/18/2016	0	IN	rain	18	32	F	59	5	20	14	mph	30	F	0.45	0.7
1/19/2016	0	IN	rain	15	26	F	44	10	21	15	mph	6	F	0.42	0.67
1/20/2016	0	IN	rain	20	31	F	58	5	12	8	mph	36	F	0.41	0.64
1/21/2016	0	IN	rain	23	34	F	69	5	12	8	mph	33	F	0.39	0.61
1/22/2016	0.4	IN	rain	22	30	F	71	3	23	10	mph	70	F	0.37	0.58
1/23/2016	1.5	IN	rain	28	37	F	94	21	40	30	mph	99	F	0.95	0.74
1/24/2016	0.04	IN	rain	23	32	F	65	3	25	12	mph	28	F	0.91	0.81
1/25/2016	0	IN	rain	16	41	F	78	1	10	7	mph	18	F	0.91	0.8
1/26/2016	0	IN	rain	37	52	F	67	8	19	13	mph	41	F	0.88	0.78
1/27/2016	0.02	IN	rain	29	51	F	67	5	14	8	mph	58	F	0.59	0.72
1/28/2016	0	IN	rain	23	44	F	79	3	12	6	mph	41	F	0.46	0.67
1/29/2016	0.01	IN	rain	31	42	F	68	3	19	11	mph	55	F	0.35	0.64
1/30/2016	0	IN	rain	26	44	F	61	3	14	10	mph	2	F	0.3	0.62
1/31/2016	0	IN	rain	38	61	F	61	9	15	12	mph	30	F	0.25	0.61
2/1/2016	0	IN	rain	47	63	F	63	5	17	12	mph	47	F	0.23	0.61
2/2/2016	0	IN	rain	36	50	F	66	5	13	8	mph	11	F	0.26	0.6
2/3/2016	0.22	IN	rain	38	68	F	87	5	25	13	mph	84	F	0.34	0.59

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Unit	Cloud		Soil	Scaled Soil
											Cover	Temp	Unit	Moisture	Moisture
2/4/2016	0.4	IN	rain	41	61	F	86	3	17	9	mph	100	F	0.52	0.63
2/5/2016	0.62	IN	rain	33	42	F	79	4	17	11	mph	70	F	0.57	0.73
2/6/2016	0	IN	rain	27	43	F	71	1	11	6	mph	18	F	0.48	0.73
2/7/2016	0	IN	rain	26	42	F	76	1	16	8	mph	69	F	0.42	0.71
2/8/2016	0.11	IN	rain	35	43	F	75	3	17	10	mph	95	F	0.38	0.71
2/9/2016	0.59	IN	rain	35	40	F	92	2	9	7	mph	96	F	0.51	0.73
2/10/2016	0.04	IN	rain	29	37	F	68	7	17	11	mph	86	F	0.48	0.76
2/11/2016	0	IN	rain	22	28	F	44	11	20	16	mph	30	F	0.41	0.73
2/12/2016	0.03	IN	rain	15	29	F	57	2	12	7	mph	49	F	0.38	0.7
2/13/2016	0	IN	rain	16	24	F	51	5	25	18	mph	40	F	0.36	0.66
2/14/2016	0	IN	rain	12	23	F	39	2	19	11	mph	22	F	0.34	0.61
2/15/2016	0.64	IN	rain	19	44	F	90	4	13	7	mph	100	F	0.51	0.6
2/16/2016	0.73	IN	rain	39	59	F	81	6	23	14	mph	66	F	0.84	0.77
2/17/2016	0	IN	rain	32	46	F	73	2	13	7	mph	52	F	0.57	0.84
2/18/2016	0	IN	rain	28	38	F	64	5	15	9	mph	10	F	0.51	0.8
2/19/2016	0	IN	rain	20	41	F	65	3	15	8	mph	40	F	0.49	0.77
2/20/2016	0	IN	rain	40	62	F	59	6	18	13	mph	43	F	0.44	0.72
2/21/2016	0	IN	rain	47	65	F	74	2	18	8	mph	53	F	0.41	0.67
2/22/2016	0	IN	rain	38	50	F	70	3	16	9	mph	61	F	0.39	0.63
2/23/2016	0.37	IN	rain	39	47	F	94	4	16	11	mph	96	F	0.52	0.62
2/24/2016	0.74	IN	rain	44	65	F	93	4	29	16	mph	100	F	0.56	0.62
2/25/2016	0.02	IN	rain	42	63	F	57	8	21	17	mph	69	F	0.58	0.69
2/26/2016	0	IN	rain	32	42	F	46	5	22	15	mph	39	F	0.51	0.68
2/27/2016	0	IN	rain	25	42	F	52	5	12	8	mph	5	F	0.49	0.68
2/28/2016	0	IN	rain	31	61	F	57	6	18	12	mph	2	F	0.44	0.68
2/29/2016	0.01	IN	rain	43	65	F	46	5	19	15	mph	17	F	0.35	0.64
3/1/2016	0	IN	rain	35	62	F	63	4	19	11	mph	23	F	0.28	0.58
3/2/2016	0.21	IN	rain	32	64	F	53	8	23	16	mph	53	F	0.34	0.54
3/3/2016	0.13	IN	rain	27	40	F	51	1	13	7	mph	44	F	0.25	0.51
3/4/2016	0.49	IN	rain	31	36	F	87	2	20	10	mph	93	F	0.25	0.47
3/5/2016	0	IN	rain	29	40	F	63	1	8	6	mph	67	F	0.23	0.44
3/6/2016	0	IN	rain	27	45	F	77	1	8	5	mph	56	F	0.22	0.4



Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Unit	Cloud		Soil	Scaled Soil
											Cover	Temp	Unit	Moisture	Moisture
3/7/2016	0	IN	rain	29	58	F	68	2	21	11	mph	23	F	0.21	0.37
3/8/2016	0	IN	rain	47	73	F	52	1	8	6	mph	24	F	0.2	0.34
3/9/2016	0	IN	rain	50	75	F	61	6	15	9	mph	10	F	0.18	0.32
3/10/2016	0	IN	rain	58	76	F	63	9	18	13	mph	47	F	0.17	0.29
3/11/2016	0	IN	rain	50	70	F	58	3	16	9	mph	41	F	0.15	0.27
3/12/2016	0	IN	rain	39	59	F	73	2	10	6	mph	72	F	0.16	0.25
3/13/2016	0.09	IN	rain	49	55	F	82	2	14	8	mph	99	F	0.2	0.24
3/14/2016	0.09	IN	rain	46	53	F	95	6	15	10	mph	100	F	0.55	0.3
3/15/2016	0	IN	rain	44	56	F	90	4	12	7	mph	78	F	0.41	0.3
3/16/2016	0	IN	rain	41	68	F	81	4	14	8	mph	27	F	0.36	0.28
3/17/2016	0	IN	rain	43	68	F	69	0	15	7	mph	44	F	0.41	0.29
3/18/2016	0	IN	rain	41	63	F	49	4	17	9	mph	11	F	0.31	0.27
3/19/2016	0.13	IN	rain	37	50	F	67	3	17	10	mph	64	F	0.35	0.26
3/20/2016	0.36	IN	rain	35	43	F	86	6	20	13	mph	100	F	0.57	0.3
3/21/2016	0.14	IN	rain	33	49	F	65	4	19	10	mph	47	F	0.61	0.34
3/22/2016	0	IN	rain	30	58	F	57	2	16	10	mph	15	F	0.45	0.33
3/23/2016	0	IN	rain	49	70	F	49	5	16	11	mph	39	F	0.4	0.31
3/24/2016	0	IN	rain	52	73	F	58	7	23	14	mph	6	F	0.35	0.29
3/25/2016	0.03	IN	rain	53	73	F	70	6	22	14	mph	71	F	0.41	0.29
3/26/2016	0	IN	rain	44	55	F	65	4	11	8	mph	54	F	0.38	0.29
3/27/2016	0	IN	rain	47	52	F	88	4	14	10	mph	100	F	0.33	0.28
3/28/2016	0.31	IN	rain	48	68	F	70	4	26	12	mph	53	F	0.54	0.31
3/29/2016	0	IN	rain	39	57	F	44	9	21	15	mph	6	F	0.38	0.29
3/30/2016	0	IN	rain	34	60	F	47	4	17	10	mph	12	F	0.33	0.27
3/31/2016	0.03	IN	rain	50	73	F	63	13	25	18	mph	50	F	0.29	0.26
4/1/2016	0.65	IN	rain	65	75	F	78	8	19	15	mph	92	F	0.6	0.31
4/2/2016	0.96	IN	rain	49	69	F	85	3	14	8	mph	93	F	0.95	0.42
4/3/2016	0.05	IN	rain	38	50	F	42	6	31	21	mph	19	F	0.68	0.45
4/4/2016	0.17	IN	rain	41	69	F	59	4	23	15	mph	34	F	0.61	0.44
4/5/2016	0.02	IN	rain	31	43	F	53	7	21	15	mph	45	F	0.73	0.47
4/6/2016	0	IN	rain	27	55	F	60	4	19	12	mph	29	F	0.57	0.47
4/7/2016	0.33	IN	rain	49	62	F	75	9	23	16	mph	81	F	0.6	0.46

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Cloud	Soil		Temp	Scaled Soil
		Unit				Unit					Cover	Temp	Unit	Moisture	Moisture
4/8/2016	0	IN	rain	34	52	F	59	3	20	10	mph	35	F	0.57	0.47
4/9/2016	0.7	IN	rain	36	43	F	81	1	19	10	mph	88	F	0.71	0.48
4/10/2016	0	IN	rain	31	52	F	51	4	12	8	mph	11	F	0.65	0.51
4/11/2016	0.01	IN	rain	41	67	F	60	12	23	17	mph	42	F	0.54	0.49
4/12/2016	0.41	IN	rain	47	60	F	79	5	20	12	mph	71	F	0.72	0.52
4/13/2016	0	IN	rain	38	54	F	57	6	15	9	mph	2	F	0.61	0.53
4/14/2016	0	IN	rain	32	57	F	66	1	13	7	mph	4	F	0.53	0.5
4/15/2016	0	IN	rain	35	58	F	61	4	13	8	mph	1	F	0.48	0.48
4/16/2016	0	IN	rain	34	59	F	52	2	13	8	mph	3	F	0.46	0.46
4/17/2016	0	IN	rain	40	67	F	54	4	14	8	mph	1	F	0.44	0.45
4/18/2016	0	IN	rain	43	78	F	48	2	13	8	mph	8	F	0.42	0.44
4/19/2016	0	IN	rain	48	82	F	56	3	22	10	mph	20	F	0.39	0.42
4/20/2016	0	IN	rain	46	66	F	42	6	14	9	mph	4	F	0.35	0.4
4/21/2016	0	IN	rain	41	72	F	64	5	18	11	mph	41	F	0.3	0.38
4/22/2016	0.15	IN	rain	62	77	F	75	7	19	13	mph	65	F	0.25	0.35
4/23/2016	0.11	IN	rain	55	65	F	77	4	14	10	mph	77	F	0.38	0.35
4/24/2016	0	IN	rain	45	67	F	44	3	14	7	mph	10	F	0.21	0.33
4/25/2016	0	IN	rain	44	75	F	62	5	16	10	mph	26	F	0.08	0.3
4/26/2016	0	IN	rain	62	85	F	55	5	18	13	mph	23	F	0	0.28
4/27/2016	0.17	IN	rain	50	53	F	85	3	15	9	mph	100	F	0.21	0.29
4/28/2016	0.45	IN	rain	48	55	F	90	3	13	8	mph	98	F	0.55	0.33
4/29/2016	0	IN	rain	48	52	F	93	5	13	10	mph	100	F	0.52	0.36
4/30/2016	0	IN	rain	48	57	F	80	6	11	8	mph	88	F	0.41	0.36
5/1/2016	0.49	IN	rain	49	54	F	94	4	9	6	mph	99	F	0.71	0.4
5/2/2016	0.68	IN	rain	50	76	F	87	2	15	7	mph	85	F	0.73	0.45
5/3/2016	0.22	IN	rain	50	67	F	93	2	13	7	mph	99	F	0.93	0.57
5/4/2016	1.51	IN	rain	50	53	F	95	7	14	11	mph	99	F	0.95	0.66
5/5/2016	0	IN	rain	49	52	F	89	6	16	11	mph	100	F	0.79	0.7
5/6/2016	0.85	IN	rain	48	53	F	91	3	13	8	mph	98	F	1	0.82
5/7/2016	0.02	IN	rain	49	60	F	86	1	10	5	mph	78	F	0.82	0.85
5/8/2016	0	IN	rain	51	72	F	63	3	19	10	mph	39	F	0.72	0.82
5/9/2016	0.04	IN	rain	43	67	F	72	5	17	9	mph	54	F	0.67	0.79

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Unit	Cloud		Soil	Scaled Soil
											Cover	Temp	Unit	Moisture	Moisture
5/10/2016	0.01	IN	rain	52	62	F	71	1	15	8	mph	80	F	0.66	0.77
5/11/2016	0.5	IN	rain	51	67	F	84	3	9	5	mph	98	F	0.78	0.78
5/12/2016	0	IN	rain	57	70	F	88	2	10	5	mph	82	F	0.79	0.82
5/13/2016	0.16	IN	rain	56	69	F	92	4	12	7	mph	78	F	0.77	0.81
5/14/2016	0.12	IN	rain	53	76	F	71	3	20	10	mph	33	F	0.82	0.81
5/15/2016	0	IN	rain	47	60	F	50	6	20	13	mph	29	F	0.8	0.82
5/16/2016	0	IN	rain	37	63	F	51	5	18	10	mph	9	F	0.66	0.8
5/17/2016	0.25	IN	rain	51	64	F	84	4	14	8	mph	93	F	0.7	0.8
5/18/2016	0	IN	rain	52	64	F	76	2	14	7	mph	69	F	0.69	0.83
5/19/2016	0	IN	rain	53	70	F	60	4	11	7	mph	48	F	0.92	0.8
5/20/2016	0	IN	rain	48	74	F	57	4	14	9	mph	32	F	1	1
5/21/2016	1.01	IN	rain	55	61	F	91	3	19	10	mph	95	F	1	1
5/22/2016	0.16	IN	rain	54	59	F	95	6	11	8	mph	100	F	1	1
5/23/2016	0	IN	rain	56	67	F	77	4	17	8	mph	94	F	1	1
5/24/2016	0	IN	rain	57	80	F	68	4	11	8	mph	43	F	1	1
5/25/2016	0	IN	rain	60	85	F	53	5	12	8	mph	20	F	1	1
5/26/2016	0	IN	rain	61	89	F	61	3	13	8	mph	11	F	1	1
5/27/2016	0	IN	rain	68	87	F	65	7	16	11	mph	8	F	1	1
5/28/2016	0	IN	rain	66	88	F	62	5	13	9	mph	16	F	1	1
5/29/2016	0	IN	rain	58	83	F	85	1	15	7	mph	62	F	0.54	0.65
5/30/2016	1.88	IN	rain	68	74	F	94	3	10	6	mph	100	F	0.94	0.71
5/31/2016	0.11	IN	rain	66	82	F	84	1	8	5	mph	73	F	0.92	0.77
6/1/2016	0	IN	rain	65	82	F	78	2	13	8	mph	29	F	0.83	0.78
6/2/2016	0	IN	rain	66	71	F	93	5	10	7	mph	98	F	0.73	0.77
6/3/2016	0.02	IN	rain	64	74	F	91	3	8	6	mph	97	F	0.65	0.76
6/4/2016	0	IN	rain	64	80	F	82	3	11	6	mph	68	F	0.6	0.75
6/5/2016	0.07	IN	rain	67	84	F	82	4	21	11	mph	87	F	0.63	0.73
6/6/2016	0	IN	rain	71	85	F	68	5	11	8	mph	62	F	0.61	0.7
6/7/2016	0.08	IN	rain	66	86	F	70	5	16	8	mph	48	F	0.54	0.66
6/8/2016	0	IN	rain	56	73	F	54	5	22	12	mph	12	F	0.51	0.63
6/9/2016	0	IN	rain	51	78	F	53	3	16	9	mph	4	F	0.48	0.6
6/10/2016	0	IN	rain	58	78	F	47	4	14	8	mph	18	F	0.46	0.58

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm	
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Cloud	Soil		Temp	Scaled Soil	Scaled Soil
											Cover	Temp		Moisture	Moisture	
6/11/2016	0	IN	rain	60	89	F	66	7	18	11	mph	25	75	F	0.44	0.57
6/12/2016	0	IN	rain	70	92	F	44	6	24	13	mph	10	80	F	0.4	0.55
6/13/2016	0	IN	rain	62	77	F	49	4	15	10	mph	37	73	F	0.35	0.53
6/14/2016	0	IN	rain	62	79	F	48	3	13	7	mph	39	74	F	0.32	0.51
6/15/2016	0.02	IN	rain	56	79	F	71	1	13	6	mph	69	69	F	0.3	0.5
6/16/2016	0.5	IN	rain	64	69	F	91	3	11	7	mph	99	73	F	0.76	0.56
6/17/2016	0.19	IN	rain	62	78	F	77	5	18	10	mph	56	70	F	0.82	0.6
6/18/2016	0	IN	rain	56	81	F	59	3	9	6	mph	8	71	F	0.63	0.59
6/19/2016	0	IN	rain	58	87	F	50	4	12	7	mph	24	73	F	0.54	0.56
6/20/2016	0	IN	rain	67	89	F	50	4	20	11	mph	16	77	F	0.48	0.54
6/21/2016	1.01	IN	rain	67	87	F	74	5	17	10	mph	55	78	F	0.62	0.55
6/22/2016	0	IN	rain	66	82	F	67	5	16	11	mph	35	77	F	0.76	0.6
6/23/2016	0.14	IN	rain	66	80	F	84	2	14	7	mph	84	76	F	0.75	0.61
6/24/2016	1.58	IN	rain	68	80	F	88	2	17	9	mph	78	77	F	0.8	0.63
6/25/2016	0	IN	rain	63	79	F	75	3	14	9	mph	44	76	F	0.75	0.66
6/26/2016	0	IN	rain	58	80	F	68	2	10	6	mph	11	74	F	0.65	0.65
6/27/2016	0	IN	rain	61	85	F	76	2	14	8	mph	47	75	F	0.59	0.64
6/28/2016	0.25	IN	rain	72	78	F	89	5	12	8	mph	88	76	F	0.98	0.8
6/29/2016	0	IN	rain	69	83	F	72	5	12	8	mph	38	78	F	0.9	0.9
6/30/2016	0	IN	rain	63	83	F	66	1	15	6	mph	35	77	F	0.82	0.86
7/1/2016	0.09	IN	rain	70	85	F	83	4	20	10	mph	79	78	F	0.79	0.83
7/2/2016	0	IN	rain	66	81	F	62	3	15	7	mph	24	77	F	0.77	0.81
7/3/2016	0.29	IN	rain	62	71	F	78	1	8	5	mph	88	71	F	0.82	0.8
7/4/2016	0.04	IN	rain	62	75	F	89	3	11	7	mph	91	72	F	0.8	0.8
7/5/2016	0.02	IN	rain	74	89	F	76	5	16	10	mph	73	79	F	0.76	0.79
7/6/2016	0.01	IN	rain	73	89	F	79	3	17	8	mph	48	83	F	0.72	0.78
7/7/2016	0	IN	rain	75	93	F	76	6	15	11	mph	20	84	F	0.69	0.76
7/8/2016	0	IN	rain	76	92	F	75	3	13	7	mph	39	85	F	0.68	0.75
7/9/2016	0	IN	rain	73	84	F	86	2	10	5	mph	61	84	F	0.7	0.75
7/10/2016	0	IN	rain	70	83	F	66	5	15	10	mph	23	81	F	0.64	0.73
7/11/2016	0	IN	rain	65	84	F	64	4	10	7	mph	6	79	F	0.58	0.71
7/12/2016	0	IN	rain	64	85	F	74	3	13	7	mph	26	78	F	0.53	0.67

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Unit	Cloud		Soil	Scaled Soil
											Cover	Temp		Moisture	Moisture
7/13/2016	0.22	IN	rain	71	83	F	87	3	14	8	mph	71	F	0.61	0.66
7/14/2016	0	IN	rain	75	93	F	76	5	16	9	mph	21	F	0.65	0.66
7/15/2016	0	IN	rain	76	91	F	69	4	13	8	mph	18	F	0.58	0.64
7/16/2016	0	IN	rain	74	89	F	72	5	18	9	mph	57	F	0.54	0.63
7/17/2016	0	IN	rain	72	90	F	69	4	12	7	mph	30	F	0.52	0.62
7/18/2016	0.29	IN	rain	73	93	F	75	3	21	11	mph	36	F	0.6	0.62
7/19/2016	0	IN	rain	73	88	F	75	1	13	7	mph	53	F	0.71	0.64
7/20/2016	0.11	IN	rain	68	83	F	81	2	11	7	mph	41	F	0.77	0.65
7/21/2016	0	IN	rain	65	85	F	77	5	14	8	mph	22	F	0.73	0.66
7/22/2016	0	IN	rain	72	92	F	75	6	14	10	mph	33	F	0.62	0.65
7/23/2016	0	IN	rain	77	95	F	68	3	12	7	mph	13	F	0.54	0.63
7/24/2016	0	IN	rain	75	91	F	65	1	15	7	mph	21	F	0.47	0.61
7/25/2016	0.75	IN	rain	77	97	F	71	3	14	8	mph	41	F	0.43	0.59
7/26/2016	0.12	IN	rain	74	91	F	78	2	11	6	mph	48	F	0.61	0.59
7/27/2016	0.01	IN	rain	76	91	F	76	2	11	6	mph	48	F	0.56	0.58
7/28/2016	2.38	IN	rain	73	90	F	85	1	17	9	mph	60	F	0.87	0.63
7/29/2016	0.06	IN	rain	73	85	F	85	2	14	7	mph	68	F	0.98	0.78
7/30/2016	0.03	IN	rain	71	87	F	79	3	14	8	mph	54	F	0.83	0.77
7/31/2016	0	IN	rain	75	90	F	78	4	17	7	mph	60	F	0.77	0.76
8/1/2016	0.44	IN	rain	73	85	F	85	2	16	7	mph	61	F	0.91	0.79
8/2/2016	0	IN	rain	70	83	F	80	3	15	8	mph	53	F	0.92	0.84
8/3/2016	0	IN	rain	68	79	F	75	5	15	9	mph	38	F	0.83	0.82
8/4/2016	0	IN	rain	65	81	F	73	2	13	7	mph	16	F	0.78	0.8
8/5/2016	0	IN	rain	62	84	F	70	1	15	7	mph	32	F	0.74	0.78
8/6/2016	0.56	IN	rain	73	89	F	80	5	10	7	mph	71	F	0.85	0.8
8/7/2016	0	IN	rain	69	88	F	64	4	15	8	mph	8	F	0.77	0.79
8/8/2016	0	IN	rain	66	87	F	73	4	17	8	mph	40	F	0.72	0.77
8/9/2016	0	IN	rain	66	85	F	82	2	11	7	mph	52	F	0.69	0.76
8/10/2016	0	IN	rain	74	91	F	77	7	14	10	mph	33	F	0.66	0.73
8/11/2016	0	IN	rain	77	93	F	76	6	14	10	mph	16	F	0.6	0.69
8/12/2016	0	IN	rain	78	93	F	77	6	18	11	mph	7	F	0.55	0.65
8/13/2016	0	IN	rain	80	95	F	75	7	18	11	mph	5	F	0.51	0.62

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm	
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Unit	Cloud		Soil	Scaled Soil	Scaled Soil
											Cover	Temp		Moisture	Moisture	
8/14/2016	0	IN	rain	78	96	F	68	5	11	8	mph	6	88	F	0.48	0.6
8/15/2016	0.08	IN	rain	75	92	F	73	1	9	5	mph	26	87	F	0.45	0.58
8/16/2016	0.32	IN	rain	74	94	F	80	5	14	10	mph	36	85	F	0.68	0.59
8/17/2016	0.67	IN	rain	72	91	F	72	5	13	9	mph	23	86	F	0.57	0.57
8/18/2016	0.04	IN	rain	72	87	F	82	3	16	7	mph	63	83	F	0.78	0.6
8/19/2016	0	IN	rain	72	87	F	76	4	15	7	mph	23	83	F	0.63	0.59
8/20/2016	0	IN	rain	68	88	F	77	2	14	8	mph	14	82	F	0.55	0.58
8/21/2016	1.07	IN	rain	69	88	F	84	1	14	8	mph	49	81	F	0.67	0.59
8/22/2016	0	IN	rain	66	83	F	67	6	15	9	mph	14	78	F	0.84	0.64
8/23/2016	0	IN	rain	59	80	F	58	2	11	6	mph	2	75	F	0.72	0.63
8/24/2016	0	IN	rain	60	83	F	63	1	13	6	mph	8	75	F	0.67	0.63
8/25/2016	0	IN	rain	62	86	F	75	4	16	9	mph	22	77	F	0.62	0.63
8/26/2016	0	IN	rain	73	93	F	73	3	11	7	mph	13	82	F	0.57	0.62
8/27/2016	0	IN	rain	72	86	F	68	3	11	8	mph	6	81	F	0.53	0.61
8/28/2016	0	IN	rain	69	85	F	72	2	13	8	mph	10	79	F	0.5	0.59
8/29/2016	0	IN	rain	64	89	F	76	2	10	5	mph	20	79	F	0.48	0.58
8/30/2016	0	IN	rain	71	88	F	74	1	10	6	mph	13	80	F	0.46	0.56
8/31/2016	0	IN	rain	67	88	F	77	1	14	6	mph	35	80	F	0.44	0.55
9/1/2016	0.87	IN	rain	71	77	F	90	1	10	6	mph	64	79	F	0.67	0.57
9/2/2016	0	IN	rain	63	78	F	70	5	14	8	mph	66	76	F	0.66	0.58
9/3/2016	0.16	IN	rain	69	74	F	70	9	28	17	mph	96	73	F	0.72	0.59
9/4/2016	0	IN	rain	63	76	F	70	3	16	11	mph	57	72	F	0.68	0.59
9/5/2016	0	IN	rain	62	77	F	69	5	11	7	mph	66	71	F	0.61	0.58
9/6/2016	0	IN	rain	68	86	F	60	3	12	9	mph	13	73	F	0.54	0.56
9/7/2016	0	IN	rain	67	87	F	69	2	12	8	mph	18	75	F	0.49	0.54
9/8/2016	0	IN	rain	72	91	F	77	5	11	8	mph	28	79	F	0.46	0.53
9/9/2016	0	IN	rain	78	93	F	71	5	12	7	mph	72	82	F	0.44	0.52
9/10/2016	0	IN	rain	76	90	F	80	6	16	9	mph	45	81	F	0.42	0.51
9/11/2016	0	IN	rain	68	85	F	69	5	13	9	mph	51	79	F	0.4	0.5
9/12/2016	0	IN	rain	64	80	F	66	5	11	8	mph	18	75	F	0.38	0.48
9/13/2016	0	IN	rain	58	83	F	71	2	14	7	mph	25	73	F	0.37	0.47
9/14/2016	0	IN	rain	66	91	F	67	1	15	7	mph	4	77	F	0.35	0.45

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm	
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Unit	Cloud		Soil	Scaled Soil	Scaled Soil
											Cover	Temp		Moisture	Moisture	
9/15/2016	0	IN	rain	62	74	F	70	4	17	11	mph	55	73	F	0.33	0.43
9/16/2016	0	IN	rain	58	75	F	73	4	12	8	mph	43	71	F	0.3	0.41
9/17/2016	0	IN	rain	58	82	F	79	3	11	7	mph	9	72	F	0.27	0.39
9/18/2016	0	IN	rain	67	87	F	82	5	14	8	mph	28	77	F	0.25	0.37
9/19/2016	4.2	IN	rain	70	77	F	96	4	12	7	mph	89	76	F	0.71	0.45
9/20/2016	0.03	IN	rain	71	75	F	95	5	12	7	mph	100	75	F	0.87	0.55
9/21/2016	0	IN	rain	70	78	F	88	4	15	9	mph	88	75	F	0.78	0.55
9/22/2016	0	IN	rain	67	79	F	76	4	13	8	mph	61	74	F	0.69	0.54
9/23/2016	0	IN	rain	67	83	F	79	3	7	5	mph	39	75	F	0.62	0.53
9/24/2016	0	IN	rain	58	71	F	88	2	15	8	mph	64	72	F	0.56	0.52
9/25/2016	0	IN	rain	53	71	F	73	1	9	6	mph	7	69	F	0.51	0.5
9/26/2016	0.03	IN	rain	50	74	F	73	0	14	7	mph	48	65	F	0.47	0.48
9/27/2016	0.39	IN	rain	64	69	F	92	2	11	6	mph	96	70	F	0.85	0.54
9/28/2016	1.83	IN	rain	64	72	F	91	3	17	10	mph	85	69	F	0.86	0.57
9/29/2016	5	IN	rain	65	68	F	96	13	27	20	mph	100	69	F	1	0.88
9/30/2016	1.05	IN	rain	66	69	F	97	10	22	17	mph	99	70	F	1	1
10/1/2016	0.07	IN	rain	65	70	F	99	6	14	10	mph	99	70	F	0.89	1
10/2/2016	0	IN	rain	65	75	F	90	1	8	6	mph	87	72	F	0.85	1
10/3/2016	0	IN	rain	61	73	F	86	2	11	5	mph	57	71	F	0.82	1
10/4/2016	0	IN	rain	58	70	F	86	3	19	10	mph	67	69	F	0.8	0.99
10/5/2016	0	IN	rain	60	68	F	80	5	18	10	mph	86	66	F	0.78	0.99
10/6/2016	0	IN	rain	59	71	F	84	4	14	8	mph	68	67	F	0.75	0.98
10/7/2016	0	IN	rain	58	73	F	89	4	12	7	mph	52	68	F	0.71	0.94
10/8/2016	1.27	IN	rain	63	70	F	96	5	16	9	mph	93	67	F	0.87	0.92
10/9/2016	2.44	IN	rain	53	64	F	79	12	24	19	mph	76	63	F	1	1
10/10/2016	0	IN	rain	46	63	F	59	2	16	10	mph	3	57	F	0.87	1
10/11/2016	0	IN	rain	43	66	F	76	4	10	8	mph	4	57	F	0.83	1
10/12/2016	0	IN	rain	47	70	F	83	1	9	6	mph	23	60	F	0.82	1
10/13/2016	0	IN	rain	49	73	F	83	2	11	7	mph	40	62	F	0.82	0.99
10/14/2016	0	IN	rain	47	63	F	70	1	14	7	mph	16	59	F	0.8	0.99
10/15/2016	0	IN	rain	46	66	F	78	2	12	6	mph	23	58	F	0.76	0.99
10/16/2016	0	IN	rain	45	72	F	84	5	11	7	mph	18	60	F	0.71	0.99

Data Source is ITERIS

Date	Moisture		Type	Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm
	Total	Unit		Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Cloud	Soil		Temp	Scaled Soil
		Unit									Cover	Temp	Unit	Moisture	Moisture
10/17/2016	0	IN	rain	58	80	F	78	4	8	6	mph	12	F	0.68	0.97
10/18/2016	0	IN	rain	62	80	F	82	5	16	9	mph	2	F	0.64	0.94
10/19/2016	0	IN	rain	65	83	F	80	2	9	6	mph	20	F	0.61	0.91
10/20/2016	0	IN	rain	65	78	F	87	4	12	8	mph	19	F	0.59	0.87
10/21/2016	0.11	IN	rain	59	78	F	84	5	12	8	mph	58	F	0.58	0.85
10/22/2016	0.1	IN	rain	50	59	F	67	11	20	15	mph	68	F	0.73	0.86
10/23/2016	0	IN	rain	47	65	F	57	8	16	13	mph	3	F	0.63	0.84
10/24/2016	0	IN	rain	52	68	F	56	6	15	11	mph	9	F	0.59	0.83
10/25/2016	0	IN	rain	40	60	F	54	4	17	11	mph	15	F	0.55	0.82
10/26/2016	0	IN	rain	34	55	F	68	2	7	5	mph	26	F	0.52	0.8
10/27/2016	0.1	IN	rain	45	64	F	81	5	19	10	mph	74	F	0.52	0.77
10/28/2016	0	IN	rain	40	64	F	59	3	18	10	mph	32	F	0.53	0.74
10/29/2016	0	IN	rain	37	68	F	68	3	19	10	mph	10	F	0.48	0.71
10/30/2016	0	IN	rain	61	79	F	68	6	12	8	mph	49	F	0.46	0.69
10/31/2016	0.01	IN	rain	43	62	F	71	3	14	9	mph	46	F	0.45	0.67
11/1/2016	0	IN	rain	37	60	F	78	2	10	5	mph	58	F	0.45	0.66
11/2/2016	0	IN	rain	48	71	F	83	2	10	6	mph	16	F	0.44	0.66
11/3/2016	0	IN	rain	57	81	F	73	3	14	7	mph	44	F	0.44	0.65
11/4/2016	0	IN	rain	41	62	F	60	5	19	10	mph	34	F	0.51	0.66
11/5/2016	0	IN	rain	39	64	F	64	3	11	7	mph	1	F	0.45	0.64
11/6/2016	0	IN	rain	48	65	F	54	5	13	9	mph	15	F	0.42	0.63
11/7/2016	0	IN	rain	36	54	F	60	4	16	9	mph	4	F	0.4	0.61
11/8/2016	0	IN	rain	35	66	F	50	4	9	6	mph	20	F	0.39	0.59
11/9/2016	0.08	IN	rain	50	57	F	81	4	12	7	mph	91	F	0.41	0.59
11/10/2016	0	IN	rain	42	56	F	62	6	19	11	mph	19	F	0.41	0.58
11/11/2016	0	IN	rain	46	64	F	54	5	17	10	mph	5	F	0.36	0.56
11/12/2016	0	IN	rain	32	50	F	54	4	11	7	mph	4	F	0.33	0.54
11/13/2016	0	IN	rain	33	60	F	44	5	12	7	mph	3	F	0.32	0.53
11/14/2016	0.04	IN	rain	35	57	F	52	3	10	6	mph	59	F	0.33	0.51
11/15/2016	0.01	IN	rain	47	62	F	70	5	9	7	mph	55	F	0.37	0.51
11/16/2016	0	IN	rain	38	63	F	65	2	10	7	mph	27	F	0.35	0.5
11/17/2016	0	IN	rain	45	60	F	67	4	13	8	mph	10	F	0.35	0.5



Data Source is ITERIS

Date	Moisture		Min	Max	Temp	% Relative	Min	Max	Avg	%	Avg	Temp	0-10 cm	0-200 cm		
	Total	Unit	Temp	Temp	Unit	Humidity	Wind	Wind	Wind	Cloud	Soil	Unit	Scaled Soil	Scaled Soil		
		Type							Unit	Cover	Temp		Moisture	Moisture		
11/18/2016	0	IN	rain	37	67	F	71	4	9	6	mph	1	49	F	0.33	0.49
11/19/2016	0.08	IN	rain	39	72	F	72	4	21	10	mph	22	51	F	0.32	0.48
11/20/2016	0.01	IN	rain	38	46	F	47	11	23	18	mph	59	44	F	0.32	0.48
11/21/2016	0	IN	rain	35	44	F	41	10	21	16	mph	10	41	F	0.28	0.47
11/22/2016	0	IN	rain	33	45	F	48	5	17	11	mph	19	40	F	0.26	0.46
11/23/2016	0	IN	rain	30	51	F	54	3	10	6	mph	21	39	F	0.26	0.45
11/24/2016	0	IN	rain	34	60	F	70	0	13	6	mph	74	44	F	0.26	0.45
11/25/2016	0	IN	rain	38	57	F	89	0	11	6	mph	82	50	F	0.24	0.44
11/26/2016	0	IN	rain	40	51	F	66	5	19	11	mph	61	49	F	0.2	0.44
11/27/2016	0	IN	rain	32	51	F	64	4	14	8	mph	13	43	F	0.15	0.43
11/28/2016	0	IN	rain	30	53	F	70	3	12	7	mph	35	42	F	0.12	0.42
11/29/2016	0.08	IN	rain	49	64	F	82	6	20	15	mph	97	54	F	0.16	0.41
11/30/2016	0.06	IN	rain	61	67	F	94	5	15	10	mph	97	60	F	0.27	0.41

Liberty Rate for Liberty Link Field Corn  
 Trial ID: Corn1-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Corn1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Bayer

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C	ZEAMX Zea mays	Corn	BBCH Scale: BCOR
	Variety: N68B-3111		
	Attributes: Liberty Link/Roundup Ready		
Planting Date: 05/16/16		Planting Rate: 30000	S/A
Depth: 2 in			
Row Spacing: 30 in		Planting Method: PLANTD	planted
		Planting Equipment: FE	Field Equipment
		Seed Bed: SMOOTH	smooth
Soil Temperature: 64 F		Soil Moisture: NORMAL	normal, adequate
Emergence Date: 05/25/16			
Harvest Date: 10/04/16		Harvest Equipment: Plot combine	
		Harvested Width: 5 FT	
		Harvested Length: 25 FT	
% Standard Moisture: 15.5			

**Pest Description**

Pest 1 Type: W    Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

Pest 2 Type: W    Code: CYPES Cyperus esculentus  
 Common Name: Yellow nutsedge

Pest 3 Type: W    Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 6    Tillage Type: CONTIL    conventional-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)

**Soil Description**

% Sand: 82    % OM: 1.2    Texture: LS loamy sand  
 % Silt: 11    pH: 6.5  
 % Clay: 7    CEC: 4.6    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B
Application Date	05/17/16	06/09/16
Appl. Stop Time	09:00 AM	08:00 AM
Interval to Prev. Appl.		23 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	3" wds
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	59 F	66 F
% Relative Humidity Start, Stop	76	49
Wind Velocity+Dir. Start	0 mph N/A	5 mph W
Wet Leaves (Y/N)	N no	N no
Soil Temperature	59 F	64 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	100	15

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used		DESC
Stage Majority, Percent		V4 70
Stage Minimum, Percent		V4 70
Stage Maximum, Percent		V5 30
Height Average		9.5 in
Height Minimum, Maximum		9 10

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		2-leaf 40
Stage Minimum, Percent		cot 25
Stage Maximum, Percent		3-leaf 35
Height Average		1.5 in
Height Minimum, Maximum		1 2
Density Average		5 m2
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent		3-4 lf 50
Stage Minimum, Percent		2-leaf 20
Stage Maximum, Percent		5-6 lf 30
Height Average		4 in
Height Minimum, Maximum		1.5 7
Density Average		50 m2
Pest 3 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent		2-leaf 50
Stage Minimum, Percent		cot 20
Stage Maximum, Percent		3-leaf 30
Height Average		0.6 in
Height Minimum, Maximum		0.2 1
Density Average		100 m2

<b>Application Equipment</b>		
	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	26 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

#### Trial Comments

06/12/16: Weed control in trt 6 based on untreated checks in adjacent trials. AMAPA 60% (only in rep 1); IPOSS 70%; DIGSA 60%; carpetweed is present.

06/17/16: Pigweed species in untreated check, but none observed in treatments. Morningglory at cotyledon stage and small crabgrass emerging. Note that control for this rating is based on POST application only.

07/02/16: No AMAPA in untreated check. All IPOSS and DIGSA have emerged since POST applications.

Liberty Rate for Liberty Link Field Corn					Trial ID: Corn1-16      Location: Field #18      Trial Year: 2016						
Protocol ID: Corn1-16      Investigator: Mark VanGessel					Study Director:						
Sponsor Contact: Bayer											
Pest Code							IPOSS	DIGSA			
Pest Name							Morngrly	L.crbgrs			
Crop Type, Code					C ZEAMX	C ZEAMX	C -	C -			
Crop Name					Corn	Corn					
Rating Type					LeafBrn	Stunting	Control	Control			
Rating Unit					%	%	%	%			
Rating Date					06/12/16	06/17/16	06/17/16	06/17/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	Balance Flexx...isoxaflutole	2 L		0.047 lb ai/a	PRE	A		3.7 bc	0.0 b	99.0 a	99.3 a
	Liberty 280.....glufosinate	2.34 SL		0.293 lb ai/a	3"wds	B					
	Dry Ammonium Sulfate	100 D		1.2 % w/v	3"wds	B					
2	Balance Flexx...isoxaflutole	2 L		0.047 lb ai/a	PRE	A		4.3 b	0.0 b	99.7 a	100.0 a
	Liberty 280.....glufosinate	2.34 SL		0.402 lb ai/a	3"wds	B					
	Dry Ammonium Sulfate	100 D		1.2 % w/v	3"wds	B					
3	Balance Flexx...isoxaflutole	2 L		0.047 lb ai/a	PRE	A		3.7 bc	1.7 b	98.7 a	98.0 ab
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/a	3"wds	B					
	Dry Ammonium Sulfate	100 D		1.2 % w/v	3"wds	B					
4	Balance Flexx...isoxaflutole	2 L		0.047 lb ai/a	PRE	A		3.0 c	2.3 b	98.7 a	97.0 b
	Liberty 280.....glufosinate	2.34 SL		0.66 lb ai/a	3"wds	B					
	Dry Ammonium Sulfate	100 D		1.2 % w/v	3"wds	B					
5	Balance Flexx...isoxaflutole	2 L		0.047 lb ai/a	PRE	A		10.0 a	14.0 a	100.0 a	99.0 ab
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/a	3"wds	B					
	Capreno Premix	3.45 SC		0.081 lb ai/a	3"wds	B					
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Dry Ammonium Sulfate	100 D		1.2 % w/v	3"wds	B					
6	Untreated Check							0.0 d	0.0 b	0.0 b	0.0 c
	Balance Flexx...isoxaflutole	2 L		0.047 lb ai/a	PRE	A					
LSD P=.05					1.27	3.37	1.79	2.09			
Standard Deviation					0.70	1.85	0.98	1.15			
CV					17.01	61.76	1.19	1.4			
Replicate F					3.182	3.058	3.276	2.815			
Replicate Prob(F)					0.0852	0.0920	0.0805	0.1072			
Treatment F					65.364	26.252	5090.897	3683.866			
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7

Could not calculate LSD (% mean diff) for columns 6 because error mean square = 0.

Pest Code Pest Name	CYPES Y.nutsge	AMAPA PalmerAm	IPOSS Morngrly	DIGSA L.crbgrs
Crop Type, Code Crop Name	C -	C -	C -	C -
Rating Type Rating Unit Rating Date	Control % 06/17/16	Control % 07/02/16	Control % 07/02/16	Control % 07/02/16
Trt Treatment No. Name	Form Form Conc Type Rate	Rate Unit	Appl Timing	Appl Code
1 Balance Flexx...isoxaflutole Liberty 280.....glufosinate Dry Ammonium Sulfate	2 L 2.34 SL 100 D	0.047 lb ai/a 0.293 lb ai/a 1.2 % w/v	PRE 3"wds 3"wds	A B B
2 Balance Flexx...isoxaflutole Liberty 280.....glufosinate Dry Ammonium Sulfate	2 L 2.34 SL 100 D	0.047 lb ai/a 0.402 lb ai/a 1.2 % w/v	PRE 3"wds 3"wds	A B B
3 Balance Flexx...isoxaflutole Liberty 280.....glufosinate Dry Ammonium Sulfate	2 L 2.34 SL 100 D	0.047 lb ai/a 0.53 lb ai/a 1.2 % w/v	PRE 3"wds 3"wds	A B B
4 Balance Flexx...isoxaflutole Liberty 280.....glufosinate Dry Ammonium Sulfate	2 L 2.34 SL 100 D	0.047 lb ai/a 0.66 lb ai/a 1.2 % w/v	PRE 3"wds 3"wds	A B B
5 Balance Flexx...isoxaflutole Liberty 280.....glufosinate Capreno Premix ----thiencarbazone ----tembotrione Dry Ammonium Sulfate	2 L 2.34 SL 3.45 SC 0.57 2.88 100 D	0.047 lb ai/a 0.53 lb ai/a 0.081 lb ai/a 0.0134 0.0676 1.2 % w/v	PRE 3"wds 3"wds    3"wds	A B B   B
6 Untreated Check Balance Flexx...isoxaflutole	2 L	0.047 lb ai/a	PRE	A
LSD P=.05	2.89	.	15.26	3.95
Standard Deviation	1.59	0.00	8.26	2.17
CV	2.22	0.0	17.38	2.99
Replicate F	1.079	0.000	0.029	1.494
Replicate Prob(F)	0.3763	1.0000	0.9713	0.2706
Treatment F	1459.793	0.000	35.397	826.127
Treatment Prob(F)	0.0001	1.0000	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=7

Could not calculate LSD (% mean diff) for columns 6 because error mean square = 0.

Pest Code									
Pest Name									
Crop Type, Code								C	ZEAMX
Crop Name									Corn
Rating Type									Yield
Rating Unit									Bu/A
Rating Date									10/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
1	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A		206.8 a
	Liberty 280.....glufosinate	2.34	SL	0.293	lb ai/a	3"wds	B		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	3"wds	B		
2	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A		208.3 a
	Liberty 280.....glufosinate	2.34	SL	0.402	lb ai/a	3"wds	B		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	3"wds	B		
3	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A		204.2 a
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	3"wds	B		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	3"wds	B		
4	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A		206.7 a
	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	3"wds	B		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	3"wds	B		
5	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A		215.0 a
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	3"wds	B		
	Capreno Premix	3.45	SC	0.081	lb ai/a	3"wds	B		
	----thiencarbazone	0.57		0.0134					
	----tembotrione	2.88		0.0676					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	3"wds	B		
6	Untreated Check								198.4 a
	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A		
LSD P=.05									29.19
Standard Deviation									16.05
CV									7.77
Replicate F									1.734
Replicate Prob(F)									0.2257
Treatment F									0.343
Treatment Prob(F)									0.8752

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7

Could not calculate LSD (% mean diff) for columns 6 because error mean square = 0.

Acuron Flexi Weed Control and Crop Tolerance  
 Trial ID: Corn2-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Corn2-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Syngenta

**General Trial Information**  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      ZEAMX Zea mays      Corn      BBCH Scale: BCOR  
 Variety: D52VC91  
 Attributes: Roundup Ready  
 Planting Date: 05/16/16      Planting Rate: 30000      S/A  
 Depth: 2 in  
  
 Row Spacing: 30 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 64 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/25/16  
 Harvest Date: 10/04/16      Harvest Equipment: Plot combine  
 Harvested Width: 5 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 15.5

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 8      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**  
 % Sand: 82    % OM: 1.2    Texture: LS loamy sand  
 % Silt: 11    pH: 6.5  
 % Clay: 7    CEC: 4.6    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	05/17/16
Appl. Stop Time	08:30 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	59 F
% Relative Humidity Start, Stop	76
Wind Velocity+Dir. Start	0 mph N/A
Wet Leaves (Y/N)	N no
Soil Temperature	59 F
Soil Moisture	NORMAL
% Cloud Cover	100



<b>Crop Stage At Each Application</b>	
	A
Crop 1 Code, BBCH Scale	ZEAMX BCOR

<b>Application Equipment</b>	
	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

Date	By	Notes
06/02/16	Vollmer, K.	Stand gaps in 102, 104, 106, 201, 304, 308

Trial Comments

06/12/16: Very few pigweed in treated plots, so not rated.

06/25/16: Most treatments (except trt 8) provided excellent control of CHEAL.  
 Poor control of:  
 CHEAL - trt 8  
 PANDI - trt 8  
 MOLVE - trt 8, 6  
 POROL - trt 8, 6, 4

Acuron Flexi Weed Control and Crop Tolerance											
Trial ID: Corn2-16		Location: Field #18			Trial Year: 2016						
Protocol ID: Corn2-16		Investigator: Mark VanGessel			Study Director:						
Sponsor Contact: Syngenta											
Pest Code					C	ZEAMX	C	ZEAMX	IPOSS	DIGSA	
Pest Name									Mornglry	L.crbgrs	
Crop Type, Code									C -	C -	
Crop Name						Corn		Corn			
Rating Type						Stunting		Stunting	Control	Control	
Rating Unit						%		%	%	%	
Rating Date					06/02/16		06/12/16		06/12/16	06/12/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	Untreated Check							0.0 c	0.0 c	0.0 d	0.0 d
2	Acuron Flexi Premix	3.26	ZC	1.63	lb ai/a	PRE	A	0.0 c	0.0 c	92.7 ab	96.3 a
	----bicyclopyrone	.08000001		0.04							
	----mesotrione	0.32		0.16							
	----s-metolachlor	2.86		1.43							
3	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	1.0 c	0.0 c	94.7 ab	96.3 a
	----atrazine	1		0.625							
	----bicyclopyrone	0.06		0.0375							
	----mesotrione	0.24		0.15							
	----s-metolachlor	2.14		1.34							
4	Resicore Premix	3.28	SE	1.85	lb ai/a	PRE	A	1.0 c	7.0 b	95.3 a	96.3 a
	----acetochlor	2.8		1.58							
	----mesotrione	0.3		0.17							
	----cloprialid	0.18		0.102							
5	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	1.7 bc	9.0 b	96.3 a	77.0 c
	----thiencarbazone	0.75		0.0194							
	----isoxaflutole	1.88		0.0486							
6	SureStart II Premix	4.25	SE	0.8	lb ai/a	PRE	A	3.7 b	5.0 bc	81.0 c	78.3 c
	----acetochlor	3.75		0.706							
	----cloprialid	0.38		0.0715							
	----flumetsulam	0.12		0.0226							
7	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	A	10.0 a	31.7 a	95.3 a	93.0 ab
	----rimsulfuron	4.15		0.0136							
	----mesotrione	41.65		0.136							
8	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	2.0 bc	4.7 bc	91.0 b	87.3 b
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
LSD P=.05								2.05	5.78	4.22	6.66
Standard Deviation								1.17	3.30	2.41	3.81
CV								48.52	46.01	2.98	4.87
Replicate F								6.576	2.441	3.453	0.573
Replicate Prob(F)								0.0097	0.1232	0.0604	0.5768
Treatment F								23.532	30.292	563.412	219.152
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7

Pest Code Pest Name Crop Type, Code						C	ZEAMX	C	ZEAMX	AMAPA PalmerAm C -	IPOSS Mornglry C -
Crop Name Rating Type Rating Unit Rating Date						Corn Stunting %		Corn Stunting %		Control %	Control %
						06/19/16		06/25/16		06/25/16	06/25/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Appl Timing Code						
1	Untreated Check					0.0 c		0.0 b		0.0 d	0.0 e
2	Acuron Flexi Premix ----bicyclopyrone ----mesotrione ----s-metolachlor	3.26 .08000001 0.32 2.86	ZC	1.63 0.04 0.16 1.43	lb ai/a PRE A	2.3 c		2.3 b		95.7 ab	96.3 a
3	Acuron Premix ----atrazine ----bicyclopyrone ----mesotrione ----s-metolachlor	3.44 1 0.06 0.24 2.14	ZC	2.15 0.625 0.0375 0.15 1.34	lb ai/a PRE A	0.0 c		2.3 b		98.3 a	95.0 a
4	Resicore Premix ----acetochlor ----mesotrione ----clopuralid	3.28 2.8 0.3 0.18	SE	1.85 1.58 0.17 0.102	lb ai/a PRE A	0.0 c		0.0 b		94.0 ab	93.3 ab
5	Corvus Premix ----thiencarbazone ----isoxaflutole	2.63 0.75 1.88	SC	0.068 0.0194 0.0486	lb ai/a PRE A	0.0 c		4.7 b		80.0 bc	78.3 bcd
6	SureStart II Premix ----acetochlor ----clopuralid ----flumetsulam	4.25 3.75 0.38 0.12	SE	0.8 0.706 0.0715 0.0226	lb ai/a PRE A	1.7 c		5.7 b		72.3 c	75.0 d
7	Instigate Premix ----rimsulfuron ----mesotrione	45.8 4.15 41.65	WG	0.15 0.0136 0.136	lb ai/a PRE A	30.0 a		19.0 a		93.3 ab	90.7 abc
8	Verdict Premix ----saflufenacil ----dimethenamid	5.57 0.57 5	EC	0.52 0.053 0.467	lb ai/a PRE A	8.0 b		1.7 b		90.7 ab	77.7 cd
LSD P=.05						4.06		6.24		17.74	15.42
Standard Deviation						2.32		3.56		10.06	8.81
CV						44.18		79.92		12.89	11.62
Replicate F						0.000		1.795		1.480	1.813
Replicate Prob(F)						1.0000		0.2023		0.2635	0.1994
Treatment F						59.872		9.098		31.765	39.088
Treatment Prob(F)						0.0001		0.0003		0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7

Pest Code						DIGSA	
Pest Name						L.crbgrs	
Crop Type, Code						C - C	ZEAMX
Crop Name						Control	Corn
Rating Type						%	Yield
Rating Unit						06/25/16	Bu/A
Rating Date							10/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code	
1	Untreated Check						0.0 d 186.6 a
2	Acuron Flexi Premix	3.26	ZC	1.63 lb ai/a	PRE	A	95.3 a 210.1 a
	----bicyclopyrone	.08000001		0.04			
	----mesotrione	0.32		0.16			
	----s-metolachlor	2.86		1.43			
3	Acuron Premix	3.44	ZC	2.15 lb ai/a	PRE	A	97.3 a 220.1 a
	----atrazine	1		0.625			
	----bicyclopyrone	0.06		0.0375			
	----mesotrione	0.24		0.15			
	----s-metolachlor	2.14		1.34			
4	Resicore Premix	3.28	SE	1.85 lb ai/a	PRE	A	86.7 ab 203.6 a
	----acetochlor	2.8		1.58			
	----mesotrione	0.3		0.17			
	----clopypalid	0.18		0.102			
5	Corvus Premix	2.63	SC	0.068 lb ai/a	PRE	A	76.7 bc 201.5 a
	----thiencarbazone	0.75		0.0194			
	----isoxaflutole	1.88		0.0486			
6	SureStart II Premix	4.25	SE	0.8 lb ai/a	PRE	A	66.7 c 199.2 a
	----acetochlor	3.75		0.706			
	----clopypalid	0.38		0.0715			
	----flumetsulam	0.12		0.0226			
7	Instigate Premix	45.8	WG	0.15 lb ai/a	PRE	A	91.0 a 242.7 a
	----rimsulfuron	4.15		0.0136			
	----mesotrione	41.65		0.136			
8	Verdict Premix	5.57	EC	0.52 lb ai/a	PRE	A	75.0 c 222.0 a
	----saflufenacil	0.57		0.053			
	----dimethenamid	5		0.467			
LSD P=.05						11.26	47.60
Standard Deviation						6.43	27.18
CV						8.74	12.9
Replicate F						10.998	0.298
Replicate Prob(F)						0.0013	0.7470
Treatment F						72.357	1.213
Treatment Prob(F)						0.0001	0.3580

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7

**PRE and POST Weed Control in Field Corn**

Trial ID: Corn3-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Corn3-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Dow, AMVAC

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      ZEAMX Zea mays      Corn      BBCH Scale: BCOR  
 Variety: D52VC91  
 Attributes: Roundup Ready  
 Planting Date: 05/16/16      Planting Rate: 30000      S/A  
 Depth: 2 in  
 Row Spacing: 30 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 64 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/25/16  
 Harvest Date: 10/04/16      Harvest Equipment: Plot combine  
 Harvested Width: 5 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 15.5

**Pest Description**

Pest 1 Type: W    Code: CYPES Cyperus esculentus  
 Common Name: Yellow nutsedge

Pest 2 Type: W    Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

Pest 3 Type: W    Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 10    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**

% Sand: 82    % OM: 1.2    Texture: LS loamy sand  
 % Silt: 11    pH: 6.5  
 % Clay: 7    CEC: 4.6    Fert. Level: G good  
 Soil Drainage: G good

**Moisture and Weather Conditions**

Overall Moisture Conditions: NORMAL normal  
 Closest Weather Station: UDREC      Distance: 0.4 mi

**Comment:**

Wet spring caused delayed planting.

<b>Application Description</b>			
	A	B	C
Application Date	05/17/16	06/02/16	06/09/16
Appl. Stop Time	09:15 AM	03:10 PM	08:40 AM
Interval to Prev. Appl.		16 DAYS	7 DAYS
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRE	EaPost	2-4"wds
Application Placement	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson
Air Temperature Start, Stop	59 F	69 F	66 F
% Relative Humidity Start, Stop	76	84	49
Wind Velocity+Dir. Start	0 mph N/A	4 mph E	5 mph W
Wet Leaves (Y/N)	N no	N no	N no
Soil Temperature	59 F	69 F	64 F
Soil Moisture	NORMAL	NORMAL	NORMAL
% Cloud Cover	100	95	15

<b>Crop Stage At Each Application</b>			
	A	B	C
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used		DESC	DESC
Stage Majority, Percent		V2 60	V4 55
Stage Minimum, Percent		V2 60	V4 55
Stage Maximum, Percent		V3 40	V5 45
Height Average		5 in	9 in
Height Minimum, Maximum			9 10

<b>Pest Stage At Each Application</b>			
	A	B	C
Pest 1 Code, Type, Scale	CYPES W	CYPES W	CYPES W
Stage Majority, Percent		4 leaf 60	4-leaf 65
Stage Minimum, Percent		2-leaf 20	3-leaf 10
Stage Maximum, Percent		5-leaf 10	5-leaf 25
Height Average		3 in	4 in
Height Minimum, Maximum		1 6	3 5
Density Average		50 m2	5 m2
Pest 2 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent		cotyld 55	2-leaf 60
Stage Minimum, Percent		cotyld 55	cotyld 10
Stage Maximum, Percent		2-leaf 45	3-leaf 30
Height Average		0.3 in	0.8 in
Height Minimum, Maximum		0.2 0.4	0.2 1
Density Average		200 m2	10 m2
Pest 3 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent		2-leaf 55	2-leaf 70
Stage Minimum, Percent		cotyld 45	cotyld 15
Stage Maximum, Percent		2-leaf 55	3-leaf 15
Height Average		1 in	1.5 in
Height Minimum, Maximum			1 2
Density Average		1 m2	5 m2

**Application Equipment**

	A	B	C
Appl. Equipment	Tractor	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002
Nozzle Spacing	20 in	20 in	20 in
Boom Length	10 ft	10 ft	10 ft
Boom Height	18 in	21 in	26 in
Ground Speed	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR	COMAIR

Date	By	Notes
06/02/16	Vollmer, K.	Stand gaps in 104, 108, 107, 106, 203, 304

## Trial Comments

06/12/16: Twisting / leaning - trt 7 only: 107 ., 205 - 17, 304 - 15. Rating for trt 6 was similar for trts 6,7,8. Ratings based on weeds present at time of POST application - PRE activity only.

06/17/16: CHEAL and AMAPA in the untreated checks but none in the treated plots.

PRE and POST Weed Control in Field Corn							
Trial ID: Corn3-16		Location: Field #18		Trial Year: 2016			
Protocol ID: Corn3-16		Investigator: Mark VanGessel			Study Director:		
Sponsor Contact: Dow, AMVAC							
Pest Code	Pest Name						
Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date	C ZEAMX Corn Stunting %	C ZEAMX Corn Stunting %	C ZEAMX Corn LeafBrn %
					06/02/16	06/12/16	06/12/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Check						
						0.0 b	0.0 e
2	Keystone LA NXT Premix	6 SE		2.7 lb ai/a	PRE	A	
	----acetochlor	4.3		1.94			
	----atrazine	1.7		0.765			
	Hornet WDG Premix	78.5 WG		0.147 lb ai/a	PRE	A	
	----flumetsulam	18.5		0.0346			
	----cloprialid	60		0.112			
						5.0 a	20.7 a
							0.0 d
3	Keystone NXT Premix	5.6 SE		1.96 lb ai/a	PRE	A	
	----acetochlor	3.1		1.08			
	----atrazine	2.5		0.875			
	Hornet WDG Premix	78.5 WG		0.147 lb ai/a	PRE	A	
	----flumetsulam	18.5		0.0346			
	----cloprialid	60		0.112			
						5.0 a	14.0 b
							0.0 d
4	SureStart II Premix	4.25 SE		0.8 lb ai/a	PRE	A	
	----acetochlor	3.75		0.706			
	----cloprialid	0.38		0.0715			
	----flumetsulam	0.12		0.0226			
	Atrazine 4L	4 L		1 lb ai/a	PRE	A	
	Durango DMA.....glyphosate	4 SL		1 lb ae/a	2-4"wds	C	
	Dry Ammonium Sulfate	100 D		1.02 % w/v	2-4"wds	C	
						2.0 b	11.3 bc
							2.0 cd
5	SureStart II Premix	4.25 SE		0.8 lb ai/a	EaPost	B	
	----acetochlor	3.75		0.706			
	----cloprialid	0.38		0.0715			
	----flumetsulam	0.12		0.0226			
	Atrazine 4L	4 L		1 lb ai/a	EaPost	B	
	Durango DMA.....glyphosate	4 SL		1 lb ae/a	EaPost	B	
	Dry Ammonium Sulfate	100 D		1.02 % w/v	EaPost	B	
							6.3 cd
							4.3 c
6	Harness Xtra 5.6L Premix	5.6 L		2.52 lb ai/a	PRE	A	
	----acetochlor	3.1		1.4			
	----atrazine	2.5		1.13			
	Impact.....topramezone	2.81 SC		0.0165 lb ai/a	2-4"wds	C	
	Atrazine 4L	4 L		0.5 lb ai/a	2-4"wds	C	
	Methylated Seed Oil	100 L		1 % v/v	2-4"wds	C	
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	2-4"wds	C	
						1.0 b	9.7 bc
							9.7 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.



Pest Code Pest Name	AMAPA PalmerAm	IPOSS Mornglry	DIGSA L.crbgrs	C - C ZEAMX Corn Stunting %					
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C - Control % 06/12/16	C - Control % 06/12/16	C - Control % 06/12/16	C ZEAMX Corn Stunting % 06/17/16					
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code				
1 Untreated Check						0.0 b	0.0 b	0.0 b	0.0 e
2 Keystone LA NXT Premix ----acetochlor ----atrazine Hornet WDG Premix ----flumetsulam ----cloprialid	6 SE 4.3 1.7 78.5 WG 18.5 60		2.7 lb ai/a 1.94 0.765 0.147 lb ai/a 0.0346 0.112	PRE PRE	A A	100.0 a	90.7 a	88.7 a	10.0 a
3 Keystone NXT Premix ----acetochlor ----atrazine Hornet WDG Premix ----flumetsulam ----cloprialid	5.6 SE 3.1 2.5 78.5 WG 18.5 60		1.96 lb ai/a 1.08 0.875 0.147 lb ai/a 0.0346 0.112	PRE PRE	A A	100.0 a	83.3 a	85.0 a	9.0 ab
4 SureStart II Premix ----acetochlor ----cloprialid ----flumetsulam Atrazine 4L Durango DMA.....glyphosate Dry Ammonium Sulfate	4.25 SE 3.75 0.38 0.12 4 L 4 SL 100 D		0.8 lb ai/a 0.706 0.0715 0.0226 1 lb ai/a 1 lb ae/a 1.02 % w/v	PRE PRE	A A C C	100.0 a	89.3 a	93.3 a	8.0 ab
5 SureStart II Premix ----acetochlor ----cloprialid ----flumetsulam Atrazine 4L Durango DMA.....glyphosate Dry Ammonium Sulfate	4.25 SE 3.75 0.38 0.12 4 L 4 SL 100 D		0.8 lb ai/a 0.706 0.0715 0.0226 1 lb ai/a 1 lb ae/a 1.02 % w/v	EaPost EaPost EaPost	B B B B				4.0 cd
6 Harness Xtra 5.6L Premix ----acetochlor ----atrazine Impact.....topramezone Atrazine 4L Methylated Seed Oil 30% Urea Ammonium Nitrate	5.6 L 3.1 2.5 2.81 SC 4 L 100 L 100 L		2.52 lb ai/a 1.4 1.13 0.0165 lb ai/a 0.5 lb ai/a 1 % v/v 2.5 % v/v	PRE PRE	A C C C C	100.0 a	85.0 a	92.0 a	1.7 de

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code	IPOSS	DIGSA			AMAPA
Pest Name	Morninglry	L.crbgrs			PalmerAm
Crop Type, Code	C -	C -	C		C -
Crop Name	Control	Control	ZEAMX		Control
Rating Type	%	%	Corn		%
Rating Unit	06/17/16	06/17/16	Stunting		07/02/16
Rating Date			07/02/16		07/02/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code
1 Untreated Check			0.0	c	0.0 c
2 Keystone LA NXT Premix	6 SE		2.7 lb ai/a	PRE	A
----acetochlor	4.3		1.94		
----atrazine	1.7		0.765		
Hornet WDG Premix	78.5 WG		0.147 lb ai/a	PRE	A
----flumetsulam	18.5		0.0346		
----cloprialid	60		0.112		
3 Keystone NXT Premix	5.6 SE		1.96 lb ai/a	PRE	A
----acetochlor	3.1		1.08		
----atrazine	2.5		0.875		
Hornet WDG Premix	78.5 WG		0.147 lb ai/a	PRE	A
----flumetsulam	18.5		0.0346		
----cloprialid	60		0.112		
4 SureStart II Premix	4.25 SE		0.8 lb ai/a	PRE	A
----acetochlor	3.75		0.706		
----cloprialid	0.38		0.0715		
----flumetsulam	0.12		0.0226		
Atrazine 4L	4 L		1 lb ai/a	PRE	A
Durango DMA.....glyphosate	4 SL		1 lb ae/a	2-4"wds	C
Dry Ammonium Sulfate	100 D		1.02 % w/v	2-4"wds	C
5 SureStart II Premix	4.25 SE		0.8 lb ai/a	EaPost	B
----acetochlor	3.75		0.706		
----cloprialid	0.38		0.0715		
----flumetsulam	0.12		0.0226		
Atrazine 4L	4 L		1 lb ai/a	EaPost	B
Durango DMA.....glyphosate	4 SL		1 lb ae/a	EaPost	B
Dry Ammonium Sulfate	100 D		1.02 % w/v	EaPost	B
6 Harness Xtra 5.6L Premix	5.6 L		2.52 lb ai/a	PRE	A
----acetochlor	3.1		1.4		
----atrazine	2.5		1.13		
Impact.....topramezone	2.81 SC		0.0165 lb ai/a	2-4"wds	C
Atrazine 4L	4 L		0.5 lb ai/a	2-4"wds	C
Methylated Seed Oil	100 L		1 % v/v	2-4"wds	C
30% Urea Ammonium Nitrate	100 L		2.5 % v/v	2-4"wds	C

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code						IPOSS	DIGSA	
Pest Name						Mornglry	L.Crbgrs	
Crop Type, Code						C -	C -	C
Crop Name								ZEAMX
Rating Type						Control	Control	Corn
Rating Unit						%	%	Yield
Rating Date						07/02/16	07/02/16	Bu/A
								10/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 c
2	Keystone LA NXT Premix	6	SE	2.7	lb ai/a	PRE	A	58.3 b
	----acetochlor	4.3		1.94				68.3 c
	----atrazine	1.7		0.765				196.1 a
	Hornet WDG Premix	78.5	WG	0.147	lb ai/a	PRE	A	
	----flumetsulam	18.5		0.0346				
	----cloprialid	60		0.112				
3	Keystone NXT Premix	5.6	SE	1.96	lb ai/a	PRE	A	62.7 b
	----acetochlor	3.1		1.08				66.7 c
	----atrazine	2.5		0.875				203.6 a
	Hornet WDG Premix	78.5	WG	0.147	lb ai/a	PRE	A	
	----flumetsulam	18.5		0.0346				
	----cloprialid	60		0.112				
4	SureStart II Premix	4.25	SE	0.8	lb ai/a	PRE	A	80.7 a
	----acetochlor	3.75		0.706				87.3 b
	----cloprialid	0.38		0.0715				225.3 a
	----flumetsulam	0.12		0.0226				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
	Durango DMA.....glyphosate	4	SL	1	lb ae/a	2-4"wds	C	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	2-4"wds	C	
5	SureStart II Premix	4.25	SE	0.8	lb ai/a	EaPost	B	88.7 a
	----acetochlor	3.75		0.706				99.0 a
	----cloprialid	0.38		0.0715				215.7 a
	----flumetsulam	0.12		0.0226				
	Atrazine 4L	4	L	1	lb ai/a	EaPost	B	
	Durango DMA.....glyphosate	4	SL	1	lb ae/a	EaPost	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	EaPost	B	
6	Harness Xtra 5.6L Premix	5.6	L	2.52	lb ai/a	PRE	A	78.7 a
	----acetochlor	3.1		1.4				96.7 a
	----atrazine	2.5		1.13				199.8 a
	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	2-4"wds	C	
	Atrazine 4L	4	L	0.5	lb ai/a	2-4"wds	C	
	Methylated Seed Oil	100	L	1	% v/v	2-4"wds	C	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	2-4"wds	C	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Pest Name							C ZEAMX Corn Stunting %	C ZEAMX Corn Stunting %	C ZEAMX Corn LeafBrn %
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							06/02/16	06/12/16	06/12/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code			
7 Harness Xtra 5.6L Premix	5.6 L		2.52 lb ai/a		PRE	A	2.0 b	7.3 cd	9.0 ab
----acetochlor	3.1		1.4						
----atrazine	2.5		1.13						
Impact.....topramezone	2.81 SC		0.0165 lb ai/a		2-4"wds	C			
Status Premix	56 WG		0.105 lb ai/a		2-4"wds	C			
----diflufenzopyr	16		0.03						
----dicamba	40		0.075						
Atrazine 4L	4 L		0.5 lb ai/a		2-4"wds	C			
Methylated Seed Oil	100 L		1 % v/v		2-4"wds	C			
30% Urea Ammonium Nitrate	100 L		2.5 % v/v		2-4"wds	C			
8 Harness Xtra 5.6L Premix	5.6 L		2.52 lb ai/a		PRE	A	2.0 b	4.0 de	7.0 b
----acetochlor	3.1		1.4						
----atrazine	2.5		1.13						
Impact.....topramezone	2.81 SC		0.0165 lb ai/a		2-4"wds	C			
Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		2-4"wds	C			
Atrazine 4L	4 L		0.5 lb ai/a		2-4"wds	C			
Methylated Seed Oil	100 L		0.5 % v/v		2-4"wds	C			
30% Urea Ammonium Nitrate	100 L		2.5 % v/v		2-4"wds	C			
9 Harness Xtra 5.6L Premix	5.6 L		2.52 lb ai/a		EaPost	B		10.0 bc	9.0 ab
----acetochlor	3.1		1.4						
----atrazine	2.5		1.13						
Impact.....topramezone	2.81 SC		0.022 lb ai/a		EaPost	B			
Methylated Seed Oil	100 L		0.25 % v/v		EaPost	B			
30% Urea Ammonium Nitrate	100 L		2.5 % v/v		EaPost	B			
10 Halex GT Premix	4.376 SC		1.97 lb ai/a		EaPost	B		6.3 cd	3.0 c
----s-metolachlor	2.084		0.94						
----glyphosate	2.084		0.94						
----mesotrione	0.208		0.094						
Atrazine 4L	4 L		0.5 lb ai/a		EaPost	B			
Nonionic Surfactant	100 L		0.25 % v/v		EaPost	B			
Dry Ammonium Sulfate	100 D		1.02 % w/v		EaPost	B			
LSD P=.05							2.33	5.03	2.52
Standard Deviation							1.31	2.93	1.47
CV							53.91	32.7	33.34
Replicate F							1.000	0.190	0.604
Replicate Prob(F)							0.3966	0.8286	0.5573
Treatment F							6.333	11.283	22.093
Treatment Prob(F)							0.0034	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=10,11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Pest Name	AMAPA PalmerAm	IPOSS Morngrly	DIGSA L.crbgrs						
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C - Control % 06/12/16	C - Control % 06/12/16	C - Control % 06/12/16	C ZEAMX Corn Stunting % 06/17/16					
Trt Treatment No. Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code				
7 Harness Xtra 5.6L Premix ----acetochlor ----atrazine Impact.....topramezone Status Premix ----diflufenzopyr ----dicamba Atrazine 4L Methylated Seed Oil 30% Urea Ammonium Nitrate	5.6 L 3.1 2.5 2.81 SC 56 WG 16 40 4 L 100 L 100 L		2.52 lb ai/a 1.4 1.13 0.0165 lb ai/a 0.105 lb ai/a 0.03 0.075 0.5 lb ai/a 1 % v/v 2.5 % v/v	PRE   2-4"wds 2-4"wds   2-4"wds 2-4"wds 2-4"wds	A   C C   C C C				5.7 bc
8 Harness Xtra 5.6L Premix ----acetochlor ----atrazine Impact.....topramezone Roundup PowerMax..glyphosate Atrazine 4L Methylated Seed Oil 30% Urea Ammonium Nitrate	5.6 L 3.1 2.5 2.81 SC 4.5 AS 4 L 100 L 100 L		2.52 lb ai/a 1.4 1.13 0.0165 lb ai/a 1.13 lb ae/a 0.5 lb ai/a 0.5 % v/v 2.5 % v/v	PRE   2-4"wds 2-4"wds 2-4"wds 2-4"wds 2-4"wds	A   C C C C C				0.0 e
9 Harness Xtra 5.6L Premix ----acetochlor ----atrazine Impact.....topramezone Methylated Seed Oil 30% Urea Ammonium Nitrate	5.6 L 3.1 2.5 2.81 SC 100 L 100 L		2.52 lb ai/a 1.4 1.13 0.022 lb ai/a 0.25 % v/v 2.5 % v/v	EaPost   EaPost EaPost EaPost	B   B B B				8.3 ab
10 Halex GT Premix ----s-metolachlor ----glyphosate ----mesotrione Atrazine 4L Nonionic Surfactant Dry Ammonium Sulfate	4.376 SC 2.084 2.084 0.208 4 L 100 L 100 D		1.97 lb ai/a 0.94 0.94 0.094 0.5 lb ai/a 0.25 % v/v 1.02 % w/v	EaPost   EaPost EaPost EaPost	B   B B B				1.7 de
LSD P=.05	.	11.85	8.80	3.66					
Standard Deviation	0.00	6.30	4.68	2.13					
CV	0.0	9.04	6.51	44.11					
Replicate F	0.000	0.693	0.009	0.976					
Replicate Prob(F)	1.0000	0.5278	0.9909	0.3961					
Treatment F	0.000	115.492	222.451	9.866					
Treatment Prob(F)	1.0000	0.0001	0.0001	0.0001					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=10,11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code						IPOSS	DIGSA		AMAPA		
Pest Name						Mornglry	L.crbgrs		PalmerAm		
Crop Type, Code						C -	C -	C	C -		
Crop Name								ZEAMX			
Rating Type						Control	Control	Corn	Control		
Rating Unit						%	%	Stunting	%		
Rating Date						06/17/16	06/17/16	07/02/16	07/02/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code				
7	Harness Xtra 5.6L Premix	5.6	L	2.52	lb ai/a	PRE	A	98.3 a	99.0 a	6.4 ab	100.0 a
	----acetochlor	3.1		1.4							
	----atrazine	2.5		1.13							
	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	2-4"wds	C				
	Status Premix	56	WG	0.105	lb ai/a	2-4"wds	C				
	----diflufenzopyr	16		0.03							
	----dicamba	40		0.075							
	Atrazine 4L	4	L	0.5	lb ai/a	2-4"wds	C				
	Methylated Seed Oil	100	L	1	% v/v	2-4"wds	C				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	2-4"wds	C				
8	Harness Xtra 5.6L Premix	5.6	L	2.52	lb ai/a	PRE	A	93.3 a	98.7 a	2.3 bc	100.0 a
	----acetochlor	3.1		1.4							
	----atrazine	2.5		1.13							
	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	2-4"wds	C				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	2-4"wds	C				
	Atrazine 4L	4	L	0.5	lb ai/a	2-4"wds	C				
	Methylated Seed Oil	100	L	0.5	% v/v	2-4"wds	C				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	2-4"wds	C				
9	Harness Xtra 5.6L Premix	5.6	L	2.52	lb ai/a	EaPost	B	98.3 a	99.3 a	5.4 ab	100.0 a
	----acetochlor	3.1		1.4							
	----atrazine	2.5		1.13							
	Impact.....topramezone	2.81	SC	0.022	lb ai/a	EaPost	B				
	Methylated Seed Oil	100	L	0.25	% v/v	EaPost	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	EaPost	B				
10	Halex GT Premix	4.376	SC	1.97	lb ai/a	EaPost	B	99.0 a	99.0 a	2.3 bc	100.0 a
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	Atrazine 4L	4	L	0.5	lb ai/a	EaPost	B				
	Nonionic Surfactant	100	L	0.25	% v/v	EaPost	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	EaPost	B				
LSD P=.05						7.61	7.59	4.89	6.72		
Standard Deviation						4.44	4.43	2.79	3.90		
CV						5.16	5.23	61.3	4.39		
Replicate F						2.074	0.185	5.298	0.152		
Replicate Prob(F)						0.1546	0.8323	0.0194	0.8599		
Treatment F						142.154	147.768	3.022	193.422		
Treatment Prob(F)						0.0001	0.0001	0.0313	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code						IPOSS	DIGSA	
Pest Name						Morninglry	L.Crbgrs	
Crop Type, Code						C -	C -	C
Crop Name								ZEAMX
Rating Type						Control	Control	Corn
Rating Unit						%	%	Yield
Rating Date						07/02/16	07/02/16	Bu/A
								10/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code		
7	Harness Xtra 5.6L Premix	5.6	L	2.52 lb ai/a	PRE	A	91.0 a	99.0 a
	----acetochlor	3.1		1.4				
	----atrazine	2.5		1.13				
	Impact.....topramezone	2.81	SC	0.0165 lb ai/a	2-4"wds	C		
	Status Premix	56	WG	0.105 lb ai/a	2-4"wds	C		
	----diflufenzopyr	16		0.03				
	----dicamba	40		0.075				
	Atrazine 4L	4	L	0.5 lb ai/a	2-4"wds	C		
	Methylated Seed Oil	100	L	1 % v/v	2-4"wds	C		
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C		
8	Harness Xtra 5.6L Premix	5.6	L	2.52 lb ai/a	PRE	A	82.7 a	99.0 a
	----acetochlor	3.1		1.4				
	----atrazine	2.5		1.13				
	Impact.....topramezone	2.81	SC	0.0165 lb ai/a	2-4"wds	C		
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	2-4"wds	C		
	Atrazine 4L	4	L	0.5 lb ai/a	2-4"wds	C		
	Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	C		
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C		
9	Harness Xtra 5.6L Premix	5.6	L	2.52 lb ai/a	EaPost	B	85.3 a	100.0 a
	----acetochlor	3.1		1.4				
	----atrazine	2.5		1.13				
	Impact.....topramezone	2.81	SC	0.022 lb ai/a	EaPost	B		
	Methylated Seed Oil	100	L	0.25 % v/v	EaPost	B		
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	EaPost	B		
10	Halex GT Premix	4.376	SC	1.97 lb ai/a	EaPost	B	89.7 a	100.0 a
	----s-metolachlor	2.084		0.94				
	----glyphosate	2.084		0.94				
	----mesotrione	0.208		0.094				
	Atrazine 4L	4	L	0.5 lb ai/a	EaPost	B		
	Nonionic Surfactant	100	L	0.25 % v/v	EaPost	B		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	EaPost	B		
LSD P=.05						13.73	7.37	29.74
Standard Deviation						8.00	4.30	17.34
CV						11.15	5.27	8.11
Replicate F						3.216	0.493	4.122
Replicate Prob(F)						0.0640	0.6190	0.0336
Treatment F						35.478	160.669	1.134
Treatment Prob(F)						0.0001	0.0001	0.3898

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=10,11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

**PRE and POST Corn Herbicide Programs**

Trial ID: Corn5-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Corn5-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: BASF, Syngenta

**General Trial Information**

Investigator: Mark VanGessel      Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      ZEAMX Zea mays      Corn      BBCH Scale: BCOR  
 Variety: D52VC91  
 Attributes: Roundup Ready  
 Planting Date: 05/16/16      Planting Rate: 30000      S/A  
 Depth: 2 in  
 Row Spacing: 30 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 64 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/25/16  
 Harvest Date: 10/04/16      Harvest Equipment: Plot combine  
 Harvested Width: 5 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 15.5

**Pest Description**

Pest 1 Type: W      Code: DIGSA      Digitaria sanguinalis  
 Common Name: large crabgrass

Pest 2 Type: W      Code: CYPES      Cyperus esculentus  
 Common Name: Yellow nutsedge

Pest 3 Type: W      Code: AMBEL      Ambrosia artemisiifolia  
 Common Name: Common ragweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 12      Tillage Type: CONTIL      conventional-till  
 Replications: 3      Study Design: RACOB      Randomized Complete Block (RCB)

**Soil Description**

% Sand: 82      % OM: 1.2      Texture: LS loamy sand  
 % Silt: 11      pH: 6.5  
 % Clay: 7      CEC: 4.6      Fert. Level: G good  
 Soil Drainage: G good



**Application Description**

	A	B
Application Date	05/17/16	06/07/16
Appl. Stop Time	09:40 AM	04:00 PM
Interval to Prev. Appl.		21 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	V3-4
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	62 F	86 F
% Relative Humidity Start, Stop	70	32
Wind Velocity+Dir. Start	0 mph N/A	3 mph NW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	62 F	86 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	100	35

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used		DESC
Stage Majority, Percent		V4 100
Height Average		9 in
Height Minimum, Maximum		9 10

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent		4-leaf 100
Height Average		1.5 in
Height Minimum, Maximum		1 2
Density Average		70 m2
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent		4-5 lf 65
Stage Minimum, Percent		3-leaf 15
Stage Maximum, Percent		6-leaf 20
Height Average		4 in
Height Minimum, Maximum		2 6
Density Average		40 m2
Pest 3 Code, Type, Scale	AMBEL W	AMBEL W
Stage Majority, Percent		6-leaf 60
Stage Minimum, Percent		6-leaf 60
Stage Maximum, Percent		8-leaf 40
Height Average		3 in
Height Minimum, Maximum		2.5 3
Density Average		2 m2

<b>Application Equipment</b>		
	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	26 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

Date	By	Notes
06/02/16	Vollmer, K.	Stand gaps in 107, 109

Trial Comments

06/17/16: Plamer amaranth and common lambsquarters were in the untreated checks, but not in any treated plots.

PRE and POST Corn Herbicide Programs							
Trial ID: Corn5-16		Location: Field #18		Trial Year: 2016			
Protocol ID: Corn5-16		Investigator: Mark VanGessel					
Study Director:							
Sponsor Contact: BASF, Syngenta							
Pest Code	Pest Name	C ZEAMX		C ZEAMX		C ZEAMX	
Crop Type, Code	Crop Name	Corn Stunting %	Corn LeafBrn %	Corn Stunting %			
Rating Type	Rating Unit	06/02/16	06/11/16	06/11/16			
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing	Appl Code	
1	Untreated Check						0.0 a    0.0 f    0.0 d
2	Verdict Premix	5.57 EC	0.435 lb ai/a	PRE	A		2.0 a    0.0 f    8.0 ab
	----saflufenacil	0.57	0.0445				
	----dimethenamid	5	0.39				
	Zidua.....pyroxasulfone	4.17 SC	0.13 lb ai/a	PRE	A		
	Atrazine 4L	4 L	1 lb ai/a	PRE	A		
3	Verdict Premix	5.57 EC	0.435 lb ai/a	PRE	A		1.0 a    7.0 cd    9.7 a
	----saflufenacil	0.57	0.0445				
	----dimethenamid	5	0.39				
	Zidua.....pyroxasulfone	4.17 SC	0.108 lb ai/a	V3-4	B		
	Atrazine 4L	4 L	1 lb ai/a	V3-4	B		
	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	V3-4	B		
	Crop Oil Concentrate	100 L	1 % v/v	V3-4	B		
4	Zidua.....pyroxasulfone	4.17 SC	0.108 lb ai/a	V3-4	B		9.7 c    0.0 d
	Atrazine 4L	4 L	1 lb ai/a	V3-4	B		
	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	V3-4	B		
	Crop Oil Concentrate	100 L	1 % v/v	V3-4	B		
5	Halex GT Premix	4.376 SC	1.97 lb ai/a	V3-4	B		33.3 a
	----s-metolachlor	2.084	0.94				
	----glyphosate	2.084	0.94				
	----mesotrione	0.208	0.094				
	Atrazine 4L	4 L	1 lb ai/a	V3-4	B		
	Crop Oil Concentrate	100 L	1 % v/v	V3-4	B		
6	Zidua.....pyroxasulfone	4.17 SC	0.108 lb ai/a	V3-4	B		21.7 b
	Callisto.....mesotrione	4 SC	0.094 lb ai/a	V3-4	B		
	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	V3-4	B		
	Crop Oil Concentrate	100 L	1 % v/v	V3-4	B		
7	Acuron Premix	3.44 ZC	2.58 lb ai/a	PRE	A		0.0 a    0.0 f    6.7 abc
	----atrazine	1	0.75				
	----bicyclopyrone	0.06	0.045				
	----mesotrione	0.24	0.18				
	----s-metolachlor	2.14	1.6				
8	Acuron Premix	3.44 ZC	2.15 lb ai/a	PRE	A		2.0 a    0.0 f    4.7 bc
	----atrazine	1	0.625				
	----bicyclopyrone	0.06	0.0375				
	----mesotrione	0.24	0.15				
	----s-metolachlor	2.14	1.34				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=9

Pest Code Pest Name							IPOSS Mornglry	DIGSA L.crbgrs		IPOSS Mornglry
Crop Type, Code							C -	C -	C ZEAMX	C -
Crop Name							Control	Control	Corn Stunting	Control
Rating Type							%	%	%	%
Rating Unit							06/11/16	06/11/16	06/17/16	06/17/16
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing Code				
1	Untreated Check						0.0 c	0.0 c	0.0 d	0.0 e
2	Verdict Premix	5.57 EC		0.435 lb ai/a		PRE A	84.3 ab	92.7 b	7.0 bc	91.7 bc
	----saflufenacil	0.57		0.0445						
	----dimethenamid	5		0.39						
	Zidua.....pyroxasulfone	4.17 SC		0.13 lb ai/a		PRE A				
	Atrazine 4L	4 L		1 lb ai/a		PRE A				
3	Verdict Premix	5.57 EC		0.435 lb ai/a		PRE A	91.7 a	94.7 ab	7.0 bc	97.7 a
	----saflufenacil	0.57		0.0445						
	----dimethenamid	5		0.39						
	Zidua.....pyroxasulfone	4.17 SC		0.108 lb ai/a	V3-4	B				
	Atrazine 4L	4 L		1 lb ai/a	V3-4	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	V3-4	B				
	Crop Oil Concentrate	100 L		1 % v/v	V3-4	B				
4	Zidua.....pyroxasulfone	4.17 SC		0.108 lb ai/a	V3-4	B			0.0 d	99.3 a
	Atrazine 4L	4 L		1 lb ai/a	V3-4	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	V3-4	B				
	Crop Oil Concentrate	100 L		1 % v/v	V3-4	B				
5	Halex GT Premix	4.376 SC		1.97 lb ai/a	V3-4	B			18.3 a	98.0 a
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4 L		1 lb ai/a	V3-4	B				
	Crop Oil Concentrate	100 L		1 % v/v	V3-4	B				
6	Zidua.....pyroxasulfone	4.17 SC		0.108 lb ai/a	V3-4	B			8.0 b	97.7 a
	Callisto.....mesotrione	4 SC		0.094 lb ai/a	V3-4	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	V3-4	B				
	Crop Oil Concentrate	100 L		1 % v/v	V3-4	B				
7	Acuron Premix	3.44 ZC		2.58 lb ai/a		PRE A	85.7 ab	98.0 a	2.3 cd	84.3 d
	----atrazine	1		0.75						
	----bicyclopyrone	0.06		0.045						
	----mesotrione	0.24		0.18						
	----s-metolachlor	2.14		1.6						
8	Acuron Premix	3.44 ZC		2.15 lb ai/a		PRE A	76.7 b	97.0 ab	0.0 d	85.3 d
	----atrazine	1		0.625						
	----bicyclopyrone	0.06		0.0375						
	----mesotrione	0.24		0.15						
	----s-metolachlor	2.14		1.34						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9

Pest Code Pest Name							DIGSA L.crbgrs		AMAPA PalmerAm
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							C - C Control % 06/17/16	ZEAMX Corn Stunting % 07/02/16	C - Control % 07/02/16
Trt Treatment No. Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing	Appl Code				
1 Untreated Check						0.0 c	0.8 bc	0.0 c	
2 Verdict Premix	5.57 EC	0.435 lb ai/a	PRE	A		91.7 ab	11.7 a	100.0 a	
----saflufenacil	0.57	0.0445							
----dimethenamid	5	0.39							
Zidua.....pyroxasulfone	4.17 SC	0.13 lb ai/a	PRE	A					
Atrazine 4L	4 L	1 lb ai/a	PRE	A					
3 Verdict Premix	5.57 EC	0.435 lb ai/a	PRE	A		99.3 a	6.3 ab	100.0 a	
----saflufenacil	0.57	0.0445							
----dimethenamid	5	0.39							
Zidua.....pyroxasulfone	4.17 SC	0.108 lb ai/a	V3-4	B					
Atrazine 4L	4 L	1 lb ai/a	V3-4	B					
Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	V3-4	B					
Crop Oil Concentrate	100 L	1 % v/v	V3-4	B					
4 Zidua.....pyroxasulfone	4.17 SC	0.108 lb ai/a	V3-4	B		95.0 a	2.3 bc	100.0 a	
Atrazine 4L	4 L	1 lb ai/a	V3-4	B					
Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	V3-4	B					
Crop Oil Concentrate	100 L	1 % v/v	V3-4	B					
5 Halex GT Premix	4.376 SC	1.97 lb ai/a	V3-4	B		95.3 a	11.8 a	100.0 a	
----s-metolachlor	2.084	0.94							
----glyphosate	2.084	0.94							
----mesotrione	0.208	0.094							
Atrazine 4L	4 L	1 lb ai/a	V3-4	B					
Crop Oil Concentrate	100 L	1 % v/v	V3-4	B					
6 Zidua.....pyroxasulfone	4.17 SC	0.108 lb ai/a	V3-4	B		91.3 ab	5.3 bc	97.3 b	
Callisto.....mesotrione	4 SC	0.094 lb ai/a	V3-4	B					
Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	V3-4	B					
Crop Oil Concentrate	100 L	1 % v/v	V3-4	B					
7 Acuron Premix	3.44 ZC	2.58 lb ai/a	PRE	A		96.3 a	0.0 c	100.0 a	
----atrazine	1	0.75							
----bicyclopyrone	0.06	0.045							
----mesotrione	0.24	0.18							
----s-metolachlor	2.14	1.6							
8 Acuron Premix	3.44 ZC	2.15 lb ai/a	PRE	A		97.0 a	2.3 bc	100.0 a	
----atrazine	1	0.625							
----bicyclopyrone	0.06	0.0375							
----mesotrione	0.24	0.15							
----s-metolachlor	2.14	1.34							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9

Pest Code Pest Name Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							IPOSS Mornglry C -  Control %	DIGSA L.crbgrs C -  Control %	C ZEAMX Corn Yield Bu/A 10/04/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 d	0.0 c	160.2 d
2	Verdict Premix	5.57	EC	0.435	lb ai/a	PRE	A	75.0 bc	84.0 b	224.9 abc
	----saflufenacil	0.57		0.0445						
	----dimethenamid	5		0.39						
	Zidua.....pyroxasulfone	4.17	SC	0.13	lb ai/a	PRE	A			
	Atrazine 4L	4	L	1	lb ai/a	PRE	A			
3	Verdict Premix	5.57	EC	0.435	lb ai/a	PRE	A	94.7 a	100.0 a	237.4 a
	----saflufenacil	0.57		0.0445						
	----dimethenamid	5		0.39						
	Zidua.....pyroxasulfone	4.17	SC	0.108	lb ai/a	V3-4	B			
	Atrazine 4L	4	L	1	lb ai/a	V3-4	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3-4	B			
	Crop Oil Concentrate	100	L	1	% v/v	V3-4	B			
4	Zidua.....pyroxasulfone	4.17	SC	0.108	lb ai/a	V3-4	B	91.7 a	98.0 a	232.3 ab
	Atrazine 4L	4	L	1	lb ai/a	V3-4	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3-4	B			
	Crop Oil Concentrate	100	L	1	% v/v	V3-4	B			
5	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3-4	B	91.7 a	90.0 ab	219.4 abc
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4	L	1	lb ai/a	V3-4	B			
	Crop Oil Concentrate	100	L	1	% v/v	V3-4	B			
6	Zidua.....pyroxasulfone	4.17	SC	0.108	lb ai/a	V3-4	B	85.7 ab	98.3 a	200.8 abc
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V3-4	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3-4	B			
	Crop Oil Concentrate	100	L	1	% v/v	V3-4	B			
7	Acuron Premix	3.44	ZC	2.58	lb ai/a	PRE	A	66.7 c	88.3 ab	199.5 bc
	----atrazine	1		0.75						
	----bicyclopyrone	0.06		0.045						
	----mesotrione	0.24		0.18						
	----s-metolachlor	2.14		1.6						
8	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	72.7 bc	93.7 ab	216.8 abc
	----atrazine	1		0.625						
	----bicyclopyrone	0.06		0.0375						
	----mesotrione	0.24		0.15						
	----s-metolachlor	2.14		1.34						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9

Pest Code									
Pest Name									
Crop Type, Code							C ZEAMX	C ZEAMX	C ZEAMX
Crop Name							Corn	Corn	Corn
Rating Type							Stunting	LeafBrn	Stunting
Rating Unit							%	%	%
Rating Date							06/02/16	06/11/16	06/11/16
Trt Treatment No. Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code			
9 Acuron Premix	3.44	ZC	1.29	lb ai/a	PRE	A	2.0 a	3.7 e	2.3 cd
----atrazine	1		0.375						
----bicyclopyrone	0.06		0.0225						
----mesotrione	0.24		0.09						
----s-metolachlor	2.14		0.8						
Halex GT Premix	4.376	SC	1.97	lb ai/a	V3-4	B			
----s-metolachlor	2.084		0.94						
----glyphosate	2.084		0.94						
----mesotrione	0.208		0.094						
Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B			
Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B			
10 Acuron Premix	3.44	ZC	2.58	lb ai/a	V3-4	B		5.7 de	0.0 d
----atrazine	1		0.75						
----bicyclopyrone	0.06		0.045						
----mesotrione	0.24		0.18						
----s-metolachlor	2.14		1.6						
Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B			
Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B			
11 Acuron Flexi Premix	3.26	ZC	1.83	lb ai/a	PRE	A	0.0 a	0.0 f	8.3 ab
----bicyclopyrone	.08000001		0.045						
----mesotrione	0.32		0.18						
----s-metolachlor	2.86		1.6						
12 Acuron Flexi Premix	3.26	ZC	1.83	lb ai/a	V3-4	B		3.0 ef	4.7 bc
----bicyclopyrone	.08000001		0.045						
----mesotrione	0.32		0.18						
----s-metolachlor	2.86		1.6						
Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B			
Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B			
LSD P=.05							2.47	3.21	4.58
Standard Deviation							1.39	1.90	2.67
CV							138.87	27.1	60.23
Replicate F							0.222	3.080	1.519
Replicate Prob(F)							0.8040	0.0662	0.2456
Treatment F							1.556	90.156	5.788
Treatment Prob(F)							0.2422	0.0001	0.0008

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9

Pest Code Pest Name							IPOSS Mornglry	DIGSA L.crbgrs		IPOSS Mornglry
Crop Type, Code							C -	C -	C ZEAMX	C -
Crop Name							Control	Control	Corn Stunting	Control
Rating Type							%	%	%	%
Rating Unit										
Rating Date							06/11/16	06/11/16	06/17/16	06/17/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code				
9 Acuron Premix	3.44	ZC	1.29	lb ai/a	PRE	A	88.3 a	92.3 b	5.7 bc	98.0 a
----atrazine	1		0.375							
----bicyclopyrone	0.06		0.0225							
----mesotrione	0.24		0.09							
----s-metolachlor	2.14		0.8							
Halex GT Premix	4.376	SC	1.97	lb ai/a	V3-4	B				
----s-metolachlor	2.084		0.94							
----glyphosate	2.084		0.94							
----mesotrione	0.208		0.094							
Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B				
Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B				
10 Acuron Premix	3.44	ZC	2.58	lb ai/a	V3-4	B			5.7 bc	99.3 a
----atrazine	1		0.75							
----bicyclopyrone	0.06		0.045							
----mesotrione	0.24		0.18							
----s-metolachlor	2.14		1.6							
Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B				
Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B				
11 Acuron Flexi Premix	3.26	ZC	1.83	lb ai/a	PRE	A	90.7 a	97.7 a	4.7 bcd	91.0 c
----bicyclopyrone	.08000001		0.045							
----mesotrione	0.32		0.18							
----s-metolachlor	2.86		1.6							
12 Acuron Flexi Premix	3.26	ZC	1.83	lb ai/a	V3-4	B			2.3 cd	96.0 ab
----bicyclopyrone	.08000001		0.045							
----mesotrione	0.32		0.18							
----s-metolachlor	2.86		1.6							
Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B				
Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B				
LSD P=.05							9.87	4.76	4.86	4.35
Standard Deviation							5.55	2.68	2.87	2.57
CV							7.51	3.27	56.48	2.97
Replicate F							1.440	1.163	2.710	4.497
Replicate Prob(F)							0.2750	0.3455	0.0887	0.0231
Treatment F							105.941	546.352	9.427	349.762
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9



Pest Code Pest Name							DIGSA L.crbgrs		AMAPA PalmerAm	
Crop Type, Code Crop Name							C - C	ZEAMX Corn	C -	
Rating Type							Control	Stunting	Control	
Rating Unit							%	%	%	
Rating Date							06/17/16	07/02/16	07/02/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
9	Acuron Premix	3.44	ZC	1.29	lb ai/a	PRE	A	100.0 a	0.0 c	100.0 a
	----atrazine	1		0.375						
	----bicyclopyrone	0.06		0.0225						
	----mesotrione	0.24		0.09						
	----s-metolachlor	2.14		0.8						
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3-4	B			
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B			
10	Acuron Premix	3.44	ZC	2.58	lb ai/a	V3-4	B	84.7 b	3.3 bc	100.0 a
	----atrazine	1		0.75						
	----bicyclopyrone	0.06		0.045						
	----mesotrione	0.24		0.18						
	----s-metolachlor	2.14		1.6						
	Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B			
11	Acuron Flexi Premix	3.26	ZC	1.83	lb ai/a	PRE	A	95.7 a	0.0 c	100.0 a
	----bicyclopyrone	.08000001		0.045						
	----mesotrione	0.32		0.18						
	----s-metolachlor	2.86		1.6						
12	Acuron Flexi Premix	3.26	ZC	1.83	lb ai/a	V3-4	B	92.7 ab	1.8 bc	100.0 a
	----bicyclopyrone	.08000001		0.045						
	----mesotrione	0.32		0.18						
	----s-metolachlor	2.86		1.6						
	Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B			
LSD P=.05							8.75	5.81	2.26	
Standard Deviation							5.17	3.34	1.33	
CV							5.97	87.75	1.46	
Replicate F							3.038	1.915	1.000	
Replicate Prob(F)							0.0684	0.1817	0.3840	
Treatment F							85.446	4.789	1400.432	
Treatment Prob(F)							0.0001	0.0030	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9

Pest Code								IPOSS	DIGSA	C	ZEAMX
Pest Name								Morngrly	L.crbgrs		
Crop Type, Code								C -	C -	Corn	
Crop Name								Control	Control	Yield	
Rating Type								%	%	Bu/A	
Rating Unit								07/02/16	07/02/16	10/04/16	
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
9	Acuron Premix	3.44	ZC	1.29	lb ai/a	PRE	A	97.7 a	100.0 a	227.8 ab	
	----atrazine	1		0.375							
	----bicyclopyrone	0.06		0.0225							
	----mesotrione	0.24		0.09							
	----s-metolachlor	2.14		0.8							
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3-4	B				
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B				
10	Acuron Premix	3.44	ZC	2.58	lb ai/a	V3-4	B	100.0 a	99.7 a	213.4 abc	
	----atrazine	1		0.75							
	----bicyclopyrone	0.06		0.045							
	----mesotrione	0.24		0.18							
	----s-metolachlor	2.14		1.6							
	Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B				
11	Acuron Flexi Premix	3.26	ZC	1.83	lb ai/a	PRE	A	75.7 bc	88.3 ab	223.4 abc	
	----bicyclopyrone	.08000001		0.045							
	----mesotrione	0.32		0.18							
	----s-metolachlor	2.86		1.6							
12	Acuron Flexi Premix	3.26	ZC	1.83	lb ai/a	V3-4	B	97.3 a	96.0 a	187.4 cd	
	----bicyclopyrone	.08000001		0.045							
	----mesotrione	0.32		0.18							
	----s-metolachlor	2.86		1.6							
	Nonionic Surfactant	100	L	0.25	% v/v	V3-4	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3-4	B				
LSD P=.05								15.43	11.95	37.87	
Standard Deviation								9.11	7.06	22.37	
CV								11.52	8.17	10.55	
Replicate F								1.943	6.262	8.915	
Replicate Prob(F)								0.1672	0.0070	0.0015	
Treatment F								26.939	46.325	2.863	
Treatment Prob(F)								0.0001	0.0001	0.0172	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9

Isoxaflutole in Field Corn  
 Trial ID: Corn7-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Corn7-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Bayer

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      ZEAMX Zea mays      Corn      BBCH Scale: BCOR  
 Variety: D52VC91  
 Attributes: Roundup Ready  
 Planting Date: 05/16/16      Planting Rate: 30000      S/A  
 Depth: 2 in  
 Row Spacing: 30 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 64 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/25/16  
 Harvest Date: 10/04/16      Harvest Equipment: Plot combine  
 Harvested Width: 5 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 15.5

**Pest Description**

Pest 1 Type: W    Code: DIGSA *Digitaria sanguinalis*  
 Common Name: large crabgrass

Pest 2 Type: W    Code: CYPES *Cyperus esculentus*  
 Common Name: Yellow nutsedge

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 10    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**

% Sand: 82    % OM: 1.2    Texture: LS loamy sand  
 % Silt: 11    pH: 6.5  
 % Clay: 7    CEC: 4.6    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B
Application Date	05/17/16	06/03/16
Appl. Stop Time	08:30 AM	08:40 AM
Interval to Prev. Appl.		17 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	V3
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	59 F	66 F
% Relative Humidity Start, Stop	76	96
Wind Velocity+Dir. Start	0 mph N/A	3 mph E
Wet Leaves (Y/N)	N no	Y yes
Soil Temperature	59 F	66 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	100	95

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used		DESC
Stage Majority, Percent		V3 100
Height Average		5.5 in
Height Minimum, Maximum		5 6

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent		1-2lf 60
Stage Minimum, Percent		cot 10
Stage Maximum, Percent		3-leaf 30
Height Average		0.2 in
Density Average		75 m2
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent		3-leaf 50
Stage Minimum, Percent		2-leaf 30
Stage Maximum, Percent		4-leaf 20
Height Average		3 in
Height Minimum, Maximum		2 5
Density Average		7 m2

**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	22 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

**Trial Comments**

06/11/16: Treatment 10 (DiFlex) had some twisting and leaning, 15% in rep 1, but less than 5% in reps 2 and 3.

06/12/16: Common ragweed, common lambsquarters, and Palmer amaranth were in the untreated checks, but none in the treated plots. All treatments were 100% for these species.

06/25/16: Common lambsquarters and common ragweed were in the untreated checks, but not in the treated plots (treatment 7 had 1 plant in one of the reps). Treatment 10 had slight leaning of corn ~12%.

Isoxaflutole in Field Corn										
Trial ID: Corn7-16		Location: Field #18		Trial Year: 2016						
Protocol ID: Corn7-16		Investigator: Mark VanGessel		Study Director:						
Sponsor Contact: Bayer										
Pest Code	Pest Name									
Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date	C ZEAMX Corn Stunting %	C ZEAMX Corn LeafBrn %	C ZEAMX Corn Stunting %			
					06/02/16	06/11/16	06/11/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 c	0.0 c	0.0 c
2	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	3.3 a	0.0 c	8.0 ab
	----thiencarbazono	0.75		0.0194						
	----isoxaflutole	1.88		0.0486						
	Atrazine 4L	4	L	1	lb ai/a	PRE	A			
3	Corvus Premix	2.63	SC	0.082	lb ai/a	PRE	A	1.0 bc	0.0 c	9.0 ab
	----thiencarbazono	0.75		0.0234						
	----isoxaflutole	1.88		0.0586						
	Atrazine 4L	4	L	1	lb ai/a	PRE	A			
4	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	1.0 bc	0.0 c	1.7 c
	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A			
	----s-metolachlor	2.4		1.27						
	----atrazine	3.1		1.63						
5	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	2.3 ab	0.0 c	1.7 c
	Prowl H2O.....pendimethalin	3.8	CS	1.43	lb ai/a	PRE	A			
	Atrazine 4L	4	L	1	lb ai/a	PRE	A			
6	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	0.0 c	0.0 c	8.0 ab
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A			
	Atrazine 4L	4	L	1	lb ai/a	PRE	A			
7	Balance Flexx...isoxaflutole	2	L	0.0625	lb ai/a	PRE	A	0.0 c	0.0 c	11.3 a
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A			
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A			
8	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	0.0 c	4.3 b	4.0 bc
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A			
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B			
	----thiencarbazono	0.57		0.0134						
	----tembotrione	2.88		0.0676						
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B			
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B			
9	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	1.0 bc	9.0 a	4.7 bc
	----s-metolachlor	2.4		0.6						
	----atrazine	3.1		0.78						
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B			
	----thiencarbazono	0.57		0.0134						
	----tembotrione	2.88		0.0676						
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B			
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,10

Pest Code Pest Name	IPOSS Morngrly		DIGSA L.crbgrs		ZEAMX Corn Stunting %		AMAPA PalmerAm Control %		
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C - Control %	C - Control %	C - Control %	C - Control %	06/12/16	06/12/16	06/25/16	06/25/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 c	0.0 d
2	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	97.0 ab	85.0 b
	----thiencarbazone	0.75		0.0194					
	----isoxaflutole	1.88		0.0486					
	Atrazine 4L	4 L		1 lb ai/a		PRE	A		
3	Corvus Premix	2.63	SC	0.082	lb ai/a	PRE	A	95.3 b	79.0 c
	----thiencarbazone	0.75		0.0234					
	----isoxaflutole	1.88		0.0586					
	Atrazine 4L	4 L		1 lb ai/a		PRE	A		
4	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/a	PRE	A	96.7 ab	98.3 a
	Bicep II Magnum Premix	5.5 L		2.9	lb ai/a	PRE	A		
	----s-metolachlor	2.4		1.27					
	----atrazine	3.1		1.63					
5	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/a	PRE	A	97.7 ab	97.0 a
	Prowl H2O.....pendimethalin	3.8 CS		1.43	lb ai/a	PRE	A		
	Atrazine 4L	4 L		1 lb ai/a		PRE	A		
6	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/a	PRE	A	95.3 b	96.3 a
	Zidua.....pyroxasulfone	85 WG		0.106	lb ai/a	PRE	A		
	Atrazine 4L	4 L		1 lb ai/a		PRE	A		
7	Balance Flexx...isoxaflutole	2 L		0.0625	lb ai/a	PRE	A	97.7 ab	95.3 a
	Zidua.....pyroxasulfone	85 WG		0.106	lb ai/a	PRE	A		
	Atrazine 4L	4 L		0.5	lb ai/a	PRE	A		
8	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/a	PRE	A	99.0 a	99.0 a
	Atrazine 4L	4 L		0.5	lb ai/a	PRE	A		
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B		
	----thiencarbazone	0.57		0.0134					
	----tembotrione	2.88		0.0676					
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B		
	Atrazine 4L	4 L		0.5	lb ai/a	V3	B		
9	Bicep II Magnum Premix	5.5 L		1.38	lb ai/a	PRE	A	99.0 a	99.0 a
	----s-metolachlor	2.4		0.6					
	----atrazine	3.1		0.78					
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B		
	----thiencarbazone	0.57		0.0134					
	----tembotrione	2.88		0.0676					
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B		
	Atrazine 4L	4 L		0.5	lb ai/a	V3	B		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,10

Pest Code Pest Name	IPOSS Morngrly		DIGSA L.crbgrs		ZEAMX Corn Stunting %		AMAPA PalmerAm Control %		
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C -	C -	C -	C -	06/25/16	06/25/16	07/05/16	07/05/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 c	0.0 c
2	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	95.3 a	76.0 c
	----thiencarbazon	0.75		0.0194					
	----isoxaflutole	1.88		0.0486					
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		
3	Corvus Premix	2.63	SC	0.082	lb ai/a	PRE	A	97.0 a	70.0 d
	----thiencarbazon	0.75		0.0234					
	----isoxaflutole	1.88		0.0586					
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		
4	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	86.7 b	88.3 b
	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A		
	----s-metolachlor	2.4		1.27					
	----atrazine	3.1		1.63					
5	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	83.5 b	93.3 b
	Prowl H2O.....pendimethalin	3.8	CS	1.43	lb ai/a	PRE	A		
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		
6	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	85.0 b	87.7 b
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A		
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		
7	Balance Flexx...isoxaflutole	2	L	0.0625	lb ai/a	PRE	A	97.3 a	93.3 b
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A		
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A		
8	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	98.0 a	99.7 a
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A		
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B		
	----thiencarbazon	0.57		0.0134					
	----tembotrione	2.88		0.0676					
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B		
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B		
9	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	97.3 a	99.3 a
	----s-metolachlor	2.4		0.6					
	----atrazine	3.1		0.78					
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B		
	----thiencarbazon	0.57		0.0134					
	----tembotrione	2.88		0.0676					
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B		
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,8,10



Pest Code							IPOSS	DIGSA		
Pest Name							Morning	L.crbgrs		
Crop Type, Code							C -	C -	C	
Crop Name									ZEAMX	
Rating Type							Control	Control	Corn	
Rating Unit							%	%	Yield	
Rating Date							07/05/16	07/05/16	Bu/A	
									10/04/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 c	0.0 d	187.7 a
2	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	91.3 a	71.7 c	212.5 a
	----thiencarbazon	0.75		0.0194						
	----isoxaflutole	1.88		0.0486						
	Atrazine 4L	4 L		1 lb ai/a	PRE	A				
3	Corvus Premix	2.63	SC	0.082	lb ai/a	PRE	A	100.0 a	63.3 c	203.6 a
	----thiencarbazon	0.75		0.0234						
	----isoxaflutole	1.88		0.0586						
	Atrazine 4L	4 L		1 lb ai/a	PRE	A				
4	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/a	PRE	A	76.7 b	92.7 ab	195.6 a
	Bicep II Magnum Premix	5.5 L		2.9	lb ai/a	PRE	A			
	----s-metolachlor	2.4		1.27						
	----atrazine	3.1		1.63						
5	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/a	PRE	A	90.7 a	94.0 a	172.8 a
	Prowl H2O.....pendimethalin	3.8 CS		1.43	lb ai/a	PRE	A			
	Atrazine 4L	4 L		1 lb ai/a	PRE	A				
6	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/a	PRE	A	76.7 b	84.3 b	211.5 a
	Zidua.....pyroxasulfone	85 WG		0.106	lb ai/a	PRE	A			
	Atrazine 4L	4 L		1 lb ai/a	PRE	A				
7	Balance Flexx...isoxaflutole	2 L		0.0625	lb ai/a	PRE	A	93.3 a	91.7 ab	196.5 a
	Zidua.....pyroxasulfone	85 WG		0.106	lb ai/a	PRE	A			
	Atrazine 4L	4 L		0.5	lb ai/a	PRE	A			
8	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/a	PRE	A	100.0 a	99.0 a	197.0 a
	Atrazine 4L	4 L		0.5	lb ai/a	PRE	A			
	Capreno Premix	3.45 SC		0.081	lb ai/a	V3	B			
	----thiencarbazon	0.57		0.0134						
	----tembotrione	2.88		0.0676						
	Roundup WeatherMax..glyphosate	4.5 AS		1.13	lb ae/a	V3	B			
	Atrazine 4L	4 L		0.5	lb ai/a	V3	B			
9	Bicep II Magnum Premix	5.5 L		1.38	lb ai/a	PRE	A	96.3 a	98.7 a	211.2 a
	----s-metolachlor	2.4		0.6						
	----atrazine	3.1		0.78						
	Capreno Premix	3.45 SC		0.081	lb ai/a	V3	B			
	----thiencarbazon	0.57		0.0134						
	----tembotrione	2.88		0.0676						
	Roundup WeatherMax..glyphosate	4.5 AS		1.13	lb ae/a	V3	B			
	Atrazine 4L	4 L		0.5	lb ai/a	V3	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,10

Pest Code Pest Name								
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date						C ZEAMX Corn Stunting % 06/02/16	C ZEAMX Corn LeafBrn % 06/11/16	C ZEAMX Corn Stunting % 06/11/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	
10	Bicep II Magnum Premix	5.5 L		1.38 lb ai/a		PRE A		0.0 c
	----s-metolachlor	2.4		0.6				0.0 c
	----atrazine	3.1		0.78				4.7 bc
	DiFlexx.....dicamba	4 L		0.25 lb ai/a		V3 B		
LSD P=.05						1.74	1.07	5.12
Standard Deviation						1.01	0.62	2.98
CV						116.87	46.77	56.31
Replicate F						4.321	2.143	0.281
Replicate Prob(F)						0.0293	0.1463	0.7585
Treatment F						3.913	70.286	4.553
Treatment Prob(F)						0.0066	0.0001	0.0030

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=7,8,10

Pest Code Pest Name						IPOSS Mornglry	DIGSA L.crbgrs		AMAPA PalmerAm		
Crop Type, Code Crop Name						C -	C -	C	ZEAMX Corn	C -	
Rating Type						Control	Control		Stunting	Control	
Rating Unit						%	%		%	%	
Rating Date						06/12/16	06/12/16		06/25/16	06/25/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code				
10	Bicep II Magnum Premix	5.5 L		1.38 lb ai/a		PRE	A	97.7 ab	73.3 d	0.0 c	100.0 a
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	DiFlexx.....dicamba	4 L		0.25 lb ai/a		V3	B				
LSD P=.05						3.10	3.75		2.27	3.37	
Standard Deviation						1.81	2.18		1.32	1.95	
CV						2.06	2.65		38.93	2.23	
Replicate F						2.952	0.301		1.085	1.467	
Replicate Prob(F)						0.0778	0.7439		0.3591	0.2584	
Treatment F						871.174	578.291		29.294	761.802	
Treatment Prob(F)						0.0001	0.0001		0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,10

Pest Code Pest Name						IPOSS Morngrly	DIGSA L.crbgrs		AMAPA PalmerAm
Crop Type, Code Crop Name						C -	C -	C	ZEAMX Corn
Rating Type						Control	Control	Stunting	Control
Rating Unit						%	%	%	%
Rating Date						06/25/16	06/25/16	07/05/16	07/05/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
10	Bicep II Magnum Premix	5.5 L		1.38 lb ai/a		PRE	A	100.0 a	70.0 d
	----s-metolachlor	2.4		0.6					0.0 c
	----atrazine	3.1		0.78					100.0 a
	DiFlexx.....dicamba	4 L		0.25 lb ai/a		V3	B		
LSD P=.05						7.85	5.74	4.09	2.71
Standard Deviation						4.54	3.35	2.32	1.58
CV						5.4	4.3	73.03	1.78
Replicate F						1.405	0.735	2.307	1.000
Replicate Prob(F)						0.2741	0.4932	0.1388	0.3874
Treatment F						132.293	232.531	7.863	1185.333
Treatment Prob(F)						0.0001	0.0001	0.0006	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=7,8,10

Pest Code						IPOSS	DIGSA	
Pest Name						Morngly	L.crbgrs	
Crop Type, Code						C -	C -	C ZEAMX
Crop Name								Corn
Rating Type						Control	Control	Yield
Rating Unit						%	%	Bu/A
Rating Date						07/05/16	07/05/16	10/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
10	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.4		0.6				65.0 c
	----atrazine	3.1		0.78				173.7 a
	DiFlexx.....dicamba	4	L	0.25	lb ai/a	V3	B	
LSD	P=.05				12.13	8.52	40.17	
Standard Deviation					7.07	4.97	23.42	
CV					8.57	6.53	11.93	
Replicate F					1.785	3.164	2.917	
Replicate Prob(F)					0.1963	0.0665	0.0799	
Treatment F					55.001	108.606	1.160	
Treatment Prob(F)					0.0001	0.0001	0.3750	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=7,8,10

Soil-Applied Herbicide Evaluation in Field Corn Premium Products Course-Textured Soils  
 Trial ID: Corn8a-16      Location: REC Field #18      Trial Year: 2016  
 Protocol ID: Corn8-a16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**  
 Investigator: Mark VanGessel      Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      ZEAMX Zea mays      Corn      BBCH Scale: BCOR  
 Variety: N68B-3111  
 Attributes: Liberty Link/Roundup Ready  
 Planting Date: 05/16/16      Planting Rate: 30000      S/A  
 Depth: 2      in  
 Row Spacing: 30      in      Planting Method: PLANTD      planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH      smooth  
 Soil Temperature: 64      F      Soil Moisture: NORMAL      normal, adequate  
 Emergence Date: 05/25/16  
 Harvest Date: 10/04/16      Harvest Equipment: Plot combine  
 Harvested Width: 5      FT  
 Harvested Length: 25      FT  
 % Standard Moisture: 15.5

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 12      Tillage Type: CONTIL      conventional-till  
 Replications: 3      Study Design: RACOB      Randomized Complete Block (RCB)

**Soil Description**  
 % Sand: 82      % OM: 1.2      Texture: LS loamy sand  
 % Silt: 11      pH: 6.5  
 % Clay: 7      CEC: 4.6      Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	05/17/16
Appl. Stop Time	10:15 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	62 F
% Relative Humidity Start, Stop	70
Wind Velocity+Dir. Start	0 mph N/A
Wet Leaves (Y/N)	N no
Soil Temperature	62 F
Soil Moisture	NORMAL
% Cloud Cover	100

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	ZEAMX BCOR

**Application Equipment**

	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

**Trial Comments**

06/12/16: Common lambsquarters, ragweed, and pigweed were in the untreated checks, but not in any treated plots.

06/25/16: Stunting observed in trt. 8: 17, 17, and 20%.

Yellow nutsedge is patchy and hard to rate:

	No control	poor(<75%)	fair (~85%)	good (>85%)
Trt	11	5,9,10	2,3,4,7,8,12	6

Soil-Applied Herbicide Evaluation in Field Corn Premium Products Course-Textured Soils									
Trial ID: Corn8a-16		Location: REC Field #18		Trial Year: 2016					
Protocol ID: Corn8-a16		Investigator: Mark VanGessel							
Study Director:									
Sponsor Contact:									
Pest Code	Pest Name					IPOSS	DIGSA		
						Morngrly	L.crbgrs		
Crop Type, Code		C	ZEAMX	C	ZEAMX	C -	C -		
Crop Name		Corn		Corn		Control	Control		
Rating Type		Stunting		Stunting		%	%		
Rating Unit		%		%					
Rating Date		06/02/16		06/12/16		06/12/16	06/12/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 b	0.0 e
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	0.0 b	0.0 e
	----s-metolachlor	2.49		1.68					
	----mesotrione	0.25		0.169					
	----atrazine	0.93		0.63					
3	Lexar EZ Premix	3.71	SC	2.78	lb ai/a	PRE	A	0.0 b	5.7 cd
	----s-metolachlor	1.742819		1.3					
	----mesotrione	0.2243629		0.168					
	----atrazine	1.742819		1.3					
4	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	0.0 b	0.0 e
	----s-metolachlor	2.49		1.68					
	----mesotrione	0.25		0.169					
	----atrazine	0.93		0.63					
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A		
5	Acuron Flexi Premix	3.26	ZC	1.63	lb ai/a	PRE	A	0.0 b	0.1 e
	----bicyclopyrone	.08000001		0.04					
	----mesotrione	0.32		0.16					
	----s-metolachlor	2.86		1.43					
6	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	0.0 b	0.0 e
	----atrazine	1		0.625					
	----bicyclopyrone	0.06		0.0375					
	----mesotrione	0.24		0.15					
	----s-metolachlor	2.14		1.34					
7	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	1.0 b	2.3 de
	----s-metolachlor	2.4		0.96					
	----atrazine	3.1		1.24					
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	PRE	A		
8	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	A	5.0 a	19.0 a
	----rimsulfuron	4.15		0.0136					
	----mesotrione	41.65		0.136					
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		
9	Resicore Premix	3.28	SE	1.85	lb ai/a	PRE	A	1.0 b	7.0 c
	----acetochlor	2.8		1.58					
	----mesotrione	0.3		0.17					
	----clopypalid	0.18		0.102					
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		
10	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	0.0 b	12.3 b
	----thiencarbazono	0.75		0.0194					
	----isoxaflutole	1.88		0.0486					
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,6,7,8,9



Pest Code Pest Name						AMBEL C.ragwd	IPOSS Morngrlry	DIGSA L.crbgrs
Crop Type, Code						C ZEAMX	C -	C -
Crop Name						Corn		
Rating Type						Stunting	Control	Control
Rating Unit						%	%	%
Rating Date						06/19/16	06/25/16	06/25/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code	
1	Untreated Check							0.0 c 0.0 e 0.0 e 0.0 f
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	0.0 c 96.7 ab 84.3 abc 95.7 a
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
3	Lexar EZ Premix	3.71	SC	2.78	lb ai/a	PRE	A	0.0 c 99.0 ab 91.0 a 93.0 ab
	----s-metolachlor	1.742819		1.3				
	----mesotrione	0.2243629		0.168				
	----atrazine	1.742819		1.3				
4	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	0.0 c 100.0 a 72.7 d 92.7 ab
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A	
5	Acuron Flexi Premix	3.26	ZC	1.63	lb ai/a	PRE	A	1.7 c 96.0 ab 83.0 a-d 96.3 a
	----bicyclopyrone	.08000001		0.04				
	----mesotrione	0.32		0.16				
	----s-metolachlor	2.86		1.43				
6	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	1.7 c 100.0 a 80.7 a-d 95.7 a
	----atrazine	1		0.625				
	----bicyclopyrone	0.06		0.0375				
	----mesotrione	0.24		0.15				
	----s-metolachlor	2.14		1.34				
7	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	0.0 c 92.3 b 77.3 bcd 88.7 c
	----s-metolachlor	2.4		0.96				
	----atrazine	3.1		1.24				
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	PRE	A	
8	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	A	16.3 a 95.7 ab 82.4 a-d 90.7 bc
	----rimsulfuron	4.15		0.0136				
	----mesotrione	41.65		0.136				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
9	Resicore Premix	3.28	SE	1.85	lb ai/a	PRE	A	0.0 c 100.0 a 86.0 ab 91.7 bc
	----acetochlor	2.8		1.58				
	----mesotrione	0.3		0.17				
	----clopypalid	0.18		0.102				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
10	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	1.7 c 72.3 d 73.4 cd 70.0 e
	----thiencarbazone	0.75		0.0194				
	----isoxaflutole	1.88		0.0486				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,6,7,8,9

Pest Code						PANDI	
Pest Name						F.panicm	
Crop Type, Code						C - C	ZEAMX
Crop Name						Control	Corn
Rating Type						%	Yield
Rating Unit						06/25/16	Bu/A
Rating Date							10/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Check						
						0.0 e	133.6 a
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A
	----s-metolachlor	2.49		1.68			
	----mesotrione	0.25		0.169			
	----atrazine	0.93		0.63			
3	Lexar EZ Premix	3.71	SC	2.78	lb ai/a	PRE	A
	----s-metolachlor	1.742819		1.3			
	----mesotrione	0.2243629		0.168			
	----atrazine	1.742819		1.3			
4	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A
	----s-metolachlor	2.49		1.68			
	----mesotrione	0.25		0.169			
	----atrazine	0.93		0.63			
	Atrazine 4L	4 L		0.75	lb ai/a	PRE	A
5	Acuron Flexi Premix	3.26	ZC	1.63	lb ai/a	PRE	A
	----bicyclopyrone	.08000001		0.04			
	----mesotrione	0.32		0.16			
	----s-metolachlor	2.86		1.43			
6	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A
	----atrazine	1		0.625			
	----bicyclopyrone	0.06		0.0375			
	----mesotrione	0.24		0.15			
	----s-metolachlor	2.14		1.34			
7	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A
	----s-metolachlor	2.4		0.96			
	----atrazine	3.1		1.24			
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	PRE	A
8	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	A
	----rimsulfuron	4.15		0.0136			
	----mesotrione	41.65		0.136			
	Atrazine 4L	4 L		1	lb ai/a	PRE	A
9	Resicore Premix	3.28	SE	1.85	lb ai/a	PRE	A
	----acetochlor	2.8		1.58			
	----mesotrione	0.3		0.17			
	----clopypalid	0.18		0.102			
	Atrazine 4L	4 L		1	lb ai/a	PRE	A
10	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A
	----thiencarbazone	0.75		0.0194			
	----isoxaflutole	1.88		0.0486			
	Atrazine 4L	4 L		1	lb ai/a	PRE	A

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,6,7,8,9

Pest Code Pest Name							IPOSS Mornglry	DIGSA L.crbgrs			
Crop Type, Code	C ZEAMX						C -	C -			
Crop Name	Corn						Corn	Corn			
Rating Type	Stunting						Control	Control			
Rating Unit	%						%	%			
Rating Date	06/02/16						06/12/16	06/12/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
11	SureStart II Premix	4.25	SE	0.8	lb ai/a	PRE	A	0.0 b	14.7 b	81.7 c	82.7 c
	----acetochlor	3.75		0.706							
	----clopuralid	0.38		0.0715							
	----flumetsulam	0.12		0.0226							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
12	Prequel Premix	45	DF	0.045	lb ai/a	PRE	A	0.0 b	12.3 b	91.3 ab	88.3 b
	----rimsulfuron	15		0.015							
	----isoxaflutole	30		0.03							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
LSD	P=.05			1.22				4.02	7.79	5.19	
	Standard Deviation			0.72				2.37	4.60	3.06	
	CV			123.94				38.68	5.41	3.58	
	Replicate F			0.478				1.046	0.986	1.372	
	Replicate Prob(F)			0.6262				0.3690	0.3891	0.2745	
	Treatment F			11.957				25.171	104.523	242.789	
	Treatment Prob(F)			0.0001				0.0001	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,6,7,8,9

Pest Code Pest Name			AMBEL C.ragwd	IPOSS Mornglry	DIGSA L.crbgrs						
Crop Type, Code			C -	C -	C -						
Crop Name			Corn								
Rating Type			Stunting	Control	Control						
Rating Unit			%	%	%						
Rating Date			06/19/16	06/25/16	06/25/16						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
11	SureStart II Premix	4.25	SE	0.8	lb ai/a	PRE	A	10.3 b	75.0 d	72.7 d	71.7 e
	----acetochlor	3.75		0.706							
	----clopuralid	0.38		0.0715							
	----flumetsulam	0.12		0.0226							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
12	Prequel Premix	45	DF	0.045	lb ai/a	PRE	A	9.0 b	82.3 c	71.9 d	77.8 d
	----rimsulfuron	15		0.015							
	----isoxaflutole	30		0.03							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
LSD	P=.05							3.13	7.20	11.56	3.83
Standard Deviation								1.85	4.23	6.76	2.26
CV								54.46	5.03	9.27	2.81
Replicate F								0.057	0.897	0.617	0.643
Replicate Prob(F)								0.9447	0.4234	0.5503	0.5360
Treatment F								26.025	133.944	37.073	427.470
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,6,7,8,9

Pest Code Pest Name							PANDI F.panicm	
Crop Type, Code Crop Name							C - C	ZEAMX Corn
Rating Type Rating Unit Rating Date							Control %	Yield Bu/A
							06/25/16	10/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code	
11	SureStart II Premix	4.25	SE	0.8	lb ai/a	PRE	A	85.2 bcd
	----acetochlor	3.75		0.706				182.2 a
	----clopuralid	0.38		0.0715				
	----flumetsulam	0.12		0.0226				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
12	Prequel Premix	45	DF	0.045	lb ai/a	PRE	A	85.2 bcd
	----rimsulfuron	15		0.015				170.7 a
	----isoxaflutole	30		0.03				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
LSD P=.05							7.25	62.54
Standard Deviation							4.22	36.93
CV							5.32	18.7
Replicate F							2.731	7.155
Replicate Prob(F)							0.0921	0.0040
Treatment F							108.452	1.590
Treatment Prob(F)							0.0001	0.1705

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,6,7,8,9

Soil-Applied Herbicide Evaluation in Field Corn Premium Products Medium Textured Soils  
 Trial ID: Corn8b-16      Location: Snyder Farm      Trial Year: 2016  
 Protocol ID: Corn8-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Last Changed By: Mark VanGessel

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C ZEAMX Zea mays Corn      BBCH Scale: BCOR  
 Variety: Myc 2k595  
 Planting Date: 05/20/16      Planting Rate: 30800 S/A  
 Depth: 2 IN  
 Row Spacing: 30 IN  
 Emergence Date: 05/28/16

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 12      Tillage Type: CONTIL    conventional-till  
 Replications: 3      Study Design: RACOBL Randomized Complete Block (RCB)

**Application Description**

	A
Application Date	05/24/16
Appl. Stop Time	11:30 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Vollmer
Air Temperature Start, Stop	71 F
% Relative Humidity Start, Stop	48
Wind Velocity+Dir. Start	4 mph NW
Wet Leaves (Y/N)	N no
Soil Temperature	71 F
Soil Moisture	NORMAL
% Cloud Cover	65

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	ZEAMX BCOR

<b>Application Equipment</b>	
	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Minimum Mix/Treatment	1.3035 L
Propellant	COMCO2

Date	By	Notes
06/21/16	Vollmer, K.	Copperleaf hophornbeam present in plots 101 and 103.

Trial Comments

Soil-Applied Herbicide Evaluation in Field Corn Premium Products Medium Textured Soils									
Trial ID: Corn8b-16		Location: Snyder Farm		Trial Year: 2016					
Protocol ID: Corn8-16		Investigator: Mark VanGessel							
Study Director:									
Sponsor Contact:									
Pest Code	Pest Name						AMACH SmthPgwd	CHEAL C.lmsqtr	POROL C.pursln
Crop Type, Code							C -	C -	C -
Crop Name							Control	Control	Control
Rating Type							%	%	%
Rating Unit									
Rating Date							06/21/16	06/21/16	06/21/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code		
1	Untreated Check							0.0 a	0.0 c
2	Lumax EZ Premix	3.67	SC	2.75	lb ai/a	PRE	A	2.3 a	100.0 a
	----s-metolachlor	2.49		1.87					
	----mesotrione	0.25		0.187					
	----atrazine	0.93		0.7					
3	Lexar EZ Premix	3.71	SC	3	lb ai/a	PRE	A	0.0 a	100.0 a
	----s-metolachlor	1.742819		1.41					
	----mesotrione	0.2243629		0.181					
	----atrazine	1.742819		1.41					
4	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	1.7 a	100.0 a
	----s-metolachlor	2.49		1.68					
	----mesotrione	0.25		0.169					
	----atrazine	0.93		0.63					
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A		
5	Acuron Flexi Premix	3.26	ZC	1.63	lb ai/a	PRE	A	1.7 a	100.0 a
	----bicyclopyrone	.08000001		0.04					
	----mesotrione	0.32		0.16					
	----s-metolachlor	2.86		1.43					
6	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	0.0 a	100.0 a
	----atrazine	1		0.625					
	----bicyclopyrone	0.06		0.0375					
	----mesotrione	0.24		0.15					
	----s-metolachlor	2.14		1.34					
7	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	0.0 a	100.0 a
	----s-metolachlor	2.4		1.27					
	----atrazine	3.1		1.63					
	Prowl H2O.....pendimethalin	3.8	CS	1.43	lb ai/a	PRE	A		
8	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE		1.0 a	100.0 a
	----rimsulfuron	4.15		0.0156					
	----mesotrione	41.65		0.156					
	_Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A		
	_Callisto.....mesotrione	50	WG	0.156	lb ai/a	PRE	A		
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		
9	Resicore Premix	3.28	SE	2.05	lb ai/a	PRE	A	0.0 a	100.0 a
	----acetochlor	2.8		1.75					
	----mesotrione	0.3		0.188					
	----clopypalid	0.18		0.113					
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		
10	Corvus Premix	2.63	SC	0.082	lb ai/a	PRE	A	0.0 a	100.0 a
	----thiencarbazone	0.75		0.0234					
	----isoxaflutole	1.88		0.0586					
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.



Pest Code						DIGSA		
Pest Name						L.crbgrs		
Crop Type, Code						C -		
Crop Name								
Rating Type						Control		
Rating Unit						%		
Rating Date						06/20/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 c
2	Lumax EZ Premix	3.67	SC	2.75	lb ai/a	PRE	A	95.7 b
	----s-metolachlor	2.49		1.87				
	----mesotrione	0.25		0.187				
	----atrazine	0.93		0.7				
3	Lexar EZ Premix	3.71	SC	3	lb ai/a	PRE	A	97.3 ab
	----s-metolachlor	1.742819		1.41				
	----mesotrione	0.2243629		0.181				
	----atrazine	1.742819		1.41				
4	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A	
5	Acuron Flexi Premix	3.26	ZC	1.63	lb ai/a	PRE	A	100.0 a
	----bicyclopyrone	.08000001		0.04				
	----mesotrione	0.32		0.16				
	----s-metolachlor	2.86		1.43				
6	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	100.0 a
	----atrazine	1		0.625				
	----bicyclopyrone	0.06		0.0375				
	----mesotrione	0.24		0.15				
	----s-metolachlor	2.14		1.34				
7	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.4		1.27				
	----atrazine	3.1		1.63				
	Prowl H2O.....pendimethalin	3.8	CS	1.43	lb ai/a	PRE	A	
8	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE		97.3 ab
	----rimsulfuron	4.15		0.0156				
	----mesotrione	41.65		0.156				
	_Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A	
	_Callisto.....mesotrione	50	WG	0.156	lb ai/a	PRE	A	
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
9	Resicore Premix	3.28	SE	2.05	lb ai/a	PRE	A	100.0 a
	----acetochlor	2.8		1.75				
	----mesotrione	0.3		0.188				
	----clopypalid	0.18		0.113				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
10	Corvus Premix	2.63	SC	0.082	lb ai/a	PRE	A	96.0 b
	----thiencarbazone	0.75		0.0234				
	----isoxaflutole	1.88		0.0586				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

Pest Code Pest Name							AMACH SmthPgwd	CHEAL C.lmsqtr	POROL C.pursln		
Crop Type, Code Crop Name							C ZEAMX Corn	C -	C -	C -	
Rating Type							Stunting %	Control %	Control %	Control %	
Rating Unit							06/21/16	06/21/16	06/21/16	06/21/16	
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
11	SureStart II Premix	4.25	SE	0.93	lb ai/a	PRE	A	0.0 a	100.0 a	93.3 b	100.0 a
	----acetochlor	3.75		0.82							
	----clopuralid	0.38		0.083							
	----flumetsulam	0.12		0.0263							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
12	Prequel Premix	45	DF	0.045	lb ai/a	PRE		1.0 a	100.0 a	96.7 ab	96.7 b
	----rimsulfuron	15		0.015							
	----isoxaflutole	30		0.03							
	_Resolve SG.....rimsulfuron	25	SG	0.015	lb ai/a	PRE	A				
	_Balance.....isoxaflutole	75	WG	0.03	lb ai/a	PRE	A				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
LSD P=.05							3.03	.	6.28	2.90	
Standard Deviation							1.79	0.00	3.71	1.71	
CV							280.41	0.0	4.13	1.88	
Replicate F							1.151	0.000	1.771	0.794	
Replicate Prob(F)							0.3346	1.0000	0.1936	0.4646	
Treatment F							0.688	0.000	174.904	845.278	
Treatment Prob(F)							0.7354	1.0000	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

Pest Code							DIGSA
Pest Name							L.crbgrs
Crop Type, Code							C -
Crop Name							
Rating Type							Control
Rating Unit							%
Rating Date							06/20/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
11	SureStart II Premix	4.25	SE	0.93	lb ai/a	PRE	A
	----acetochlor	3.75		0.82			
	----clopypalid	0.38		0.083			
	----flumetsulam	0.12		0.0263			
	Atrazine 4L	4	L	1	lb ai/a	PRE	A
12	Prequel Premix	45	DF	0.045	lb ai/a	PRE	
	----rimsulfuron	15		0.015			
	----isoxaflutole	30		0.03			
	_Resolve SG.....rimsulfuron	25	SG	0.015	lb ai/a	PRE	A
	_Balance.....isoxaflutole	75	WG	0.03	lb ai/a	PRE	A
	Atrazine 4L	4	L	1	lb ai/a	PRE	A
LSD P=.05							2.72
Standard Deviation							1.60
CV							1.78
Replicate F							1.954
Replicate Prob(F)							0.1655
Treatment F							938.434
Treatment Prob(F)							0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

Soil-Applied Herbicide Evaluation in Field Corn for Coarse-Textured Soils  
 Trial ID: Corn9a-16      Location: REC Field #18      Trial Year: 2016  
 Protocol ID: Corn9a-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**  
 Investigator: Mark VanGessel      Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      ZEAMX Zea mays      Corn      BBCH Scale: BCOR  
                  Variety: D52VC91  
                  Attributes: Roundup Ready  
                  Planting Date: 05/25/16      Planting Rate: 30000      S/A  
                  Depth: 2 in  
                  Row Spacing: 30 in      Planting Method: PLANTD planted  
                  Planting Equipment: FE      Field Equipment  
                  Seed Bed: SMOOTH smooth  
                  Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
                  Emergence Date: 05/29/16  
                  Harvest Date: 10/04/16      Harvest Equipment: Plot combine  
                  Harvested Width: 5 FT  
                  Harvested Length: 25 FT  
 % Standard Moisture: 15.5

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 12      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB      Randomized Complete Block (RCB)

**Soil Description**  
 % Sand: 82      % OM: 1.2      Texture: LS loamy sand  
 % Silt: 11      pH: 6.5  
 % Clay: 7      CEC: 4.6      Fert. Level: G good  
 Soil Drainage: G good

**Moisture and Weather Conditions**  
 Overall Moisture Conditions: NORMAL normal  
 Closest Weather Station: UDREC      Distance: 0.4 mi  
  
 Comment:  
 Wet spring caused delayed planting.

**Application Description**

	A
Application Date	05/26/16
Appl. Stop Time	08:40 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	80 F
% Relative Humidity Start, Stop	50
Wind Velocity+Dir. Start	2 mph SW
Wet Leaves (Y/N)	N no
Soil Temperature	79 F
Soil Moisture	NORMAL
% Cloud Cover	15

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	ZEAMX BCOR

**Application Equipment**

	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

**Trial Comments**

06/11/16: All treatments still providing excellent control of crabgrass and pigweed species. Treatment 5 morningglory and common lambsquarters just beginning to emerge, but not observed in any other treatment.

Soil-Applied Herbicide Evaluation in Field Corn for Coarse-Textured Soils						
Trial ID: Corn9a-16		Location: REC Field #18		Trial Year: 2016		
Protocol ID: Corn9a-16		Investigator: Mark VanGessel				
Study Director:						
Sponsor Contact:						

Pest Code										
Pest Name										
Crop Type, Code							C ZEAMX	C ZEAMX	C ZEAMX	
Crop Name							Corn	Corn	Corn	
Rating Type							Stunting	Stunting	Stunting	
Rating Unit							%	%	%	
Rating Date							06/02/16	06/11/16	06/19/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code			
1	Untreated Check							0.0 a	0.0 d	0.0 e
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	0.0 a	8.0 bc	8.0 c
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A			
3	Lexar EZ Premix	3.71	SC	2.78	lb ai/a	PRE	A	0.0 a	7.0 c	1.7 de
	----s-metolachlor	1.742819		1.3						
	----mesotrione	0.2243629		0.168						
	----atrazine	1.742819		1.3						
	Simazine	4	L	1.5	lb ai/a	PRE	A			
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	0.0 a	6.7 c	5.7 cd
	----s-metolachlor	2.4		1.27						
	----atrazine	3.1		1.63						
5	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	0.0 a	1.7 d	0.0 e
	----s-metolachlor	2.4		0.96						
	----atrazine	3.1		1.24						
6	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	2.0 a	25.0 a	28.3 a
	----s-metolachlor	2.4		0.96						
	----atrazine	3.1		1.24						
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A			
7	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	1.0 a	1.7 d	2.3 de
	----s-metolachlor	2.4		0.96						
	----atrazine	3.1		1.24						
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	PRE	A			
8	Harness Xtra 5.6L Premix	5.6	L	2.38	lb ai/a	PRE	A	0.0 a	4.7 cd	1.7 de
	----acetochlor	3.1		1.32						
	----atrazine	2.5		1.06						
9	Harness Xtra 5.6L Premix	5.6	L	4.2	lb ai/a	PRE	A	0.0 a	7.3 bc	1.7 de
	----acetochlor	3.1		2.32						
	----atrazine	2.5		1.88						
10	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	PRE	A	0.0 a	12.0 b	7.0 c
	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A			
11	Zidua.....pyroxasulfone	85	WG	0.133	lb ai/a	PRE	A	0.0 a	12.0 b	14.7 b
	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 7 because error mean square = 0.

Pest Code Pest Name						AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Mornglry	MOLVE Carpetwd
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date						C - Control % 06/28/16	C - Control % 06/28/16	C - Control % 06/28/16	C - Control % 06/28/16
Trt Treatment No. Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing	Appl Code				
1 Untreated Check						0.0 c	0.0 c	0.0 b	0.0 b
2 Lumax EZ Premix	3.67 SC		2.48 lb ai/a	PRE	A	100.0 a	100.0 a	98.3 a	100.0 a
----s-metolachlor	2.49		1.68						
----mesotrione	0.25		0.169						
----atrazine	0.93		0.63						
Atrazine 4L	4 L		0.75 lb ai/a	PRE	A				
3 Lexar EZ Premix	3.71 SC		2.78 lb ai/a	PRE	A	100.0 a	100.0 a	100.0 a	100.0 a
----s-metolachlor	1.742819		1.3						
----mesotrione	0.2243629		0.168						
----atrazine	1.742819		1.3						
Simazine	4 L		1.5 lb ai/a	PRE	A				
4 Bicep II Magnum Premix	5.5 L		2.9 lb ai/a	PRE	A	100.0 a	70.0 b	100.0 a	100.0 a
----s-metolachlor	2.4		1.27						
----atrazine	3.1		1.63						
5 Bicep II Magnum Premix	5.5 L		2.2 lb ai/a	PRE	A	96.7 b	100.0 a	96.7 a	100.0 a
----s-metolachlor	2.4		0.96						
----atrazine	3.1		1.24						
6 Bicep II Magnum Premix	5.5 L		2.2 lb ai/a	PRE	A	100.0 a	100.0 a	96.0 a	100.0 a
----s-metolachlor	2.4		0.96						
----atrazine	3.1		1.24						
Resolve SG.....rimsulfuron	25 SG		0.0156 lb ai/a	PRE	A				
7 Bicep II Magnum Premix	5.5 L		2.2 lb ai/a	PRE	A	100.0 a	100.0 a	97.7 a	100.0 a
----s-metolachlor	2.4		0.96						
----atrazine	3.1		1.24						
Prowl H2O.....pendimethalin	3.8 CS		1.19 lb ai/a	PRE	A				
8 Harness Xtra 5.6L Premix	5.6 L		2.38 lb ai/a	PRE	A	100.0 a	100.0 a	96.7 a	100.0 a
----acetochlor	3.1		1.32						
----atrazine	2.5		1.06						
9 Harness Xtra 5.6L Premix	5.6 L		4.2 lb ai/a	PRE	A	100.0 a	100.0 a	100.0 a	100.0 a
----acetochlor	3.1		2.32						
----atrazine	2.5		1.88						
10 Zidua.....pyroxasulfone	85 WG		0.08 lb ai/a	PRE	A	98.3 ab	100.0 a	98.3 a	100.0 a
Atrazine 4L	4 L		1.25 lb ai/a	PRE	A				
11 Zidua.....pyroxasulfone	85 WG		0.133 lb ai/a	PRE	A	100.0 a	100.0 a	96.7 a	100.0 a
Atrazine 4L	4 L		1.25 lb ai/a	PRE	A				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 7 because error mean square = 0.

Pest Code Pest Name Crop Type, Code Crop Name Rating Type Rating Unit Rating Date						GGGAN AnnGrass C - C Control % 06/28/16	ZEAMX Corn Yield Bu/A 10/04/16
Trt No.	Treatment Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing	Appl Code	
1	Untreated Check						0.0 c 173.7 a
2	Lumax EZ Premix	3.67	SC	2.48 lb ai/a	PRE	A	100.0 a 204.2 a
	----s-metolachlor	2.49		1.68			
	----mesotrione	0.25		0.169			
	----atrazine	0.93		0.63			
	Atrazine 4L	4 L		0.75 lb ai/a	PRE	A	
3	Lexar EZ Premix	3.71	SC	2.78 lb ai/a	PRE	A	100.0 a 175.7 a
	----s-metolachlor	1.742819		1.3			
	----mesotrione	0.2243629		0.168			
	----atrazine	1.742819		1.3			
	Simazine	4 L		1.5 lb ai/a	PRE	A	
4	Bicep II Magnum Premix	5.5	L	2.9 lb ai/a	PRE	A	99.0 a 190.5 a
	----s-metolachlor	2.4		1.27			
	----atrazine	3.1		1.63			
5	Bicep II Magnum Premix	5.5	L	2.2 lb ai/a	PRE	A	90.7 ab 169.9 a
	----s-metolachlor	2.4		0.96			
	----atrazine	3.1		1.24			
6	Bicep II Magnum Premix	5.5	L	2.2 lb ai/a	PRE	A	97.7 a 185.3 a
	----s-metolachlor	2.4		0.96			
	----atrazine	3.1		1.24			
	Resolve SG.....rimsulfuron	25	SG	0.0156 lb ai/a	PRE	A	
7	Bicep II Magnum Premix	5.5	L	2.2 lb ai/a	PRE	A	98.3 a 177.7 a
	----s-metolachlor	2.4		0.96			
	----atrazine	3.1		1.24			
	Prowl H2O.....pendimethalin	3.8	CS	1.19 lb ai/a	PRE	A	
8	Harness Xtra 5.6L Premix	5.6	L	2.38 lb ai/a	PRE	A	99.0 a 187.3 a
	----acetochlor	3.1		1.32			
	----atrazine	2.5		1.06			
9	Harness Xtra 5.6L Premix	5.6	L	4.2 lb ai/a	PRE	A	100.0 a 189.0 a
	----acetochlor	3.1		2.32			
	----atrazine	2.5		1.88			
10	Zidua.....pyroxasulfone	85	WG	0.08 lb ai/a	PRE	A	95.7 a 182.3 a
	Atrazine 4L	4 L		1.25 lb ai/a	PRE	A	
11	Zidua.....pyroxasulfone	85	WG	0.133 lb ai/a	PRE	A	94.0 a 183.2 a
	Atrazine 4L	4 L		1.25 lb ai/a	PRE	A	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Could not calculate LSD (% mean diff) for columns 7 because error mean square = 0.



Pest Code Pest Name							C	ZEAMX	C	ZEAMX	C	ZEAMX
Crop Type, Code Crop Name							Corn	Corn	Corn	Corn	Corn	Corn
Rating Type							Stunting	Stunting	Stunting	Stunting	Stunting	
Rating Unit							%	%	%	%	%	
Rating Date							06/02/16	06/11/16	06/19/16	06/19/16	06/19/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
12	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	1.0 a	8.7 bc	2.3 de		
	----saflufenacil	0.57		0.053								
	----dimethenamid	5		0.467								
	Atrazine 4L	4 L		1.25	lb ai/a	PRE	A					
LSD P=.05								1.37	4.67	4.48		
Standard Deviation								0.81	2.76	2.65		
CV								243.55	34.95	43.29		
Replicate F								2.655	0.047	3.529		
Replicate Prob(F)								0.0927	0.9537	0.0469		
Treatment F								1.931	17.212	28.611		
Treatment Prob(F)								0.0910	0.0001	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 7 because error mean square = 0.

Pest Code Pest Name							AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Mornglry	MOLVE Carpetwd
Crop Type, Code Crop Name							C -	C -	C -	C -
Rating Type							Control %	Control %	Control %	Control %
Rating Unit							06/28/16	06/28/16	06/28/16	06/28/16
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing Code				
12	Verdict Premix	5.57	EC	0.52 lb ai/a	PRE	A	100.0 a	100.0 a	96.7 a	100.0 a
	----saflufenacil	0.57		0.053						
	----dimethenamid	5		0.467						
	Atrazine 4L	4 L		1.25 lb ai/a	PRE	A				
LSD P=.05							3.21	25.40	5.12	.
Standard Deviation							1.90	15.00	3.03	0.00
CV							2.08	16.82	3.37	0.0
Replicate F							0.579	1.000	3.121	0.000
Replicate Prob(F)							0.5688	0.3840	0.0641	1.0000
Treatment F							689.316	11.505	262.353	0.000
Treatment Prob(F)							0.0001	0.0001	0.0001	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 7 because error mean square = 0.

Pest Code							GGGAN	
Pest Name							AnnGrass	
Crop Type, Code							C - C	ZEAMX
Crop Name								Corn
Rating Type							Control	Yield
Rating Unit							%	Bu/A
Rating Date							06/28/16	10/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
12	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	81.7 b
	----saflufenacil	0.57		0.053				182.8 a
	----dimethenamid	5		0.467				
	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A	
LSD P=.05							10.38	29.44
Standard Deviation							6.13	17.39
CV							6.97	9.48
Replicate F							0.029	1.804
Replicate Prob(F)							0.9716	0.1881
Treatment F							63.544	0.815
Treatment Prob(F)							0.0001	0.6268

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 7 because error mean square = 0.

University of Delaware

Comparison of Approaches to Weed Control in Field Corn for Coarse-Textured Soils

Trial ID: Crn10a-16 Location: REC Field #18 Trial Year: 2016  
Protocol ID: Crn10a-16 Investigator: Mark VanGessel  
Study Director:  
Sponsor Contact:

General Trial Information

Investigator: Mark VanGessel Title: Extension Weed Specialist  
  
Conducted Under GLP: No  
Conducted Under GEP: No

Investigator: Mark VanGessel Title: Extension Weed Specialist  
Organization: University of Delaware  
Address: 16483 County Seat Hwy  
City+State/Prov: Georgetown, Delaware  
Postal Code: 19947 E-mail: mjev@udel.edu  
Country: USA United States

Crop Description

Crop 1: C ZEAMX Zea mays Corn BBCH Scale: BCOR  
Variety: D52VC91  
Attributes: Roundup Ready  
Planting Date: 05/25/16 Planting Rate: 30000 S/A  
Depth: 2 in  
Row Spacing: 30 in Planting Method: PLANTD planted  
Planting Equipment: FE Field Equipment  
Seed Bed: SMOOTH smooth  
Soil Temperature: 86 F Soil Moisture: NORMAL normal, adequate  
Emergence Date: 05/29/16  
Harvest Date: 10/04/16 Harvest Equipment: Plot combine  
Harvested Width: 5 FT  
Harvested Length: 25 FT  
% Standard Moisture: 15.5

Pest Description

Pest 1 Type: W Code: IPOSS Ipomoea sp.  
Common Name: Morning glory  
  
Pest 2 Type: W Code: DIGSA Digitaria sanguinalis  
Common Name: large crabgrass  
  
Pest 3 Type: W Code: CYPES Cyperus esculentus  
Common Name: Yellow nutsedge  
  
Pest 4 Type: W Code: CHEAL Chenopodium album  
Common Name: Common lambsquarters  
  
Pest 5 Type: W Code: SOLCA Solanum carolinense  
Common Name: Horsenettle

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field  
Treated Plot Length: 25 FT  
Treated Plot Area: 250 FT2 Treatments: 12 Tillage Type: CONTIL conventional-till  
Replications: 3 Study Design: RACOB� Randomized Complete Block (RCB)

Soil Description

% Sand: 82 % OM: 1.2 Texture: LS loamy sand  
% Silt: 11 pH: 6.5  
% Clay: 7 CEC: 4.6 Fert. Level: G good  
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal  
Closest Weather Station: UDREC Distance: 0.4 mi

Comment:

Wet spring caused delayed planting.

**Crop Stage At Each Application**

	A	B	C	D
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used		DESC	DESC	DESC
Stage Majority, Percent		V1 100	V3 100	V6 100
Height Average		3 in	7 in	18 in

**Pest Stage At Each Application**

	A	B	C	D
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent		cot 100	1-leaf 50	
Stage Minimum, Percent			cot 15	
Stage Maximum, Percent			2-leaf 35	
Height Average		0.5 in	1.5 in	
Height Minimum, Maximum			1 2	
Density Average		2 m2	5 m2	
Pest 2 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent		cot 55		
Stage Minimum, Percent		cot 55		
Stage Maximum, Percent		1-leaf 45		
Height Average		0.2 in		
Density Average		50 m2		
Pest 3 Code, Type, Scale	CYPES W	CYPES W	CYPES W	CYPES W
Stage Majority, Percent			3-leaf 60	
Stage Minimum, Percent			2-leaf 20	
Stage Maximum, Percent			4-leaf 20	
Height Average			3 in	
Height Minimum, Maximum			2 4	
Density Average			3 m2	
Pest 4 Code, Type, Scale	CHEAL W	CHEAL W	CHEAL W	CHEAL W
Stage Majority, Percent				veg 100
Height Average				1.5 in
Height Minimum, Maximum				1 2
Density Average				2 m2
Pest 5 Code, Type, Scale	SOLCA W	SOLCA W	SOLCA W	SOLCA W
Stage Majority, Percent				veg 100
Height Average				3 in
Height Minimum, Maximum				2 5
Density Average				1 m2

<b>Application Equipment</b>				
	A	B	C	D
Appl. Equipment	Tractor	Tractor	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	20 in	20 in	20 in	20 in
Boom Length	10 ft	10 ft	10 ft	10 ft
Boom Height	18 in	21 in	23 in	34 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR	COMAIR	COMAIR

#### Trial Comments

6/11/16: Status - some corn leaning (<10%).

6/12/16: Only morningglory in treated plots. Crabgrass, pigweed, ragweed also in untreated check, but not observed in treated. Trt 6 & 10 rated for PRE control, i.e. weeds present at time of POST applications.

6/19/16: Ratings based on seedling emergence. POST control for all treatments was excellent (100%). Crabgrass and lambsquarters emerging in trts 4 & 5, but still over 90% control. Weeds in untreated check included Palmer, ragweed, and large crabgrass, but were not observed in treated plots.

6/26/16: Untreated check has Palmer amaranth, common lambsquarters, common ragweed, and large crabgrass; >97% control of these species in treated plots. Trt 4 had 80-85% control of lambsquarters prior to POST applications. Control on 6/26 was ~90%.

## Comparison of Approaches to Weed Control in Field Corn for Coarse-Textured Soils

Trial ID: Crn10a-16      Location: REC Field #18      Trial Year: 2016  
 Protocol ID: Crn10a-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Pest Code										
Pest Name										
Crop Type, Code							C ZEAMX	C ZEAMX	C ZEAMX	
Crop Name							Corn	Corn	Corn	
Rating Type							Stunting	Stunting	LfBrn/Chlor	
Rating Unit							%	%	%	
Rating Date							06/02/16	06/11/16	06/11/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 b	0.0 d	0.0 a
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	1.0 b	5.7 bc	
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A			
3	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	3.0 a	28.3 a	
	----s-metolachlor	2.4		0.96						
	----atrazine	3.1		1.24						
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A			
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	0.0 b	2.3 cd	
	----s-metolachlor	2.4		1.27						
	----atrazine	3.1		1.63						
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V5	D			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D			
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/a	PRE	A	1.0 b	7.0 bc	
	----acetochlor	3.1		1.86						
	----atrazine	2.5		1.5						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D			
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 b	4.0 cd	2.0 a
	----s-metolachlor	2.4		0.78						
	----atrazine	3.1		1.01						
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	C			
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C			
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C			
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 b	2.3 cd	4.0 a
	----s-metolachlor	2.4		0.78						
	----atrazine	3.1		1.01						
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V3	C			
	----rimsulfuron	7.5		0.0188						
	----mesotrione	31.2		0.078						
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C			
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C			
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 b	0.0 d	3.3 a
	----s-metolachlor	2.4		0.78						
	----atrazine	3.1		1.01						
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C			
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	V3	C			
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,11

Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.

Pest Code Pest Name	IPOSS Morning glory		IPOSS Morning glory							
Crop Type, Code	C - C ZEAMX		C -							
Crop Name	Corn		Control							
Rating Type	Stunting		%							
Rating Unit	%		%							
Rating Date	06/12/16		06/19/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code			
1	Untreated Check							0.0 b	0.0 c	0.0 d
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	94.3 a	0.0 c	90.0 c
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A			
3	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	94.3 a	23.3 a	91.3 bc
	----s-metolachlor	2.4		0.96						
	----atrazine	3.1		1.24						
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A			
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	95.3 a	2.3 c	91.3 bc
	----s-metolachlor	2.4		1.27						
	----atrazine	3.1		1.63						
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V5	D			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D			
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/a	PRE	A	97.0 a	7.0 b	93.3 abc
	----acetochlor	3.1		1.86						
	----atrazine	2.5		1.5						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D			
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	93.0 a	0.0 c	99.0 a
	----s-metolachlor	2.4		0.78						
	----atrazine	3.1		1.01						
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	C			
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C			
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C			
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A		0.0 c	97.7 ab
	----s-metolachlor	2.4		0.78						
	----atrazine	3.1		1.01						
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V3	C			
	----rimsulfuron	7.5		0.0188						
	----mesotrione	31.2		0.078						
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C			
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C			
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A		0.0 c	96.3 abc
	----s-metolachlor	2.4		0.78						
	----atrazine	3.1		1.01						
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C			
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	V3	C			
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,11

Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.



Pest Code							IPOSS		
Pest Name							Morning glory		
Crop Type, Code							C ZEAMX	C - C	ZEAMX
Crop Name							Corn		
Rating Type							Stunting	Control	Stunting
Rating Unit							%	%	%
Rating Date							06/26/16	06/26/16	07/05/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 d	0.0 c
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	1.9 cd	82.7 c
	----s-metolachlor	2.49		1.68					2.3 bc
	----mesotrione	0.25		0.169					
	----atrazine	0.93		0.63					
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A		
3	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	25.0 a	86.3 bc
	----s-metolachlor	2.4		0.96					19.0 a
	----atrazine	3.1		1.24					
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A		
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	0.0 d	95.7 a
	----s-metolachlor	2.4		1.27					2.3 bc
	----atrazine	3.1		1.63					
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V5	D		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D		
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/a	PRE	A	4.7 bcd	96.7 a
	----acetochlor	3.1		1.86					6.7 b
	----atrazine	2.5		1.5					
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D		
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	1.7 cd	92.7 ab
	----s-metolachlor	2.4		0.78					0.0 c
	----atrazine	3.1		1.01					
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	C		
	----s-metolachlor	2.084		0.94					
	----glyphosate	2.084		0.94					
	----mesotrione	0.208		0.094					
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C		
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	7.0 b	92.0 ab
	----s-metolachlor	2.4		0.78					2.3 bc
	----atrazine	3.1		1.01					
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V3	C		
	----rimsulfuron	7.5		0.0188					
	----mesotrione	31.2		0.078					
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C		
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	2.3 bcd	92.7 ab
	----s-metolachlor	2.4		0.78					4.7 bc
	----atrazine	3.1		1.01					
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C		
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	V3	C		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,11

Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.

Pest Code							AMAPA	IPOSS
Pest Name							Palmer amaranth	Morning glory
Crop Type, Code							C -	C -
Crop Name							Control	Control
Rating Type							%	%
Rating Unit								
Rating Date							07/05/16	07/05/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 b
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A	
3	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.4		0.96				
	----atrazine	3.1		1.24				
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A	
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.4		1.27				
	----atrazine	3.1		1.63				
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V5	D	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D	
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/a	PRE	A	100.0 a
	----acetochlor	3.1		1.86				
	----atrazine	2.5		1.5				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D	
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.4		0.78				
	----atrazine	3.1		1.01				
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	C	
	----s-metolachlor	2.084		0.94				
	----glyphosate	2.084		0.94				
	----mesotrione	0.208		0.094				
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C	
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C	
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.4		0.78				
	----atrazine	3.1		1.01				
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V3	C	
	----rimsulfuron	7.5		0.0188				
	----mesotrione	31.2		0.078				
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C	
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C	
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.4		0.78				
	----atrazine	3.1		1.01				
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C	
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	V3	C	
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,8,11  
 Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.

Pest Code Pest Name Crop Type, Code Crop Name Rating Type Rating Unit Rating Date						DIGSA large crabgrass C -  Control % 07/05/16	C ZEAMX Corn Yield Bu/A		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 b	179.1 a
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	99.0 a	189.8 a
	----s-metolachlor	2.49		1.68					
	----mesotrione	0.25		0.169					
	----atrazine	0.93		0.63					
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A		
3	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	97.3 a	173.8 a
	----s-metolachlor	2.4		0.96					
	----atrazine	3.1		1.24					
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A		
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	99.7 a	195.7 a
	----s-metolachlor	2.4		1.27					
	----atrazine	3.1		1.63					
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V5	D		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D		
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/a	PRE	A	100.0 a	194.2 a
	----acetochlor	3.1		1.86					
	----atrazine	2.5		1.5					
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D		
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	100.0 a	189.4 a
	----s-metolachlor	2.4		0.78					
	----atrazine	3.1		1.01					
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	C		
	----s-metolachlor	2.084		0.94					
	----glyphosate	2.084		0.94					
	----mesotrione	0.208		0.094					
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C		
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	99.7 a	198.9 a
	----s-metolachlor	2.4		0.78					
	----atrazine	3.1		1.01					
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V3	C		
	----rimsulfuron	7.5		0.0188					
	----mesotrione	31.2		0.078					
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C		
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	99.0 a	188.1 a
	----s-metolachlor	2.4		0.78					
	----atrazine	3.1		1.01					
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C		
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	V3	C		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,8,11  
 Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.

Pest Code Pest Name							C ZEAMX	C ZEAMX	C ZEAMX	
Crop Type, Code							Corn Stunting	Corn Stunting	Corn LfBrn/Chlor	
Crop Name Rating Type							%	%	%	
Rating Unit Rating Date							06/02/16	06/11/16	06/11/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
9	Bicep II Magnum Premix	5.5 L		1.79 lb ai/a		PRE	A	0.0 b	0.0 d	2.0 a
	----s-metolachlor	2.4		0.78						
	----atrazine	3.1		1.01						
	Atrazine 4L	4 L		1.25 lb ai/a		V3	C			
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		V3	C			
10	Atrazine 4L	4 L		1.25 lb ai/a		PRE	A	0.0 b	0.0 d	0.0 a
	Prowl H2O.....pendimethalin	3.8 CS		1.19 lb ai/a		PRE	A			
	Status Premix	56 WG		0.175 lb ai/a		V3	C			
	----diflufenzopyr	16		0.05						
	----dicamba	40		0.125						
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		V3	C			
11	Halex GT Premix	4.376 SC		1.97 lb ai/a		V1-2	B		4.0 cd	3.0 a
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4 L		0.5 lb ai/a		V1-2	B			
	Nonionic Surfactant	100 L		0.25 % v/v		V1-2	B			
12	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		V1-2	B		9.7 b	4.3 a
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/a		V1-2	B			
	----s-metolachlor	2.4		0.96						
	----atrazine	3.1		1.24						
	Prowl H2O.....pendimethalin	3.8 CS		1.19 lb ai/a		V1-2	B			
LSD P=.05								1.37	4.82	3.07
Standard Deviation								0.80	2.85	1.75
CV								159.16	53.94	75.11
Replicate F								0.474	1.299	3.636
Replicate Prob(F)								0.6302	0.2929	0.0535
Treatment F								4.474	23.086	2.698
Treatment Prob(F)								0.0033	0.0001	0.0541

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,11

Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.

Pest Code Pest Name							IPOSS Morning glory		IPOSS Morning glory
Crop Type, Code							C - C	ZEAMX	C -
Crop Name							Control	Corn Stunting	Control
Rating Type							%	%	%
Rating Unit							06/12/16	06/19/16	06/19/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code		
9	Bicep II Magnum Premix	5.5 L		1.79 lb ai/a		PRE	A		
	----s-metolachlor	2.4		0.78				0.0 c	97.3 abc
	----atrazine	3.1		1.01					
	Atrazine 4L	4 L		1.25 lb ai/a		V3	C		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		V3	C		
10	Atrazine 4L	4 L		1.25 lb ai/a		PRE	A	90.7 a	
	Prowl H2O.....pendimethalin	3.8 CS		1.19 lb ai/a		PRE	A	0.0 c	92.7 abc
	Status Premix	56 WG		0.175 lb ai/a		V3	C		
	----diflufenzopyr	16		0.05					
	----dicamba	40		0.125					
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		V3	C		
11	Halex GT Premix	4.376 SC		1.97 lb ai/a		V1-2	B	0.0 c	97.7 ab
	----s-metolachlor	2.084		0.94					
	----glyphosate	2.084		0.94					
	----mesotrione	0.208		0.094					
	Atrazine 4L	4 L		0.5 lb ai/a		V1-2	B		
	Nonionic Surfactant	100 L		0.25 % v/v		V1-2	B		
12	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		V1-2	B	10.0 b	96.7 abc
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/a		V1-2	B		
	----s-metolachlor	2.4		0.96					
	----atrazine	3.1		1.24					
	Prowl H2O.....pendimethalin	3.8 CS		1.19 lb ai/a		V1-2	B		
LSD P=.05							9.03	3.29	7.34
Standard Deviation							5.08	1.95	4.34
CV							6.29	54.72	4.99
Replicate F							2.816	2.121	1.074
Replicate Prob(F)							0.0994	0.1438	0.3588
Treatment F							147.653	39.424	121.079
Treatment Prob(F)							0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,11

Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.

Pest Code							IPOSS						
Pest Name							Morning glory						
Crop Type, Code							C	Z	EAMX				
Crop Name							Corn						
Rating Type							Stunting	Control	Stunting				
Rating Unit							%	%	%				
Rating Date							06/26/16	06/26/16	07/05/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code						
9	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	4.7	bcd	90.3	ab	0.0	c
	----s-metolachlor	2.4		0.78									
	----atrazine	3.1		1.01									
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C						
10	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A	1.7	cd	81.7	c	1.7	bc
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	PRE	A						
	Status Premix	56	WG	0.175	lb ai/a	V3	C						
	----diflufenzopyr	16		0.05									
	----dicamba	40		0.125									
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C						
11	Halex GT Premix	4.376	SC	1.97	lb ai/a	V1-2	B	4.0	bcd	87.3	bc	2.3	bc
	----s-metolachlor	2.084		0.94									
	----glyphosate	2.084		0.94									
	----mesotrione	0.208		0.094									
	Atrazine 4L	4	L	0.5	lb ai/a	V1-2	B						
	Nonionic Surfactant	100	L	0.25	% v/v	V1-2	B						
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V1-2	B	6.4	bc	92.3	ab	7.3	b
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	V1-2	B						
	----s-metolachlor	2.4		0.96									
	----atrazine	3.1		1.24									
	Prowl H2O.....pendimethalin	3.8	CS	1.19	lb ai/a	V1-2	B						
	LSD P=.05							4.93		7.65		5.80	
	Standard Deviation							2.90		4.51		3.43	
	CV							58.63		5.46		84.49	
	Replicate F							3.354		1.101		0.300	
	Replicate Prob(F)							0.0555		0.3510		0.7434	
	Treatment F							16.120		103.031		7.159	
	Treatment Prob(F)							0.0001		0.0001		0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,11

Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.

Pest Code							AMAPA	IPOSS
Pest Name							Palmer amaranth	Morning glory
Crop Type, Code							C -	C -
Crop Name								
Rating Type							Control	Control
Rating Unit							%	%
Rating Date							07/05/16	07/05/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code	
9	Bicep II Magnum Premix	5.5	L	1.79 lb ai/a	PRE	A		100.0 a
	----s-metolachlor	2.4		0.78				96.0 ab
	----atrazine	3.1		1.01				
	Atrazine 4L	4	L	1.25 lb ai/a	V3	C		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	V3	C		
10	Atrazine 4L	4	L	1.25 lb ai/a	PRE	A		100.0 a
	Prowl H2O.....pendimethalin	3.8	CS	1.19 lb ai/a	PRE	A		80.0 cd
	Status Premix	56	WG	0.175 lb ai/a	V3	C		
	----diflufenzopyr	16		0.05				
	----dicamba	40		0.125				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	V3	C		
11	Halex GT Premix	4.376	SC	1.97 lb ai/a	V1-2	B		100.0 a
	----s-metolachlor	2.084		0.94				86.7 bcd
	----glyphosate	2.084		0.94				
	----mesotrione	0.208		0.094				
	Atrazine 4L	4	L	0.5 lb ai/a	V1-2	B		
	Nonionic Surfactant	100	L	0.25 % v/v	V1-2	B		
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	V1-2	B		100.0 a
	Bicep II Magnum Premix	5.5	L	2.2 lb ai/a	V1-2	B		91.0 abc
	----s-metolachlor	2.4		0.96				
	----atrazine	3.1		1.24				
	Prowl H2O.....pendimethalin	3.8	CS	1.19 lb ai/a	V1-2	B		
	LSD P=.05							12.41
	Standard Deviation						0.00	7.31
	CV						0.0	8.99
	Replicate F						0.000	0.872
	Replicate Prob(F)						1.0000	0.4326
	Treatment F						0.000	40.898
	Treatment Prob(F)						1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,11

Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.

Pest Code Pest Name Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							DIGSA large crabgrass C -  Control % 07/05/16	C ZEAMX Corn Yield Bu/A	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code		
9	Bicep II Magnum Premix	5.5 L		1.79 lb ai/a	PRE		A	99.0 a	190.7 a
	----s-metolachlor	2.4		0.78					
	----atrazine	3.1		1.01					
	Atrazine 4L	4 L		1.25 lb ai/a	V3		C		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	V3		C		
10	Atrazine 4L	4 L		1.25 lb ai/a	PRE		A	100.0 a	188.0 a
	Prowl H2O.....pendimethalin	3.8 CS		1.19 lb ai/a	PRE		A		
	Status Premix	56 WG		0.175 lb ai/a	V3		C		
	----diflufenzopyr	16		0.05					
	----dicamba	40		0.125					
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	V3		C		
11	Halex GT Premix	4.376 SC		1.97 lb ai/a	V1-2		B	99.0 a	194.6 a
	----s-metolachlor	2.084		0.94					
	----glyphosate	2.084		0.94					
	----mesotrione	0.208		0.094					
	Atrazine 4L	4 L		0.5 lb ai/a	V1-2		B		
	Nonionic Surfactant	100 L		0.25 % v/v	V1-2		B		
12	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	V1-2		B	98.7 a	193.9 a
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/a	V1-2		B		
	----s-metolachlor	2.4		0.96					
	----atrazine	3.1		1.24					
	Prowl H2O.....pendimethalin	3.8 CS		1.19 lb ai/a	V1-2		B		
LSD P=.05							2.96	32.39	
Standard Deviation							1.75	19.13	
CV							1.92	10.08	
Replicate F							0.881	1.007	
Replicate Prob(F)							0.4285	0.3816	
Treatment F							805.235	0.413	
Treatment Prob(F)							0.0001	0.9346	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,8,11

Could not calculate LSD (% mean diff) for columns 10,13 because error mean square = 0.



Tolpyralate for Weed Control in Non-RR/LL Field Corn  
 Trial ID: Crn11-16 Location: Field #18 Trial Year: 2016  
 Protocol ID: Crn11-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: ISK Biosciences

**General Trial Information**

Investigator: Mark VanGessel Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C ZEAMX Zea mays Corn  
 Variety: D52VC91  
 Attributes: Roundup Ready  
 Planting Date: 05/25/16 Planting Rate: 30000 S/A  
 Depth: 2 in  
 Row Spacing: 30 in Planting Method: PLANTD planted  
 Planting Equipment: FE Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/29/16  
 Harvest Date: 10/04/16 Harvest Equipment: Plot combine  
 Harvested Width: 5 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 15.5

**Pest Description**

Pest 1 Type: W Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

Pest 2 Type: W Code: CYPES Cyperus esculentus  
 Common Name: Yellow nutsedge

Pest 3 Type: W Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

Pest 4 Type: W Code: XANST Xanthium strumarium  
 Common Name: Common cocklebur

Pest 5 Type: W Code: MOLVE Mollugo verticillata  
 Common Name: Carpetweed

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 16 Tillage Type: CONTIL conventional-till  
 Replications: 3 Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**

% Sand: 82 % OM: 1.2 Texture: LS loamy sand  
 % Silt: 11 pH: 6.5  
 % Clay: 7 CEC: 4.6 Fert. Level: G good  
 Soil Drainage: G good

<b>Application Description</b>			
	A	B	C
Application Date	05/26/16	06/14/16	06/20/16
Appl. Stop Time	09:30 AM	12:15 PM	04:05 PM
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRE	2-4"wds	2-4"wds
Application Placement	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson
Air Temperature Start, Stop	80 F	73 F	89 F
% Relative Humidity Start, Stop	50	40	28
Wind Velocity+Dir. Start	2 mph SW	4 mph N	4 mph SW
Wet Leaves (Y/N)	N no	N no	N no
Soil Temperature	79 F	73 F	89 F
Soil Moisture	NORMAL	NORMAL	NORMAL
% Cloud Cover	15	20	15

<b>Crop Stage At Each Application</b>			
	A	B	C
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used		DESC	DESC
Stage Majority, Percent		V4 100	V6 100
Height Average		11 in	18 in
Height Minimum, Maximum		11 12	17 19

<b>Pest Stage At Each Application</b>			
	A	B	C
Pest 1 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent		3-4 lf 70	veg 100
Stage Minimum, Percent		2-leaf 20	
Stage Maximum, Percent		1-2lf 10	
Height Average		3 in	1.5 in
Height Minimum, Maximum		1 4	1 2
Density Average		15 m2	5 m2
Pest 2 Code, Type, Scale	CYPES W	CYPES W	CYPES W
Stage Majority, Percent		5-leaf 60	veg 100
Stage Minimum, Percent		3-4lf 20	
Stage Maximum, Percent		6-leaf 20	
Height Average		4 in	6 in
Height Minimum, Maximum		2 5	5 8
Density Average		7 m2	5 m2
Pest 3 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent		3-leaf 70	veg 100
Stage Minimum, Percent		2-leaf 15	
Stage Maximum, Percent		4-leaf 15	
Height Average		3 in	4 in
Height Minimum, Maximum		2 4	2 5
Density Average		4 m2	10 m2
Pest 4 Code, Type, Scale	XANST W	XANST W	XANST W
Stage Majority, Percent		8-leaf 50	
Stage Minimum, Percent		4-6 lf 30	
Stage Maximum, Percent		10-lf 20	
Height Average		5 in	
Height Minimum, Maximum		4 6	
Density Average		5 m2	
Pest 5 Code, Type, Scale	MOLVE W	MOLVE W	MOLVE W
Stage Majority, Percent		4-5 lf 100	
Diameter		0.7 in	
Height Minimum, Maximum		0.5 1	
Density Average		50 m2	

<b>Application Equipment</b>			
	A	B	C
Appl. Equipment	Tractor	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002
Nozzle Spacing	20 in	20 in	20 in
Boom Length	10 ft	10 ft	10 ft
Boom Height	18 in	28 in	34 in
Ground Speed	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac
Propellant	COMAIR	COMAIR	COMAIR

Tolpyralate for Weed Control in Non-RR/LL Field Corn		
Trial ID: Crn11-16	Location: Field #18	Trial Year: 2016
Protocol ID: Crn11-16	Investigator: Mark VanGessel	
Study Director:		
Sponsor Contact: ISK Biosciences		

Trial Comments

06/11/16: Corn looks good, no injury from Dual applied PRE.

06/18/16: Treatment 2 providing excellent control of large crabgrass; fair control of common lambsquarters; poor to no control of common ragweed and morningglory.

Tolpyralate for Weed Control in Non-RR/LL Field Corn											
Trial ID: Crn11-16		Location: Field #18			Trial Year: 2016						
Protocol ID: Crn11-16		Investigator: Mark VanGessel			Study Director:						
Sponsor Contact: ISK Biosciences											
Pest Code	Pest Name	Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date	AMBEL C.ragwd	IPOSS Mornglry	MOLVE Carpetwd		
		C ZEAMX	Corn	LeafBrn	%	06/18/16	C -	C -	C -		
			Control	%	06/21/16		Control	%	06/28/16		
			Control	%	06/23/16		Control	%	06/23/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 b	0.0 c	0.0 e	0.0 b
2	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a		PRE	A	0.0 b	96.7 a	0.0 e	0.0 b
3	Tolpyralate	3.34 SC		0.026 lb ai/a		2-4"wds	B	1.0 b	70.0 b	94.3 bcd	100.0 a
	Atrazine 4L	4 L		0.875 lb ai/a		2-4"wds	B				
	Methylated Seed Oil	100 L		0.5 % v/v		2-4"wds	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		2-4"wds	B				
4	Tolpyralate	3.34 SC		0.0358 lb ai/a		2-4"wds	B	3.3 b	100.0 a	96.0 abc	100.0 a
	Atrazine 4L	4 L		0.875 lb ai/a		2-4"wds	B				
	Methylated Seed Oil	100 L		0.5 % v/v		2-4"wds	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		2-4"wds	B				
5	Tolpyralate	3.34 SC		0.026 lb ai/a		2-4"wds	B	13.7 a	100.0 a	92.7 cd	100.0 a
	Atrazine 4L	4 L		0.875 lb ai/a		2-4"wds	B				
	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a		2-4"wds	B				
	Methylated Seed Oil	100 L		0.5 % v/v		2-4"wds	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		2-4"wds	B				
6	Tolpyralate	3.34 SC		0.026 lb ai/a		2-4"wds	B	13.3 a	100.0 a	94.3 bcd	100.0 a
	Atrazine 4L	4 L		0.875 lb ai/a		2-4"wds	B				
	Surpass NXT.....acetochlor	7 EC		1.31 lb ai/a		2-4"wds	B				
	Methylated Seed Oil	100 L		0.5 % v/v		2-4"wds	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		2-4"wds	B				
7	Tolpyralate	3.34 SC		0.026 lb ai/a		2-4"wds	B	0.0 b	100.0 a	95.0 a-d	100.0 a
	Atrazine 4L	4 L		0.875 lb ai/a		2-4"wds	B				
	Status Premix	56 WG		0.175 lb ai/a		2-4"wds	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	Methylated Seed Oil	100 L		0.5 % v/v		2-4"wds	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		2-4"wds	B				
8	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a		PRE	A		100.0 a	91.0 d	100.0 a
	Tolpyralate	3.34 SC		0.026 lb ai/a		2-4"wds	C				
	Atrazine 4L	4 L		0.875 lb ai/a		2-4"wds	C				
	Methylated Seed Oil	100 L		0.5 % v/v		2-4"wds	C				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		2-4"wds	C				
9	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a		PRE	A		100.0 a	96.3 abc	100.0 a
	Tolpyralate	3.34 SC		0.0358 lb ai/a		2-4"wds	C				
	Atrazine 4L	4 L		0.875 lb ai/a		2-4"wds	C				
	Methylated Seed Oil	100 L		0.5 % v/v		2-4"wds	C				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		2-4"wds	C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Pest Name	XANST Cocklbr		GGGAN AnnGrass			
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C -		C - C		ZEAMX Corn Yield Bu/A 10/04/16	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code	
1 Untreated Check						0.0 c      0.0 c      166.0 a
2 Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	PRE	A	50.0 b      81.7 b      143.5 a
3 Tolpyralate	3.34	SC	0.026 lb ai/a	2-4"wds	B	100.0 a      100.0 a      211.9 a
Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	B	
Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	B	
30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	B	
4 Tolpyralate	3.34	SC	0.0358 lb ai/a	2-4"wds	B	100.0 a      100.0 a      182.6 a
Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	B	
Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	B	
30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	B	
5 Tolpyralate	3.34	SC	0.026 lb ai/a	2-4"wds	B	100.0 a      100.0 a      185.7 a
Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	B	
Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	2-4"wds	B	
Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	B	
30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	B	
6 Tolpyralate	3.34	SC	0.026 lb ai/a	2-4"wds	B	100.0 a      98.0 a      212.4 a
Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	B	
Surpass NXT.....acetochlor	7	EC	1.31 lb ai/a	2-4"wds	B	
Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	B	
30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	B	
7 Tolpyralate	3.34	SC	0.026 lb ai/a	2-4"wds	B	100.0 a      99.3 a      213.4 a
Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	B	
Status Premix	56	WG	0.175 lb ai/a	2-4"wds	B	
----diflufenzopyr	16		0.05			
----dicamba	40		0.125			
Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	B	
30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	B	
8 Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	PRE	A	100.0 a      100.0 a      183.4 a
Tolpyralate	3.34	SC	0.026 lb ai/a	2-4"wds	C	
Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	C	
Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	C	
30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C	
9 Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	PRE	A	100.0 a      100.0 a      183.2 a
Tolpyralate	3.34	SC	0.0358 lb ai/a	2-4"wds	C	
Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	C	
Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	C	
30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Pest Name						AMBEL C.ragwd	IPOSS Mornglry	MOLVE Carpetwd	
Crop Type, Code	C ZEAMX					C -	C -	C -	
Crop Name	Corn					Control	Control	Control	
Rating Type	LeafBrn					%	%	%	
Rating Unit						06/18/16	06/21/16	06/23/16	
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code			
10	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a	PRE	A	100.0 a	95.0 a-d	100.0 a
	Tolpyralate	3.34 SC		0.026 lb ai/a	2-4"wds	C			
	Atrazine 4L	4 L		0.875 lb ai/a	2-4"wds	C			
	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a	2-4"wds	C			
	Methylated Seed Oil	100 L		0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	2-4"wds	C			
11	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a	PRE	A	100.0 a	96.7 abc	100.0 a
	Tolpyralate	3.34 SC		0.026 lb ai/a	2-4"wds	C			
	Atrazine 4L	4 L		0.875 lb ai/a	2-4"wds	C			
	Surpass NXT.....acetochlor	7 EC		1.31 lb ai/a	2-4"wds	C			
	Methylated Seed Oil	100 L		0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	2-4"wds	C			
12	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a	PRE	A	100.0 a	98.3 ab	100.0 a
	Tolpyralate	3.34 SC		0.026 lb ai/a	2-4"wds	C			
	Atrazine 4L	4 L		0.875 lb ai/a	2-4"wds	C			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/a	2-4"wds	C			
	Methylated Seed Oil	100 L		0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	2-4"wds	C			
13	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a	PRE	A	100.0 a	93.7 cd	100.0 a
	Tolpyralate	3.34 SC		0.026 lb ai/a	2-4"wds	C			
	Atrazine 4L	4 L		0.875 lb ai/a	2-4"wds	C			
	Steadfast Q Premix	75 WG		0.035 lb ai/a	2-4"wds	C			
	----nicosulfuron	50		0.0233					
	----rimsulfuron	25		0.0117					
	_isoxadifen-ethyl	50 WG		0.0156 lb ai/a	2-4"wds	C			
	Methylated Seed Oil	100 L		0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	2-4"wds	C			
14	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a	PRE	A	100.0 a	99.3 a	100.0 a
	Callisto.....mesotrione	4 SC		0.094 lb ai/a	2-4"wds	C			
	Atrazine 4L	4 L		0.875 lb ai/a	2-4"wds	C			
	Crop Oil Concentrate	100 L		1 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	2-4"wds	C			
15	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/a	PRE	A	100.0 a	95.0 a-d	100.0 a
	Impact.....topramezone	2.81 SC		0.022 lb ai/a	2-4"wds	C			
	Atrazine 4L	4 L		0.875 lb ai/a	2-4"wds	C			
	Methylated Seed Oil	100 L		0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	2-4"wds	C			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Pest Name						XANST Cocklbr	GGGAN AnnGrass		
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date						C -	C -	C ZEAMX Corn Yield Bu/A 10/04/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Timing	Appl Code			
10	Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	PRE	A	100.0 a	100.0 a	187.9 a
	Tolpyralate	3.34	SC	0.026 lb ai/a	2-4"wds	C			
	Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	C			
	Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	2-4"wds	C			
	Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C			
11	Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	PRE	A	100.0 a	100.0 a	192.0 a
	Tolpyralate	3.34	SC	0.026 lb ai/a	2-4"wds	C			
	Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	C			
	Surpass NXT.....acetochlor	7	EC	1.31 lb ai/a	2-4"wds	C			
	Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C			
12	Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	PRE	A	100.0 a	100.0 a	201.2 a
	Tolpyralate	3.34	SC	0.026 lb ai/a	2-4"wds	C			
	Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/a	2-4"wds	C			
	Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C			
13	Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	PRE	A	100.0 a	100.0 a	187.8 a
	Tolpyralate	3.34	SC	0.026 lb ai/a	2-4"wds	C			
	Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	C			
	Steadfast Q Premix	75	WG	0.035 lb ai/a	2-4"wds	C			
	----nicosulfuron	50		0.0233					
	----rimsulfuron	25		0.0117					
	_isoxadifen-ethyl	50	WG	0.0156 lb ai/a	2-4"wds	C			
	Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C			
14	Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	PRE	A	100.0 a	100.0 a	203.7 a
	Callisto.....mesotrione	4	SC	0.094 lb ai/a	2-4"wds	C			
	Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	C			
	Crop Oil Concentrate	100	L	1 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C			
15	Dual II Magnum..s-metolachlor	7.64	E	1.19 lb ai/a	PRE	A	100.0 a	100.0 a	191.8 a
	Impact.....topramezone	2.81	SC	0.022 lb ai/a	2-4"wds	C			
	Atrazine 4L	4	L	0.875 lb ai/a	2-4"wds	C			
	Methylated Seed Oil	100	L	0.5 % v/v	2-4"wds	C			
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	2-4"wds	C			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.



Pest Code Pest Name			AMBEL C.ragwd	IPOSS Mornglry	MOLVE Carpetwd					
Crop Type, Code	C	ZEAMX	C -	C -	C -					
Crop Name	Corn									
Rating Type	LeafBrn	Control	Control	Control	Control					
Rating Unit	%	%	%	%	%					
Rating Date	06/18/16	06/21/16	06/28/16	06/23/16	06/23/16					
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code				
16 Halex GT Premix	4.376	SC	1.97	lb ai/a	2-4"wds	B	0.0 b	100.0 a	94.7 bcd	100.0 a
----s-metolachlor	2.084		0.94							
----glyphosate	2.084		0.94							
----mesotrione	0.208		0.094							
Atrazine 4L	4	L	0.875	lb ai/a	2-4"wds	B				
Nonionic Surfactant	100	L	0.25	% v/v	2-4"wds	B				
Dry Ammonium Sulfate	100	D	1.02	% w/v	2-4"wds	B				
LSD P=.05			3.37				3.37	21.87	4.38	.
Standard Deviation			1.93				1.93	13.12	2.62	0.00
CV			49.17				49.17	14.31	3.15	0.0
Replicate F			0.551				0.551	0.884	5.464	0.000
Replicate Prob(F)			0.5886				0.5886	0.4237	0.0095	1.0000
Treatment F			29.348				29.348	11.390	461.766	0.000
Treatment Prob(F)			0.0001				0.0001	0.0001	0.0001	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Pest Name							XANST Cocklbr	GGGAN AnnGrass	
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							C -	C -	C ZEAMX Corn Yield Bu/A 10/04/16
Trt Treatment No. Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
16 Halex GT Premix	4.376	SC	1.97	lb ai/a	2-4"wds	B	100.0 a	98.3 a	199.3 a
----s-metolachlor	2.084		0.94						
----glyphosate	2.084		0.94						
----mesotrione	0.208		0.094						
Atrazine 4L	4	L	0.875	lb ai/a	2-4"wds	B			
Nonionic Surfactant	100	L	0.25	% v/v	2-4"wds	B			
Dry Ammonium Sulfate	100	D	1.02	% w/v	2-4"wds	B			
LSD P=.05							21.23	7.52	36.89
Standard Deviation							12.71	4.51	22.12
CV							14.03	4.88	11.62
Replicate F							0.967	0.804	3.501
Replicate Prob(F)							0.3923	0.4569	0.0430
Treatment F							13.727	92.589	1.983
Treatment Prob(F)							0.0001	0.0001	0.0539

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

**Anthem Maxx Programs in Field Corn**

Trial ID: Crn12-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Crn12-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: FMC

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      ZEAMX Zea mays      Corn      BBCH Scale: BCOR  
 Variety: D52VC91  
 Attributes: Roundup Ready  
 Planting Date: 05/25/16      Planting Rate: 30000      S/A  
 Depth: 2 in  
 Row Spacing: 30 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/29/16  
 Harvest Date: 10/04/16      Harvest Equipment: Plot combine  
 Harvested Width: 5 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 15.5

**Pest Description**

Pest 1 Type: W    Code: DIGSA    Digitaria sanguinalis  
 Common Name: large crabgrass

Pest 2 Type: W    Code: IPOSS    Ipomoea sp.  
 Common Name: Morning glory

Pest 3 Type: W    Code: CYPES    Cyperus esculentus  
 Common Name: Yellow nutsedge

Pest 4 Type: W    Code: XANST    Xanthium strumarium  
 Common Name: Common cocklebur

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 14    Tillage Type: CONTIL    conventional-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)

**Soil Description**

% Sand: 82    % OM: 1.2    Texture: LS loamy sand  
 % Silt: 11    pH: 6.5  
 % Clay: 7    CEC: 4.6    Fert. Level: G good  
 Soil Drainage: G good

<b>Application Description</b>				
	A	B	C	D
Application Date	05/26/16	06/07/16	06/14/16	06/24/16
Appl. Stop Time	09:50 AM	04:20 PM	11:40 AM	11:00 AM
Interval to Prev. Appl.		12 DAYS	7 DAYS	10 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	PRE	V2-3	V4	V8
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	80 F	86 F	73 F	79 F
% Relative Humidity Start, Stop	50	32	40	72
Wind Velocity+Dir. Start	2 mph SW	3 mph NW	4 mph N	1 mph E
Wet Leaves (Y/N)	N no	N no	N no	N no
Soil Temperature	79 F	86 F	73 F	79 F
Soil Moisture	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover	15	35	20	90

<b>Crop Stage At Each Application</b>				
	A	B	C	D
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used		DESC	DESC	DESC
Stage Majority, Percent		V2-3 100	V4 100	V7 100
Height Average		4 in	12 in	20 in

<b>Pest Stage At Each Application</b>				
	A	B	C	D
Pest 1 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent		2-leaf 70		1-tilr 55
Stage Minimum, Percent		cot 15		4-lf 45
Stage Maximum, Percent		3-leaf 15		1-tilr 55
Height Average		0.3 in		2.5 in
Height Minimum, Maximum		0.2 0.4		2 3
Density Average		30 m2		5 m2
Pest 2 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent		cot 55	3-leaf 60	veg 100
Stage Minimum, Percent		cot 55	2-leaf 15	
Stage Maximum, Percent		1-leaf 45	4-leaf 25	
Height Average		1 in	3 in	4 in
Height Minimum, Maximum			2 4	3 5
Density Average		1 m2	2 m2	2 m2
Pest 3 Code, Type, Scale	CYPES W	CYPES W	CYPES W	CYPES W
Stage Majority, Percent		3-4 lf 60		
Stage Minimum, Percent		2-leaf 20		
Stage Maximum, Percent		5-leaf 20		
Height Average		2 in		
Height Minimum, Maximum		1 3		
Density Average		5 m2		
Pest 4 Code, Type, Scale	XANST W	XANST W	XANST W	XANST W
Stage Majority, Percent			6-8 lf 70	
Stage Minimum, Percent			4-leaf 20	
Stage Maximum, Percent			10 lf 10	
Height Average			5 in	
Height Minimum, Maximum			3 6	
Density Average			5 m2	

<b>Application Equipment</b>				
	A	B	C	D
Appl. Equipment	Tractor	Tractor	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	20 in	20 in	20 in	20 in
Boom Length	10 ft	10 ft	10 ft	10 ft
Boom Height	18 in	20 in	26 in	36 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR	COMAIR	COMAIR

Trial Comments

06/18/16: Common lambsquarters and Palmer amaranth were in untreated check, but not observed in any treated plot.

Anthem Maxx Programs in Field Corn		
Trial ID: Crn12-16	Location: Field #18	Trial Year: 2016
Protocol ID: Crn12-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact: FMC	

Pest Code								
Pest Name								
Crop Type, Code						C ZEAMX	C ZEAMX	C ZEAMX
Crop Name						Corn	Corn	Corn
Rating Type						Stunting	Stunting	LeafBrn
Rating Unit						%	%	%
Rating Date						06/02/16	06/11/16	06/11/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 a
2	Anthem Maxx Premix	4.3	SC	0.134	lb ai/a	PRE	A	0.0 a
	----pyoxasulfone	4.174		0.13				
	----fluthiacet	0.126		0.00393				
	Solstice Premix	4	SC	0.078	lb ai/a	V4	C	
	----fluthiacet	0.216		0.0042				
	----mesotrione	3.784		0.074				
	Atrazine 4L	4	L	1.5	lb ai/a	V4	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V4	C	
	Crop Oil Concentrate	100	L	0.5	% v/v	V4	C	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V4	C	
3	Anthem Maxx Premix	4.3	SC	0.134	lb ai/a	PRE	A	0.0 a
	----pyoxasulfone	4.174		0.13				
	----fluthiacet	0.126		0.00393				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
	Solstice Premix	4	SC	0.078	lb ai/a	V4	C	
	----fluthiacet	0.216		0.0042				
	----mesotrione	3.784		0.074				
	Atrazine 4L	4	L	0.5	lb ai/a	V4	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V4	C	
	Crop Oil Concentrate	100	L	0.5	% v/v	V4	C	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V4	C	
4	Anthem Maxx Premix	4.3	SC	0.134	lb ai/a	PRE	A	0.0 a
	----pyoxasulfone	4.174		0.13				
	----fluthiacet	0.126		0.00393				
	Atrazine 4L	4	L	1.5	lb ai/a	PRE	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V8	D	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V8	D	
5	Anthem Maxx Premix	4.3	SC	0.134	lb ai/a	PRE	A	0.0 a
	----pyoxasulfone	4.174		0.13				
	----fluthiacet	0.126		0.00393				
	Hornet WDG Premix	78.5	WG	0.147	lb ai/a	PRE	A	
	----flumetsulam	18.5		0.0346				
	----clopyralid	60		0.112				
	Atrazine 4L	4	L	1.5	lb ai/a	V8	D	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V8	D	
	Crop Oil Concentrate	100	L	0.5	% v/v	V8	D	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V8	D	
6	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	0.0 a
	----atrazine	1		0.625				
	----bicyclopyrone	0.06		0.0375				
	----mesotrione	0.24		0.15				
	----s-metolachlor	2.14		1.34				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V8	D	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V8	D	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=10,11  
Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Pest Code Pest Name			IPOSS Morngrly	DIGSA L.crbgrs						
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C ZEAMX Corn Stunting %	C ZEAMX Corn LeafBrn %	C - Control %	C - Control %						
	06/18/16	06/18/16	06/18/16	06/18/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code				
1 Untreated Check							0.0 d	0.0 e	0.0 f	0.0 e
2 Anthem Maxx Premix	4.3	SC	0.134 lb ai/a	PRE	A		5.7 bc	10.3 c	91.7 abc	98.7 ab
----pyroxa-sulfone	4.174		0.13							
----fluthiacet	0.126		0.00393							
Solstice Premix	4	SC	0.078 lb ai/a	V4	C					
----fluthiacet	0.216		0.0042							
----mesotrione	3.784		0.074							
Atrazine 4L	4	L	1.5 lb ai/a	V4	C					
Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V4	C					
Crop Oil Concentrate	100	L	0.5 % v/v	V4	C					
Dry Ammonium Sulfate	100	D	1.02 % w/v	V4	C					
3 Anthem Maxx Premix	4.3	SC	0.134 lb ai/a	PRE	A		14.0 a	9.0 c	94.7 ab	98.3 ab
----pyroxa-sulfone	4.174		0.13							
----fluthiacet	0.126		0.00393							
Atrazine 4L	4	L	1 lb ai/a	PRE	A					
Solstice Premix	4	SC	0.078 lb ai/a	V4	C					
----fluthiacet	0.216		0.0042							
----mesotrione	3.784		0.074							
Atrazine 4L	4	L	0.5 lb ai/a	V4	C					
Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V4	C					
Crop Oil Concentrate	100	L	0.5 % v/v	V4	C					
Dry Ammonium Sulfate	100	D	1.02 % w/v	V4	C					
4 Anthem Maxx Premix	4.3	SC	0.134 lb ai/a	PRE	A		8.3 b	0.0 e	83.3 de	98.7 ab
----pyroxa-sulfone	4.174		0.13							
----fluthiacet	0.126		0.00393							
Atrazine 4L	4	L	1.5 lb ai/a	PRE	A					
Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V8	D					
Dry Ammonium Sulfate	100	D	1.02 % w/v	V8	D					
5 Anthem Maxx Premix	4.3	SC	0.134 lb ai/a	PRE	A		15.0 a	0.0 e	80.3 e	97.0 abc
----pyroxa-sulfone	4.174		0.13							
----fluthiacet	0.126		0.00393							
Hornet WDG Premix	78.5	WG	0.147 lb ai/a	PRE	A					
----flumetsulam	18.5		0.0346							
----clopyralid	60		0.112							
Atrazine 4L	4	L	1.5 lb ai/a	V8	D					
Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V8	D					
Crop Oil Concentrate	100	L	0.5 % v/v	V8	D					
Dry Ammonium Sulfate	100	D	1.02 % w/v	V8	D					
6 Acuron Premix	3.44	ZC	2.15 lb ai/a	PRE	A		0.0 d	0.0 e	88.3 bcd	97.3 abc
----atrazine	1		0.625							
----bicyclopyrone	0.06		0.0375							
----mesotrione	0.24		0.15							
----s-metolachlor	2.14		1.34							
Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V8	D					
Dry Ammonium Sulfate	100	D	1.02 % w/v	V8	D					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Pest Code Pest Name			AMAPA PalmerAm	IPOSS Morngrly	DIGSA L.crbgrs	
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date			C - Control %	C - Control %	C - Control %	
			07/02/16	07/02/16	07/02/16	
Trt Treatment No. Name	Form Form Conc Type	Rate Unit	Appl Timing	Appl Code		
1 Untreated Check					0.0 e	
2 Anthem Maxx Premix ----pyroxasulfone ----fluthiacet Solstice Premix ----fluthiacet ----mesotrione Atrazine 4L Roundup PowerMax..glyphosate Crop Oil Concentrate Dry Ammonium Sulfate	4.3 SC 4.174 0.126 4 SC 0.216 3.784 4 L 4.5 AS 100 L 100 D	0.134 lb ai/a 0.13 0.00393 0.078 lb ai/a 0.0042 0.074 1.5 lb ai/a 1.13 lb ae/a 0.5 % v/v 1.02 % w/v	PRE   V4   V4 V4 V4 V4	A   C   C C C C	9.7 bc           	100.0 a           
3 Anthem Maxx Premix ----pyroxasulfone ----fluthiacet Atrazine 4L Solstice Premix ----fluthiacet ----mesotrione Atrazine 4L Roundup PowerMax..glyphosate Crop Oil Concentrate Dry Ammonium Sulfate	4.3 SC 4.174 0.126 4 L 4 SC 0.216 3.784 4 L 4.5 AS 100 L 100 D	0.134 lb ai/a 0.13 0.00393 1 lb ai/a 0.078 lb ai/a 0.0042 0.074 0.5 lb ai/a 1.13 lb ae/a 0.5 % v/v 1.02 % w/v	PRE   PRE V4   V4 V4 V4 V4	A   A C   C C C C	12.0 b           	100.0 a           
4 Anthem Maxx Premix ----pyroxasulfone ----fluthiacet Atrazine 4L Roundup PowerMax..glyphosate Dry Ammonium Sulfate	4.3 SC 4.174 0.126 4 L 4.5 AS 100 D	0.134 lb ai/a 0.13 0.00393 1.5 lb ai/a 1.13 lb ae/a 1.02 % w/v	PRE   PRE V8 V8	A   A D D	13.0 ab      	100.0 a      
5 Anthem Maxx Premix ----pyroxasulfone ----fluthiacet Hornet WDG Premix ----flumetsulam ----clopypalid Atrazine 4L Roundup PowerMax..glyphosate Crop Oil Concentrate Dry Ammonium Sulfate	4.3 SC 4.174 0.126 78.5 WG 18.5 60 4 L 4.5 AS 100 L 100 D	0.134 lb ai/a 0.13 0.00393 0.147 lb ai/a 0.0346 0.112 1.5 lb ai/a 1.13 lb ae/a 0.5 % v/v 1.02 % w/v	PRE   PRE   V8 V8 V8 V8	A   A   D D D D	17.3 a           	100.0 a           
6 Acuron Premix ----atrazine ----bicyclopyrone ----mesotrione ----s-metolachlor Roundup PowerMax..glyphosate Dry Ammonium Sulfate	3.44 ZC 1 0.06 0.24 2.14 4.5 AS 100 D	2.15 lb ai/a 0.625 0.0375 0.15 1.34 1.13 lb ae/a 1.02 % w/v	PRE      V8 V8	A      D D	4.7 d      	100.0 a      

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.



Pest Code						C ZEAMX Corn Yield Bu/A 10/04/16	
Pest Name							
Crop Type, Code							
Crop Name							
Rating Type							
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing Code	
1	Untreated Check						185.7 a
2	Anthem Maxx Premix	4.3	SC	0.134 lb ai/a	PRE	A	188.1 a
	----pyroxasulfone	4.174		0.13			
	----fluthiacet	0.126		0.00393			
	Solstice Premix	4	SC	0.078 lb ai/a	V4	C	
	----fluthiacet	0.216		0.0042			
	----mesotrione	3.784		0.074			
	Atrazine 4L	4	L	1.5 lb ai/a	V4	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V4	C	
	Crop Oil Concentrate	100	L	0.5 % v/v	V4	C	
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V4	C	
3	Anthem Maxx Premix	4.3	SC	0.134 lb ai/a	PRE	A	193.0 a
	----pyroxasulfone	4.174		0.13			
	----fluthiacet	0.126		0.00393			
	Atrazine 4L	4	L	1 lb ai/a	PRE	A	
	Solstice Premix	4	SC	0.078 lb ai/a	V4	C	
	----fluthiacet	0.216		0.0042			
	----mesotrione	3.784		0.074			
	Atrazine 4L	4	L	0.5 lb ai/a	V4	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V4	C	
	Crop Oil Concentrate	100	L	0.5 % v/v	V4	C	
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V4	C	
4	Anthem Maxx Premix	4.3	SC	0.134 lb ai/a	PRE	A	182.9 a
	----pyroxasulfone	4.174		0.13			
	----fluthiacet	0.126		0.00393			
	Atrazine 4L	4	L	1.5 lb ai/a	PRE	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V8	D	
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V8	D	
5	Anthem Maxx Premix	4.3	SC	0.134 lb ai/a	PRE	A	184.0 a
	----pyroxasulfone	4.174		0.13			
	----fluthiacet	0.126		0.00393			
	Hornet WDG Premix	78.5	WG	0.147 lb ai/a	PRE	A	
	----flumetsulam	18.5		0.0346			
	----clopyralid	60		0.112			
	Atrazine 4L	4	L	1.5 lb ai/a	V8	D	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V8	D	
	Crop Oil Concentrate	100	L	0.5 % v/v	V8	D	
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V8	D	
6	Acuron Premix	3.44	ZC	2.15 lb ai/a	PRE	A	198.0 a
	----atrazine	1		0.625			
	----bicyclopyrone	0.06		0.0375			
	----mesotrione	0.24		0.15			
	----s-metolachlor	2.14		1.34			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V8	D	
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V8	D	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Pest Code									
Pest Name									
Crop Type, Code							C ZEAMX	C ZEAMX	C ZEAMX
Crop Name							Corn	Corn	Corn
Rating Type							Stunting	Stunting	LeafBrn
Rating Unit							%	%	%
Rating Date							06/02/16	06/11/16	06/11/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
7	Corvus Premix	2.63	SC	0.115	lb ai/a	PRE	A	0.0 a	12.3 b
	----thiencarbazon	0.75		0.0328					
	----isoxaflutole	1.88		0.082					
	Atrazine 4L	4	L	1	lb ai/a	PRE	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V8	D		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V8	D		
8	Verdict Premix	5.57	EC	0.696	lb ai/a	PRE	A	0.0 a	4.7 cd
	----saflufenacil	0.57		0.071					
	----dimethenamid	5		0.625					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V8	D		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V8	D		
9	Solstice Premix	4	SC	0.098	lb ai/a	V2-3	B		16.7 a
	----fluthiacet	0.216		0.0053					
	----mesotrione	3.784		0.093					
	Atrazine 4L	4	L	1	lb ai/a	V2-3	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B		
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B		
10	Solstice Premix	4	SC	0.078	lb ai/a	V2-3	B		19.0 a
	----fluthiacet	0.216		0.0042					
	----mesotrione	3.784		0.074					
	Anthem Maxx Premix	4.3	SC	0.067	lb ai/a	V2-3	B		
	----pyroxasulfone	4.174		0.065					
	----fluthiacet	0.126		0.00196					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B		
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B		
11	Solstice Premix	4	SC	0.078	lb ai/a	V2-3	B		12.0 b
	----fluthiacet	0.216		0.0042					
	----mesotrione	3.784		0.074					
	Anthem Maxx Premix	4.3	SC	0.067	lb ai/a	V2-3	B		
	----pyroxasulfone	4.174		0.065					
	----fluthiacet	0.126		0.00196					
	Atrazine 4L	4	L	0.5	lb ai/a	V2-3	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B		
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B		
12	Hornet WDG Premix	78.5	WG	0.147	lb ai/a	V2-3	B		3.7 c
	----flumetsulam	18.5		0.0346					
	----clopyralid	60		0.112					
	Anthem Maxx Premix	4.3	SC	0.067	lb ai/a	V2-3	B		
	----pyroxasulfone	4.174		0.065					
	----fluthiacet	0.126		0.00196					
	Atrazine 4L	4	L	0.5	lb ai/a	V2-3	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B		
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Pest Code Pest Name									IPOSS Morngrly	DIGSA L.crbgrs	
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							C ZEAMX Corn Stunting % 06/18/16	C ZEAMX Corn LeafBrn % 06/18/16	C - Control % 06/18/16	C - Control % 06/18/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
7	Corvus Premix	2.63	SC	0.115	lb ai/a	PRE	A	8.0 b	0.0 e	87.3 cd	96.3 bc
	----thiencarbazon	0.75		0.0328							
	----isoxaflutole	1.88		0.082							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V8	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V8	D				
8	Verdict Premix	5.57	EC	0.696	lb ai/a	PRE	A	0.0 d	0.0 e	87.3 cd	95.0 c
	----saflufenacil	0.57		0.071							
	----dimethenamid	5		0.625							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V8	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V8	D				
9	Solstice Premix	4	SC	0.098	lb ai/a	V2-3	B	3.3 cd	14.0 b	96.3 a	99.0 ab
	----fluthiacet	0.216		0.0053							
	----mesotrione	3.784		0.093							
	Atrazine 4L	4	L	1	lb ai/a	V2-3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B				
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B				
10	Solstice Premix	4	SC	0.078	lb ai/a	V2-3	B	1.7 cd	17.0 a	96.0 a	99.3 ab
	----fluthiacet	0.216		0.0042							
	----mesotrione	3.784		0.074							
	Anthem Maxx Premix	4.3	SC	0.067	lb ai/a	V2-3	B				
	----pyroxasulfone	4.174		0.065							
	----fluthiacet	0.126		0.00196							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B				
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B				
11	Solstice Premix	4	SC	0.078	lb ai/a	V2-3	B	2.3 cd	11.3 bc	97.7 a	97.7 abc
	----fluthiacet	0.216		0.0042							
	----mesotrione	3.784		0.074							
	Anthem Maxx Premix	4.3	SC	0.067	lb ai/a	V2-3	B				
	----pyroxasulfone	4.174		0.065							
	----fluthiacet	0.126		0.00196							
	Atrazine 4L	4	L	0.5	lb ai/a	V2-3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B				
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B				
12	Hornet WDG Premix	78.5	WG	0.147	lb ai/a	V2-3	B	0.0 d	3.0 d	94.7 ab	97.7 abc
	----flumetsulam	18.5		0.0346							
	----clopyralid	60		0.112							
	Anthem Maxx Premix	4.3	SC	0.067	lb ai/a	V2-3	B				
	----pyroxasulfone	4.174		0.065							
	----fluthiacet	0.126		0.00196							
	Atrazine 4L	4	L	0.5	lb ai/a	V2-3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B				
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Pest Code Pest Name							AMAPA PalmerAm	IPOSS Mornglry	DIGSA L.crbgrs	
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C ZEAMX Corn Stunting %						C - Control %	C - Control %	C - Control %	
Trt Treatment No. Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	07/02/16	07/02/16	07/02/16	
7 Corvus Premix ----thiencarbazon ----isoxaflutole Atrazine 4L Roundup PowerMax..glyphosate Dry Ammonium Sulfate	2.63 0.75 1.88 4 4.5 100	SC   L AS D	0.115 0.0328 0.082	lb ai/a	PRE	A	12.3 b	100.0 a	98.0 a	100.0 a
8 Verdict Premix ----saflufenacil ----dimethenamid Roundup PowerMax..glyphosate Dry Ammonium Sulfate	5.57 0.57 5 4.5 100	EC   AS D	0.696 0.071 0.625	lb ai/a	PRE	A	2.3 de	100.0 a	85.0 bcd	100.0 a
9 Solstice Premix ----fluthiacet ----mesotrione Atrazine 4L Roundup PowerMax..glyphosate Crop Oil Concentrate Dry Ammonium Sulfate	4 0.216 3.784 4 4.5 100 100	SC   L AS L D	0.098 0.0053 0.093	lb ai/a	V2-3	B	5.7 cd	100.0 a	95.0 ab	100.0 a
10 Solstice Premix ----fluthiacet ----mesotrione Anthem Maxx Premix ----pyroxasulfone ----fluthiacet Roundup PowerMax..glyphosate Crop Oil Concentrate Dry Ammonium Sulfate	4 0.216 3.784 4.3 4.174 0.126 4.5 100 100	SC   SC   AS L D	0.078 0.0042 0.074	lb ai/a	V2-3	B	0.0 e	100.0 a	82.7 d	100.0 a
11 Solstice Premix ----fluthiacet ----mesotrione Anthem Maxx Premix ----pyroxasulfone ----fluthiacet Atrazine 4L Roundup PowerMax..glyphosate Crop Oil Concentrate Dry Ammonium Sulfate	4 0.216 3.784 4.3 4.174 0.126 4 4.5 100 100	SC   SC   L AS L D	0.078 0.0042 0.074	lb ai/a	V2-3	B	2.3 de	100.0 a	93.8 abc	99.7 a
12 Hornet WDG Premix ----flumetsulam ----clopyralid Anthem Maxx Premix ----pyroxasulfone ----fluthiacet Atrazine 4L Roundup PowerMax..glyphosate Crop Oil Concentrate Dry Ammonium Sulfate	78.5 18.5 60 4.3 4.174 0.126 4 4.5 100 100	WG   SC   L AS L D	0.147 0.0346 0.112	lb ai/a	V2-3	B	0.0 e	100.0 a	90.0 a-d	97.3 b

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Pest Code							C ZEAMX Corn Yield Bu/A 10/04/16	
Pest Name								
Crop Type, Code								
Crop Name								
Rating Type								
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	
7	Corvus Premix	2.63	SC	0.115	lb ai/a	PRE	A	202.0 a
	----thiencarbazone	0.75		0.0328				
	----isoxaflutole	1.88		0.082				
	Atrazine 4L	4	L		1 lb ai/a	PRE	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V8	D	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V8	D	
8	Verdict Premix	5.57	EC	0.696	lb ai/a	PRE	A	186.8 a
	----saflufenacil	0.57		0.071				
	----dimethenamid	5		0.625				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V8	D	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V8	D	
9	Solstice Premix	4	SC	0.098	lb ai/a	V2-3	B	193.6 a
	----fluthiacet	0.216		0.0053				
	----mesotrione	3.784		0.093				
	Atrazine 4L	4	L		1 lb ai/a	V2-3	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B	
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B	
10	Solstice Premix	4	SC	0.078	lb ai/a	V2-3	B	216.1 a
	----fluthiacet	0.216		0.0042				
	----mesotrione	3.784		0.074				
	Anthem Maxx Premix	4.3	SC	0.067	lb ai/a	V2-3	B	
	----pyroxasulfone	4.174		0.065				
	----fluthiacet	0.126		0.00196				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B	
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B	
11	Solstice Premix	4	SC	0.078	lb ai/a	V2-3	B	191.2 a
	----fluthiacet	0.216		0.0042				
	----mesotrione	3.784		0.074				
	Anthem Maxx Premix	4.3	SC	0.067	lb ai/a	V2-3	B	
	----pyroxasulfone	4.174		0.065				
	----fluthiacet	0.126		0.00196				
	Atrazine 4L	4	L		0.5 lb ai/a	V2-3	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B	
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B	
12	Hornet WDG Premix	78.5	WG	0.147	lb ai/a	V2-3	B	193.6 a
	----flumetsulam	18.5		0.0346				
	----clopyralid	60		0.112				
	Anthem Maxx Premix	4.3	SC	0.067	lb ai/a	V2-3	B	
	----pyroxasulfone	4.174		0.065				
	----fluthiacet	0.126		0.00196				
	Atrazine 4L	4	L		0.5 lb ai/a	V2-3	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V2-3	B	
	Crop Oil Concentrate	100	L	0.5	% v/v	V2-3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Pest Code Pest Name							C	ZEAMX Corn	C	ZEAMX Corn	C	ZEAMX Corn
Crop Type, Code Crop Name							Stunting %	06/02/16	Stunting %	06/11/16	LeafBrn %	06/11/16
Rating Type Rating Unit Rating Date												
Trt Treatment No. Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code						
13 Halex GT Premix	4.376	SC	1.97	lb ai/a	V2-3	B						
----s-metolachlor	2.084		0.94									
----glyphosate	2.084		0.94									
----mesotrione	0.208		0.094									
Nonionic Surfactant	100	L	0.25	% v/v	V2-3	B						
Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B						
14 Halex GT Premix	4.376	SC	1.97	lb ai/a	V2-3	B						
----s-metolachlor	2.084		0.94									
----glyphosate	2.084		0.94									
----mesotrione	0.208		0.094									
Atrazine 4L	4	L	0.75	lb ai/a	V2-3	B						
Nonionic Surfactant	100	L	0.25	% v/v	V2-3	B						
Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B						
LSD P=.05							.	4.46			2.98	
Standard Deviation							0.00	2.54			1.68	
CV							0.0	28.95			20.95	
Replicate F							0.000	1.956			1.831	
Replicate Prob(F)							1.0000	0.1782			0.2024	
Treatment F							0.000	17.117			63.949	
Treatment Prob(F)							1.0000	0.0001			0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Pest Code									IPOSS	DIGSA	
Pest Name									Mornglry	L.crbgrs	
Crop Type, Code							C ZEAMX	C ZEAMX	C -	C -	
Crop Name							Corn	Corn			
Rating Type							Stunting	LeafBrn	Control	Control	
Rating Unit							%	%	%	%	
Rating Date							06/18/16	06/18/16	06/18/16	06/18/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
13	Halex GT Premix	4.376	SC	1.97	lb ai/a	V2-3	B	0.0 d	2.3 de	88.3 bcd	91.7 d
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	Nonionic Surfactant	100	L	0.25	% v/v	V2-3	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B				
14	Halex GT Premix	4.376	SC	1.97	lb ai/a	V2-3	B	0.0 d	4.0 d	94.7 ab	99.7 a
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	Atrazine 4L	4	L	0.75	lb ai/a	V2-3	B				
	Nonionic Surfactant	100	L	0.25	% v/v	V2-3	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B				
LSD P=.05							4.41	2.85	6.38	3.15	
Standard Deviation							2.63	1.70	3.80	1.88	
CV							63.12	33.46	4.51	2.08	
Replicate F							0.540	0.893	10.333	5.512	
Replicate Prob(F)							0.5889	0.4216	0.0005	0.0101	
Treatment F							12.104	37.800	127.999	579.756	
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Pest Code Pest Name			AMAPA PalmerAm	IPOSS Mornglry	DIGSA L.crbgrs				
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C	ZEAMX Corn	C - Control %	C - Control %	C - Control %				
			07/02/16	07/02/16	07/02/16				
Trt Treatment No. Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code				
13 Halex GT Premix ----s-metolachlor ----glyphosate ----mesotrione Nonionic Surfactant Dry Ammonium Sulfate	4.376 2.084 2.084 0.208 100 100	SC    L D	1.97 lb ai/a 0.94 0.94 0.094 0.25 % v/v 1.02 % w/v	V2-3    V2-3 V2-3	B    B B	0.0 e	100.0 a	88.3 a-d	98.3 ab
14 Halex GT Premix ----s-metolachlor ----glyphosate ----mesotrione Atrazine 4L Nonionic Surfactant Dry Ammonium Sulfate	4.376 2.084 2.084 0.208 4 100 100	SC    L L D	1.97 lb ai/a 0.94 0.94 0.094 0.75 lb ai/a 0.25 % v/v 1.02 % w/v	V2-3    V2-3 V2-3 V2-3	B    B B B	4.7 d	100.0 a	96.3 a	100.0 a
LSD P=.05			4.52	.			10.21	1.78	
Standard Deviation			2.69	0.00			6.03	1.05	
CV			44.89	0.0			7.13	1.13	
Replicate F			4.736	0.000			5.455	3.237	
Replicate Prob(F)			0.0176	1.0000			0.0119	0.0586	
Treatment F			14.046	0.000			50.865	1933.656	
Treatment Prob(F)			0.0001	1.0000			0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.



Pest Code						C	ZEAMX			
Pest Name								Corn		
Crop Type, Code									Yield	
Crop Name										Bu/A
Rating Type										
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code			
13	Halex GT Premix	4.376	SC	1.97	lb ai/a	V2-3	B	187.6 a		
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Nonionic Surfactant	100	L	0.25	% v/v	V2-3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B			
14	Halex GT Premix	4.376	SC	1.97	lb ai/a	V2-3	B	200.2 a		
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4	L	0.75	lb ai/a	V2-3	B			
	Nonionic Surfactant	100	L	0.25	% v/v	V2-3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V2-3	B			
LSD P=.05								33.12		
Standard Deviation								19.74		
CV								10.22		
Replicate F								3.842		
Replicate Prob(F)								0.0345		
Treatment F								0.608		
Treatment Prob(F)								0.8253		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=10,11

Could not calculate LSD (% mean diff) for columns 1,9 because error mean square = 0.

Comparison of Approaches for Weed Control in No-Tillage Field Corn  
 Trial ID: Crn13-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Crn13-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      ZEAMX Zea mays      Corn      BBCH Scale: BCOR  
 Variety: D52VC91  
 Attributes: Roundup Ready  
 Planting Date: 05/10/16      Planting Rate: 30000      S/A  
 Depth: 2 in  
 Row Spacing: 30 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 60 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/21/16  
 Harvest Date: 10/04/16      Harvest Equipment: Plot combine  
 Harvested Width: 5 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 15.5

**Pest Description**

Pest 1 Type: W    Code: LAMAM Lamium amplexicaule  
 Common Name: Henbit  
 Pest 2 Type: W    Code: TRZAW Triticum aestivum (winter)  
 Common Name: Winter wheat  
 Pest 3 Type: W    Code: ERICA Conyza canadensis  
 Common Name: Canada horseweed  
 Pest 4 Type: W    Code: CHEAL Chenopodium album  
 Common Name: Common lambsquarters  
 Pest 5 Type: W    Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass  
 Pest 6 Type: W    Code: AMAPA Amaranthus palmeri  
 Common Name: Palmer amaranth  
 Pest 7 Type: W    Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 14    Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: RAOBL Randomized Complete Block (RCB)

**Soil Description**

% Sand: 79    % OM: 0.9    Texture: SL sandy loam  
 % Silt: 10    pH: 6.1  
 % Clay: 11    CEC: 4.7    Fert. Level: G good  
 Soil Drainage: F fair

<b>Application Description</b>					
	A	B	C	D	E
Application Date	04/18/16	05/02/16	05/10/16	06/01/16	06/09/16
Appl. Stop Time	11:00 AM	03:00 PM	03:50 PM	09:30 AM	08:20 AM
Interval to Prev. Appl.		14 DAYS	8 DAYS	22 DAYS	8 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	21DPP	7DPP	PRE	V3	V5
Application Placement	BROADC	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	71 F	76 F	60 F	78 F	66 F
% Relative Humidity Start, Stop	32	69	59	74	49
Wind Velocity+Dir. Start	2 mph NE	3 mph SW	3 mph NE	2 mph NE	5 mph W
Wet Leaves (Y/N)	N no	Y yes	N no	Y yes	N no
Soil Temperature	71 F	76 F	60 F	78 F	64 F
Soil Moisture	NORMAL	WET	WET	WET	NORMAL
% Cloud Cover	0	20	85	15	15

<b>Crop Stage At Each Application</b>					
	A	B	C	D	E
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used				DESC	DESC
Stage Majority, Percent				V3 100	V5 100
Height Average				6 in	15 in
Height Minimum, Maximum					14 16

<b>Pest Stage At Each Application</b>					
	A	B	C	D	E
Pest 1 Code, Type, Scale	LAMAM W	LAMAM W	LAMAM W	LAMAM W	LAMAM W
Stage Majority, Percent	seed 70	seed 100			
Stage Minimum, Percent	flower 30				
Stage Maximum, Percent	seed 70				
Height Average	8 in	8 in			
Height Minimum, Maximum	7 9	7 9			
Density Average	25 m2	25 m2			
Pest 2 Code, Type, Scale	TRZAW W	TRZAW W	TRZAW W	TRZAW W	TRZAW W
Stage Majority, Percent	veg 100	flag 90			
Stage Minimum, Percent		flowr 10			
Height Average	8 in	13 in			
Height Minimum, Maximum	5 9	10 15			
Density Average	10 m2	10 m2			
Pest 3 Code, Type, Scale	ERICA W	ERICA W	ERICA W	ERICA W	ERICA W
Stage Majority, Percent	rosett 100	rosett 100	bolt 100		
Diameter	2 in	4 in	4 in		
Height Minimum, Maximum		3 5			
Density Average	2 m2	2 m2	1 PLOT		
Pest 4 Code, Type, Scale	CHEAL W	CHEAL W	CHEAL W	CHEAL W	CHEAL W
Stage Majority, Percent	veg 100	veg 100			veg 100
Height Average	1.5 in	2.5 in			2 in
Height Minimum, Maximum	1 2	2 3			1.5 3
Density Average	5 m2	5 m2			5 m2
Pest 5 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent				1-leaf 50	
Stage Minimum, Percent				cot 30	
Stage Maximum, Percent				2-leaf 20	
Height Average				0.3 in	
Height Minimum, Maximum				0.2 0.4	
Density Average				10 m2	
Pest 6 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent					veg 100
Height Average					4 in
Height Minimum, Maximum					1.5 6
Density Average					15 m2
Pest 7 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent					2-leaf 70
Stage Minimum, Percent					cot 20
Stage Maximum, Percent					3-leaf 10
Height Average					1.5 in
Height Minimum, Maximum					1 2
Density Average					4 m2

<b>Application Equipment</b>					
	A	B	C	D	E
Appl. Equipment	Tractor	Tractor	Tractor	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP	TRMOSP	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi	40 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002	11002
Nozzle Spacing	20 in	20 in	20 in	20 in	20 in
Boom Length	10 ft	10 ft	10 ft	10 ft	10 ft
Boom Height	24 in	30 in	20 in	22 in	30 in
Ground Speed	3 mph	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL	0.7 GAL	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR	COMAIR	COMAIR	COMAIR

#### Trial Comments

05/27/16: Burndown control was excellent for all treatments except: Trt 6 (horseweed, dock, pepperweed), Trt. 10 (horseweed, pepperweed), Trt.11 (horseweed), Trt.1 (primrose, horseweed) had fair to good burndown (90% control or higher). There were not enough plants to cause competition with corn (3-5 plants per plot).

06/09/16: Poor horseweed control with Trt. 1, 3, 9, 12, 13. Trt. 6 horseweed burned but not dying. Only Palmer amaranth consistently in trt. 1. Morningglory cotyledons just emerging.

06/19/16: Horseweed in trts. 3, 12, 13. Trt. 6 burndown did not kill horseweed but POST application gave fair to good control.

Comparison of Approaches for Weed Control in No-Tillage Field Corn							AMAPA	IPOSS
Trial ID: Crn13-16		Location: Field #14		Trial Year: 2016			PalmerAm	Mornnglry
Protocol ID: Crn13-16		Investigator: Mark VanGessel			Study Director:			
		Sponsor Contact:						
Pest Code	Pest Name							
Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							
	Roundup WeatherMax..glyphosate	4.5 AS		1.13 lb ae/a	7 DPP	B		
2	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	21 DPP	A		
	Simazine	4 L		1.5 lb ai/a	21 DPP	A		
	Nonionic Surfactant	100 L		0.25 % v/v	21 DPP	A		
	Lumax EZ Premix	3.67 SC		2.48 lb ai/a	PRE	C		
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
	Atrazine 4L	4 L		0.75 lb ai/a	PRE	C		
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	C		
3	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	21 DPP	A		
	Bicep II Magnum Premix	5.5 L		1.72 lb ai/a	21 DPP	A		
	----s-metolachlor	2.4		0.75				
	----atrazine	3.1		0.97				
	Nonionic Surfactant	100 L		0.25 % v/v	21 DPP	A		
	Bicep II Magnum Premix	5.5 L		1.38 lb ai/a	PRE	C		
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	Prowl H2O.....pendimethalin	3.8 CS		1.43 lb ai/a	PRE	C		
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	C		
4	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	21 DPP	A		
	Bicep II Magnum Premix	5.5 L		2.9 lb ai/a	21 DPP	A		
	----s-metolachlor	2.4		1.27				
	----atrazine	3.1		1.63				
	Simazine	4 L		1.5 lb ai/a	21 DPP	A		
	Nonionic Surfactant	100 L		0.25 % v/v	21 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	V5	E		
5	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	21 DPP	A		
	Bicep II Magnum Premix	5.5 L		1.72 lb ai/a	21 DPP	A		
	----s-metolachlor	2.4		0.75				
	----atrazine	3.1		0.97				
	Nonionic Surfactant	100 L		0.25 % v/v	21 DPP	A		
	Lexar EZ Premix	3.71 SC		1.58 lb ai/a	PRE	C		
	----s-metolachlor	1.742819		0.74				
	----mesotrione	0.2243629		0.096				
	----atrazine	1.742819		0.74				
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	C		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	V5	E		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1

Pest Code Pest Name	AMAPA PalmerAm	IPOSS Morngrly	AMAPA PalmerAm					
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C - Control % 06/19/16	C - Control % 06/19/16	C - Control % 07/04/16					
Trt Treatment No. Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing	Appl Code			
1 Untreated Check Roundup WeatherMax..glyphosate	4.5 AS		1.13 lb ae/a	7 DPP	B	0.0 d	0.0 e	0.0 e
2 Gramoxone SL....paraquat Simazine Nonionic Surfactant Lumax EZ Premix ----s-metolachlor ----mesotrione ----atrazine Atrazine 4L Crop Oil Concentrate	2 SL 4 L 100 L 3.67 SC 2.49 0.25 0.93 4 L 100 L		0.5 lb ai/a 1.5 lb ai/a 0.25 % v/v 2.48 lb ai/a 1.68 0.169 0.63 0.75 lb ai/a 1.25 % v/v	21 DPP 21 DPP 21 DPP PRE PRE PRE PRE PRE	A A A C C C C C C	93.0 ab	75.0 c	93.0 abc
3 Gramoxone SL....paraquat Bicep II Magnum Premix ----s-metolachlor ----atrazine Nonionic Surfactant Bicep II Magnum Premix ----s-metolachlor ----atrazine Prowl H2O.....pendimethalin Crop Oil Concentrate	2 SL 5.5 L 2.4 3.1 100 L 5.5 L 2.4 3.1 3.8 CS 100 L		0.5 lb ai/a 1.72 lb ai/a 0.75 0.97 0.25 % v/v 1.38 lb ai/a 0.6 0.78 1.43 lb ai/a 1.25 % v/v	21 DPP 21 DPP PRE PRE PRE PRE PRE PRE PRE PRE	A A A A A C C C C C C	89.3 ab	80.7 bc	85.0 cd
4 Gramoxone SL....paraquat Bicep II Magnum Premix ----s-metolachlor ----atrazine Simazine Nonionic Surfactant Roundup WeatherMax..glyphosate	2 SL 5.5 L 2.4 3.1 4 L 100 L 4.5 AS		0.5 lb ai/a 2.9 lb ai/a 1.27 1.63 1.5 lb ai/a 0.25 % v/v 0.77 lb ae/a	21 DPP 21 DPP PRE PRE PRE PRE V5	A A A A A A E	72.7 c	94.7 a	88.7 bcd
5 Gramoxone SL....paraquat Bicep II Magnum Premix ----s-metolachlor ----atrazine Nonionic Surfactant Lexar EZ Premix ----s-metolachlor ----mesotrione ----atrazine Crop Oil Concentrate Roundup WeatherMax..glyphosate	2 SL 5.5 L 2.4 3.1 100 L 3.71 SC 1.742819 0.2243629 1.742819 100 L 4.5 AS		0.5 lb ai/a 1.72 lb ai/a 0.75 0.97 0.25 % v/v 1.58 lb ai/a 0.74 0.096 0.74 1.25 % v/v 0.77 lb ae/a	21 DPP 21 DPP PRE PRE PRE PRE PRE PRE PRE PRE V5	A A A A A C C C C C E	93.3 ab	92.7 ab	94.0 abc

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1

Pest Code							IPOSS	
Pest Name							Mornngly	
Crop Type, Code							C - C	ZEAMX
Crop Name							Control	Corn
Rating Type							%	Yield
Rating Unit							07/04/16	Bu/A
Rating Date								10/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code		
1	Untreated Check						0.0 f	188.6 a
	Roundup WeatherMax..glyphosate	4.5 AS		1.13 lb ae/a	7 DPP	B		
2	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	21 DPP	A	90.0 bcd	231.7 a
	Simazine	4 L		1.5 lb ai/a	21 DPP	A		
	Nonionic Surfactant	100 L		0.25 % v/v	21 DPP	A		
	Lumax EZ Premix	3.67 SC		2.48 lb ai/a	PRE	C		
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
	Atrazine 4L	4 L		0.75 lb ai/a	PRE	C		
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	C		
3	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	21 DPP	A	81.0 e	214.3 a
	Bicep II Magnum Premix	5.5 L		1.72 lb ai/a	21 DPP	A		
	----s-metolachlor	2.4		0.75				
	----atrazine	3.1		0.97				
	Nonionic Surfactant	100 L		0.25 % v/v	21 DPP	A		
	Bicep II Magnum Premix	5.5 L		1.38 lb ai/a	PRE	C		
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	Prowl H2O.....pendimethalin	3.8 CS		1.43 lb ai/a	PRE	C		
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	C		
4	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	21 DPP	A	97.0 abc	242.6 a
	Bicep II Magnum Premix	5.5 L		2.9 lb ai/a	21 DPP	A		
	----s-metolachlor	2.4		1.27				
	----atrazine	3.1		1.63				
	Simazine	4 L		1.5 lb ai/a	21 DPP	A		
	Nonionic Surfactant	100 L		0.25 % v/v	21 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	V5	E		
5	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	21 DPP	A	89.3 cd	223.3 a
	Bicep II Magnum Premix	5.5 L		1.72 lb ai/a	21 DPP	A		
	----s-metolachlor	2.4		0.75				
	----atrazine	3.1		0.97				
	Nonionic Surfactant	100 L		0.25 % v/v	21 DPP	A		
	Lexar EZ Premix	3.71 SC		1.58 lb ai/a	PRE	C		
	----s-metolachlor	1.742819		0.74				
	----mesotrione	0.2243629		0.096				
	----atrazine	1.742819		0.74				
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	C		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	V5	E		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1



Pest Code Pest Name								AMAPA PalmerAm	IPOSS Morngrly	
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							C ZEAMX Corn Stunting % 05/27/16	C - Control % 06/09/16	C - Control % 06/09/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code			
6	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	21	DPP	A	1.7 bc	100.0 a	96.7 a
	Simazine	4	L	1.5 lb ai/a	21	DPP	A			
	Nonionic Surfactant	100	L	0.25 % v/v	21	DPP	A			
	Halex GT Premix	4.376	SC	1.97 lb ai/a	V3		D			
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4	L	1 lb ai/a	V3		D			
	Nonionic Surfactant	100	L	0.25 % v/v	V3		D			
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V3		D			
7	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	7	DPP	B	1.7 bc	100.0 a	53.3 cd
	Lexar EZ Premix	3.71	SC	3.25 lb ai/a	7	DPP	B			
	----s-metolachlor	1.742819		1.53						
	----mesotrione	0.2243629		0.197						
	----atrazine	1.742819		1.53						
	Simazine	4	L	1.5 lb ai/a	7	DPP	B			
	Nonionic Surfactant	100	L	0.25 % v/v	7	DPP	B			
8	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	7	DPP	B	1.7 bc	100.0 a	61.7 bcd
	Simazine	4	L	1.5 lb ai/a	7	DPP	B			
	Nonionic Surfactant	100	L	0.25 % v/v	7	DPP	B			
	Lumax EZ Premix	3.67	SC	2.48 lb ai/a	PRE		C			
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Atrazine 4L	4	L	0.75 lb ai/a	PRE		C			
	Crop Oil Concentrate	100	L	1.25 % v/v	PRE		C			
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	7	DPP	B	1.7 bc	100.0 a	75.0 b
	Lumax EZ Premix	3.67	SC	2.48 lb ai/a	7	DPP	B			
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Atrazine 4L	4	L	0.75 lb ai/a	7	DPP	B			
	Nonionic Surfactant	100	L	0.25 % v/v	7	DPP	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	V5		E			
10	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	7	DPP	B	0.0 c	100.0 a	100.0 a
	Simazine	4	L	1 lb ai/a	7	DPP	B			
	Nonionic Surfactant	100	L	0.25 % v/v	7	DPP	B			
	Halex GT Premix	4.376	SC	1.97 lb ai/a	V3		D			
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4	L	1 lb ai/a	V3		D			
	Nonionic Surfactant	100	L	0.25 % v/v	V3		D			
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V3		D			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1

Pest Code Pest Name							AMAPA PalmerAm	IPOSS Morngrly	AMAPA PalmerAm	
Crop Type, Code Crop Name							C -	C -	C -	
Rating Type							Control	Control	Control	
Rating Unit							%	%	%	
Rating Date							06/19/16	06/19/16	07/04/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
6	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	99.7 a	95.7 a	98.3 ab
	Simazine	4	L	1.5	lb ai/a	21 DPP	A			
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A			
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	D			
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4	L	1	lb ai/a	V3	D			
	Nonionic Surfactant	100	L	0.25	% v/v	V3	D			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	D			
7	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	87.7 ab	53.3 d	82.3 d
	Lexar EZ Premix	3.71	SC	3.25	lb ai/a	7 DPP	B			
	----s-metolachlor	1.742819		1.53						
	----mesotrione	0.2243629		0.197						
	----atrazine	1.742819		1.53						
	Simazine	4	L	1.5	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
8	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	97.3 ab	70.0 c	98.3 ab
	Simazine	4	L	1.5	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	C			
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	C			
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C			
9	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	100.0 a	83.7 abc	99.0 a
	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	7 DPP	B			
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Atrazine 4L	4	L	0.75	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	E			
10	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	99.7 a	95.0 a	98.3 ab
	Simazine	4	L	1	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	D			
	----s-metolachlor	2.084		0.94						
	----glyphosate	2.084		0.94						
	----mesotrione	0.208		0.094						
	Atrazine 4L	4	L	1	lb ai/a	V3	D			
	Nonionic Surfactant	100	L	0.25	% v/v	V3	D			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	D			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1

Pest Code Pest Name Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							IPOSS Mornnglry C - C	ZEAMX Corn Yield Bu/A	
							Control %	07/04/16 10/04/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
6	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	92.3 abc	230.9 a
	Simazine	4	L	1.5	lb ai/a	21 DPP	A		
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A		
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	D		
	----s-metolachlor	2.084		0.94					
	----glyphosate	2.084		0.94					
	----mesotrione	0.208		0.094					
	Atrazine 4L	4	L	1	lb ai/a	V3	D		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	D		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	D		
7	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	78.7 e	243.8 a
	Lexar EZ Premix	3.71	SC	3.25	lb ai/a	7 DPP	B		
	----s-metolachlor	1.742819		1.53					
	----mesotrione	0.2243629		0.197					
	----atrazine	1.742819		1.53					
	Simazine	4	L	1.5	lb ai/a	7 DPP	B		
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B		
8	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	84.0 de	236.7 a
	Simazine	4	L	1.5	lb ai/a	7 DPP	B		
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B		
	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	C		
	----s-metolachlor	2.49		1.68					
	----mesotrione	0.25		0.169					
	----atrazine	0.93		0.63					
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	C		
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C		
9	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	94.7 abc	222.9 a
	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	7 DPP	B		
	----s-metolachlor	2.49		1.68					
	----mesotrione	0.25		0.169					
	----atrazine	0.93		0.63					
	Atrazine 4L	4	L	0.75	lb ai/a	7 DPP	B		
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	E		
10	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	91.3 a-d	245.4 a
	Simazine	4	L	1	lb ai/a	7 DPP	B		
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B		
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	D		
	----s-metolachlor	2.084		0.94					
	----glyphosate	2.084		0.94					
	----mesotrione	0.208		0.094					
	Atrazine 4L	4	L	1	lb ai/a	V3	D		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	D		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	D		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1

Pest Code Pest Name								AMAPA PalmerAm	IPOSS Morngrly
Crop Type, Code Crop Name							C ZEAMX Corn	C -	C -
Rating Type							Stunting %	Control %	Control %
Rating Unit							05/27/16	06/09/16	06/09/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
11	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		7 DPP	B	0.0 c	100.0 a
	Bicep II Magnum Premix	5.5	L	2.2 lb ai/a		7 DPP	B		
	----s-metolachlor	2.4		0.96					
	----atrazine	3.1		1.24					
	Nonionic Surfactant	100	L	0.25 % v/v		7 DPP	B		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		V3	D		
	Callisto.....mesotrione	4	SC	0.094 lb ai/a		V3	D		
	Atrazine 4L	4	L	1 lb ai/a		V3	D		
12	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		7 DPP	B	1.7 bc	53.3 b
	Atrazine 4L	4	L	1.5 lb ai/a		7 DPP	B		
	Simazine	4	L	1.5 lb ai/a		7 DPP	B		
	Nonionic Surfactant	100	L	0.25 % v/v		7 DPP	B		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		V5	E		
13	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		7 DPP	B	1.7 bc	60.0 b
	Atrazine 4L	4	L	1.5 lb ai/a		7 DPP	B		
	Simazine	4	L	1.5 lb ai/a		7 DPP	B		
	Nonionic Surfactant	100	L	0.25 % v/v		7 DPP	B		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		V5	E		
	Callisto.....mesotrione	4	SC	0.094 lb ai/a		V5	E		
14	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		21 DPP	A	1.7 bc	50.0 b
	Bicep II Magnum Premix	5.5	L	2.9 lb ai/a		21 DPP	A		
	----s-metolachlor	2.4		1.27					
	----atrazine	3.1		1.63					
	Simazine	4	L	1.5 lb ai/a		21 DPP	A		
	Nonionic Surfactant	100	L	0.25 % v/v		21 DPP	A		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		V5	E		
	Callisto.....mesotrione	4	SC	0.094 lb ai/a		V5	E		
LSD P=.05							3.52	19.27	19.03
Standard Deviation							2.10	11.48	11.34
CV							100.34	14.4	18.04
Replicate F							5.643	0.776	2.042
Replicate Prob(F)							0.0095	0.4704	0.1500
Treatment F							3.497	21.533	16.663
Treatment Prob(F)							0.0035	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=1

Pest Code Pest Name							AMAPA PalmerAm	IPOSS Morngrly	AMAPA PalmerAm	
Crop Type, Code Crop Name							C -	C -	C -	
Rating Type							Control	Control	Control	
Rating Unit							%	%	%	
Rating Date							06/19/16	06/19/16	07/04/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code			
11	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		7 DPP	B	99.0 a	92.3 ab	99.0 a
	Bicep II Magnum Premix	5.5	L	2.2 lb ai/a		7 DPP	B			
	----s-metolachlor	2.4		0.96						
	----atrazine	3.1		1.24						
	Nonionic Surfactant	100	L	0.25 % v/v		7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		V3	D			
	Callisto.....mesotrione	4	SC	0.094 lb ai/a		V3	D			
	Atrazine 4L	4	L	1 lb ai/a		V3	D			
12	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		7 DPP	B	84.0 bc	94.7 a	84.3 cd
	Atrazine 4L	4	L	1.5 lb ai/a		7 DPP	B			
	Simazine	4	L	1.5 lb ai/a		7 DPP	B			
	Nonionic Surfactant	100	L	0.25 % v/v		7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		V5	E			
13	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		7 DPP	B	94.0 ab	97.0 a	99.0 a
	Atrazine 4L	4	L	1.5 lb ai/a		7 DPP	B			
	Simazine	4	L	1.5 lb ai/a		7 DPP	B			
	Nonionic Surfactant	100	L	0.25 % v/v		7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		V5	E			
	Callisto.....mesotrione	4	SC	0.094 lb ai/a		V5	E			
14	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		21 DPP	A	96.3 ab	94.7 a	96.7 ab
	Bicep II Magnum Premix	5.5	L	2.9 lb ai/a		21 DPP	A			
	----s-metolachlor	2.4		1.27						
	----atrazine	3.1		1.63						
	Simazine	4	L	1.5 lb ai/a		21 DPP	A			
	Nonionic Surfactant	100	L	0.25 % v/v		21 DPP	A			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		V5	E			
	Callisto.....mesotrione	4	SC	0.094 lb ai/a		V5	E			
LSD P=.05							13.60	13.90	10.06	
Standard Deviation							8.10	8.28	6.00	
CV							9.41	10.36	6.9	
Replicate F							0.274	1.169	2.003	
Replicate Prob(F)							0.7624	0.3266	0.1552	
Treatment F							30.686	30.165	55.208	
Treatment Prob(F)							0.0001	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=1

Pest Code Pest Name Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							IPOSS Morngrly C - C	ZEAMX Corn Yield Bu/A
Trt Treatment No. Name							Control %	
	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code		
11	Gramoxone SL....paraquat	2 SL	0.5 lb ai/a	7 DPP	B		95.3 abc	224.0 a
	Bicep II Magnum Premix	5.5 L	2.2 lb ai/a	7 DPP	B			
	----s-metolachlor	2.4	0.96					
	----atrazine	3.1	1.24					
	Nonionic Surfactant	100 L	0.25 % v/v	7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/a	V3	D			
	Callisto.....mesotrione	4 SC	0.094 lb ai/a	V3	D			
	Atrazine 4L	4 L	1 lb ai/a	V3	D			
12	Gramoxone SL....paraquat	2 SL	0.5 lb ai/a	7 DPP	B		93.7 abc	233.9 a
	Atrazine 4L	4 L	1.5 lb ai/a	7 DPP	B			
	Simazine	4 L	1.5 lb ai/a	7 DPP	B			
	Nonionic Surfactant	100 L	0.25 % v/v	7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/a	V5	E			
13	Gramoxone SL....paraquat	2 SL	0.5 lb ai/a	7 DPP	B		98.3 a	240.9 a
	Atrazine 4L	4 L	1.5 lb ai/a	7 DPP	B			
	Simazine	4 L	1.5 lb ai/a	7 DPP	B			
	Nonionic Surfactant	100 L	0.25 % v/v	7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/a	V5	E			
	Callisto.....mesotrione	4 SC	0.094 lb ai/a	V5	E			
14	Gramoxone SL....paraquat	2 SL	0.5 lb ai/a	21 DPP	A		97.7 ab	229.0 a
	Bicep II Magnum Premix	5.5 L	2.9 lb ai/a	21 DPP	A			
	----s-metolachlor	2.4	1.27					
	----atrazine	3.1	1.63					
	Simazine	4 L	1.5 lb ai/a	21 DPP	A			
	Nonionic Surfactant	100 L	0.25 % v/v	21 DPP	A			
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/a	V5	E			
	Callisto.....mesotrione	4 SC	0.094 lb ai/a	V5	E			
LSD P=.05							7.85	31.50
Standard Deviation							4.67	18.77
CV							5.53	8.19
Replicate F							1.047	11.887
Replicate Prob(F)							0.3653	0.0002
Treatment F							86.311	1.864
Treatment Prob(F)							0.0001	0.0855

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=1

Sweet Corn Weed Control to Allow Rotational Flexibility  
Trial ID: SCR1-16      Location: Field #      Trial Year: 2016  
Protocol ID: SCR1-16      Investigator: Mark VanGessel  
Study Director:  
Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
Organization: University of Delaware  
Address: 16483 County Seat Hwy  
City+State/Prov: Georgetown, Delaware  
Postal Code: 19947      E-mail: mjb@udel.edu  
Country: USA      United States

**Crop Description**

Crop 1: C ZEAMS Zea mays saccharata Sweet corn      BBCH Scale: BCOR  
Variety: BC0805  
Planting Date: 05/25/16      Planting Rate: 24000    S/A  
Depth: 0.75 in  
Row Spacing: 30 in      Planting Method: PLANTD planted  
Planting Equipment: FE      Field Equipment  
Seed Bed: SMOOTH smooth  
Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
Emergence Date: 05/29/16  
Harvest Date: 08/03/16      Harvest Equipment: hand-harvest  
Harvested Width: 5 FT  
Harvested Length: 24 FT

**Pest Description**

Pest 1 Type: W    Code: XANST Xanthium strumarium  
Common Name: Common cocklebur  
Pest 2 Type: W    Code: DIGSA Digitaria sanguinalis  
Common Name: large crabgrass  
Pest 3 Type: W    Code: IPOSS Ipomoea sp.  
Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
Treated Plot Length: 25 FT  
Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 10    Tillage Type: CONTIL conventional-till  
Replications: 3      Study Design: RACOB Randomized Complete Block (RCB)

**Soil Description**

% Sand: 82    % OM: 1.2    Texture: LS loamy sand  
% Silt: 11      pH: 6.5  
% Clay: 7      CEC: 4.6    Fert. Level: G good  
Soil Drainage: G good

<b>Application Description</b>		
	A	B
Application Date	05/26/16	06/24/16
Appl. Stop Time	12:30 PM	10:45 AM
Interval to Prev. Appl.		29 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	28DAP
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	87 F	79 F
% Relative Humidity Start, Stop	30	72
Wind Velocity+Dir. Start	3 mph SW	1 mph E
Wet Leaves (Y/N)	N no	N no
Soil Temperature	87 F	79 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	10	90

<b>Crop Stage At Each Application</b>		
	A	B
Crop 1 Code, BBCH Scale	ZEAMS BCOR	ZEAMS BCOR
Stage Scale Used		DESC
Stage Majority, Percent		V7 80
Stage Minimum, Percent		V7 80
Stage Maximum, Percent		V8 20
Height Average		19 in
Height Minimum, Maximum		18 20

<b>Pest Stage At Each Application</b>		
	A	B
Pest 1 Code, Type, Scale	XANST W	XANST W
Stage Majority, Percent		veg 100
Height Average		9 in
Height Minimum, Maximum		6 11
Density Average		5 m2
Pest 2 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent		1-tilr 100
Height Average		2.5 in
Height Minimum, Maximum		2 3
Density Average		10 m2
Pest 3 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		veg 100
Height Average		4 in
Height Minimum, Maximum		3 5
Density Average		7 m2



**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	36 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

## Trial Comments

06/19/16: Dual is poor on fall panicum.

07/05/16: Poor fall panicum control with trts 2,3,5.

08/03/16: Harvested 2 rows \* 24 ft-row. 1 ear per plant.

Sweet Corn Weed Control to Allow Rotational Flexibility										
Trial ID: SCRN1-16			Location: Field #			Trial Year: 2016				
Protocol ID: SCRN1-16			Investigator: Mark VanGessel							
Study Director:										
Sponsor Contact:										
Pest Code	Pest Name	Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date	AMAPA PalmerAm	CHEAL C.lmsqtr		
		C ZEAMS	Swt.Corn	Stunting	%	06/11/16	C -	C -		
		C ZEAMS	Swt.Corn	Stunting	%	06/19/16	Control	Control		
							%	%		
							06/19/16	06/19/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 d	0.0 c	
2	Dual II Magnum..s-metolachlor	7.64 E		0.64 lb ai/a		PRE	A	1.7 cd	0.0 c	
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/a		28DAP	B		56.7 b	
	Basagran.....bentazon	4 L		0.75 lb ai/a		28DAP	B		56.7 c	
	Nonionic Surfactant	100 L		0.5 % v/v		28DAP	B			
3	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/a		PRE	A	1.7 cd	2.3 bc	
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/a		28DAP	B			
	Basagran.....bentazon	4 L		0.75 lb ai/a		28DAP	B			
	Nonionic Surfactant	100 L		0.5 % v/v		28DAP	B			
4	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/a		PRE	A	4.7 bc	6.3 b	
	Prowl H2O.....pendimethalin	3.8 CS		1.43 lb ai/a		PRE	A		96.7 a	
	Basagran.....bentazon	4 L		0.75 lb ai/a		28DAP	B		99.0 a	
	Nonionic Surfactant	100 L		0.5 % v/v		28DAP	B			
5	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/a		PRE	A	7.0 b	2.3 bc	
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/a		28DAP	B		100.0 a	
	Starane Ultra...fluroxypyr	2.8 EC		0.14 lb ae/a		28DAP	B		85.7 b	
	Nonionic Surfactant	100 L		0.5 % v/v		28DAP	B			
6	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/a		PRE	A	0.0 d	4.0 bc	
	Impact.....topramezone	2.81 SC		0.0165 lb ai/a		28DAP	B			
	Crop Oil Concentrate	100 L		1.25 % v/v		28DAP	B			
	30% Urea Ammonium Nitrate	100 L		2 % v/v		28DAP	B			
7	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/a		PRE	A	1.0 cd	0.0 c	
	Impact.....topramezone	2.81 SC		0.0165 lb ai/a		28DAP	B			
	Atrazine 4L	4 L		0.5 lb ai/a		28DAP	B			
	Crop Oil Concentrate	100 L		1.25 % v/v		28DAP	B			
	30% Urea Ammonium Nitrate	100 L		2 % v/v		28DAP	B			
8	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a		PRE	A	12.3 a	16.7 a	
	Liberty 280.....glufosinate	2.34 SL		0.366 lb ai/a		28DAP	B		98.7 a	
	Dry Ammonium Sulfate	100 D		1.02 % w/v		28DAP	B		94.0 a	
9	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/a		PRE	A	6.3 b	4.0 bc	
	Sharpen.....saflufenacil	2.85 SC		0.0223 lb ai/a		PRE	A		100.0 a	
	Liberty 280.....glufosinate	2.34 SL		0.366 lb ai/a		28DAP	B		100.0 a	
	Dry Ammonium Sulfate	100 D		1.02 % w/v		28DAP	B			
10	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/a		PRE	A	7.3 b	4.7 bc	
	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/a		PRE	A		98.3 a	
	Liberty 280.....glufosinate	2.34 SL		0.366 lb ai/a		28DAP	B		100.0 a	
	Dry Ammonium Sulfate	100 D		1.02 % w/v		28DAP	B			
LSD P=.05							3.98	5.52	10.57	7.14
Standard Deviation							2.32	3.22	5.94	4.02
CV							55.21	79.8	7.56	5.25
Replicate F							0.298	2.552	1.849	2.412
Replicate Prob(F)							0.7462	0.1058	0.1995	0.1316
Treatment F							9.107	7.075	123.020	255.678
Treatment Prob(F)							0.0001	0.0002	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name					IPOSS Morngrly	DIGSA L.crbgrs					
Crop Type, Code					C -	C -	C ZEAMS	C ZEAMS			
Crop Name					Control	Control	Swt.Corn Stunting	Swt.Corn Stunting			
Rating Type					%	%	%	%			
Rating Unit					06/19/16	06/19/16	06/26/16	07/05/16			
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 d	0.0 d	0.0 e	0.7 e
2	Dual II Magnum..s-metolachlor Cadet.....fluthiacet Basagran.....bentazon Nonionic Surfactant	7.64 E 0.91 EC 4 L 100 L		0.64 lb ai/a 0.0064 lb ai/a 0.75 lb ai/a 0.5 % v/v	ai/a ai/a ai/a v/v	PRE 28DAP 28DAP 28DAP	A B B B	18.3 c	86.7 c	0.0 e	9.0 bc
3	Dual II Magnum..s-metolachlor Cadet.....fluthiacet Basagran.....bentazon Nonionic Surfactant	7.64 E 0.91 EC 4 L 100 L		1.43 lb ai/a 0.0064 lb ai/a 0.75 lb ai/a 0.5 % v/v	ai/a ai/a ai/a v/v	PRE 28DAP 28DAP 28DAP	A B B B			6.3 cd	9.0 bc
4	Dual II Magnum..s-metolachlor Prowl H2O.....pendimethalin Basagran.....bentazon Nonionic Surfactant	7.64 E 3.8 CS 4 L 100 L		1.43 lb ai/a 1.43 lb ai/a 0.75 lb ai/a 0.5 % v/v	ai/a ai/a ai/a v/v	PRE PRE 28DAP 28DAP	A A B B	43.3 b	100.0 a	10.0 bc	6.3 cd
5	Dual II Magnum..s-metolachlor Cadet.....fluthiacet Starane Ultra...fluroxypyr Nonionic Surfactant	7.64 E 0.91 EC 2.8 EC 100 L		1.43 lb ai/a 0.0064 lb ai/a 0.14 lb ae/a 0.5 % v/v	ai/a ai/a ae/a v/v	PRE 28DAP 28DAP 28DAP	A B B B	43.3 b	94.0 b	10.3 b	14.0 ab
6	Dual II Magnum..s-metolachlor Impact.....topramezone Crop Oil Concentrate 30% Urea Ammonium Nitrate	7.64 E 2.81 SC 100 L 100 L		1.43 lb ai/a 0.0165 lb ai/a 1.25 % v/v 2 % v/v	ai/a ai/a v/v v/v	PRE 28DAP 28DAP 28DAP	A B B B			4.0 d	2.3 de
7	Dual II Magnum..s-metolachlor Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	7.64 E 2.81 SC 4 L 100 L 100 L		1.43 lb ai/a 0.0165 lb ai/a 0.5 lb ai/a 1.25 % v/v 2 % v/v	ai/a ai/a ai/a v/v v/v	PRE 28DAP 28DAP 28DAP 28DAP	A B B B B			7.0 bcd	7.3 cd
8	Zidua.....pyroxasulfone Liberty 280.....glufosinate Dry Ammonium Sulfate	85 WG 2.34 SL 100 D		0.106 lb ai/a 0.366 lb ai/a 1.02 % w/v	ai/a ai/a w/v	PRE 28DAP 28DAP	A B B	76.7 a	100.0 a	16.7 a	18.0 a
9	Dual II Magnum..s-metolachlor Sharpen.....saflufenacil Liberty 280.....glufosinate Dry Ammonium Sulfate	7.64 E 2.85 SC 2.34 SL 100 D		1.43 lb ai/a 0.0223 lb ai/a 0.366 lb ai/a 1.02 % w/v	ai/a ai/a ai/a w/v	PRE PRE 28DAP 28DAP	A A B B	56.7 b	94.3 b	9.7 bc	4.7 cde
10	Dual II Magnum..s-metolachlor Sharpen.....saflufenacil Liberty 280.....glufosinate Dry Ammonium Sulfate	7.64 E 2.85 SC 2.34 SL 100 D		1.43 lb ai/a 0.0445 lb ai/a 0.366 lb ai/a 1.02 % w/v	ai/a ai/a ai/a w/v	PRE PRE 28DAP 28DAP	A A B B	79.3 a	96.3 b	4.7 d	3.3 de
LSD P=.05					15.33	2.70	3.86	5.11			
Standard Deviation					8.62	1.52	2.25	2.98			
CV					18.99	1.86	32.76	39.92			
Replicate F					2.185	0.083	1.608	0.792			
Replicate Prob(F)					0.1551	0.9211	0.2278	0.4683			
Treatment F					34.050	1714.973	15.376	9.647			
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	AMAPA PalmerAm		IPOSS Mornglry	DIGSA L.crbgrs					
Crop Type, Code	C -		C -	C -	C ZEAMS				
Crop Name Rating Type Rating Unit Rating Date	Control %		Control %	Control %	Swt.Corn Yld Wt lb/ear 08/03/16				
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code				
1 Untreated Check						0.0 b	0.0 g	0.0 e	0.53 a
2 Dual II Magnum..s-metolachlor Cadet.....fluthiacet Basagran.....bentazon Nonionic Surfactant	7.64 E 0.91 EC 4 L 100 L		0.64 lb ai/a 0.0064 lb ai/a 0.75 lb ai/a 0.5 % v/v	PRE 28DAP 28DAP 28DAP	A B B B	91.7 a	60.0 ef	74.3 d	0.53 a
3 Dual II Magnum..s-metolachlor Cadet.....fluthiacet Basagran.....bentazon Nonionic Surfactant	7.64 E 0.91 EC 4 L 100 L		1.43 lb ai/a 0.0064 lb ai/a 0.75 lb ai/a 0.5 % v/v	PRE 28DAP 28DAP 28DAP	A B B B	95.0 a	60.0 ef	90.0 c	0.56 a
4 Dual II Magnum..s-metolachlor Prowl H2O.....pendimethalin Basagran.....bentazon Nonionic Surfactant	7.64 E 3.8 CS 4 L 100 L		1.43 lb ai/a 1.43 lb ai/a 0.75 lb ai/a 0.5 % v/v	PRE PRE 28DAP 28DAP	A A B B	97.3 a	50.0 f	94.0 abc	0.55 a
5 Dual II Magnum..s-metolachlor Cadet.....fluthiacet Starane Ultra...fluroxypyr Nonionic Surfactant	7.64 E 0.91 EC 2.8 EC 100 L		1.43 lb ai/a 0.0064 lb ai/a 0.14 lb ae/a 0.5 % v/v	PRE 28DAP 28DAP 28DAP	A B B B	100.0 a	96.3 a	91.7 bc	0.56 a
6 Dual II Magnum..s-metolachlor Impact.....topramezone Crop Oil Concentrate 30% Urea Ammonium Nitrate	7.64 E 2.81 SC 100 L 100 L		1.43 lb ai/a 0.0165 lb ai/a 1.25 % v/v 2 % v/v	PRE 28DAP 28DAP 28DAP	A B B B	100.0 a	61.7 def	96.3 ab	0.49 a
7 Dual II Magnum..s-metolachlor Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	7.64 E 2.81 SC 4 L 100 L 100 L		1.43 lb ai/a 0.0165 lb ai/a 0.5 lb ai/a 1.25 % v/v 2 % v/v	PRE 28DAP 28DAP 28DAP 28DAP	A B B B B	100.0 a	71.7 cde	98.0 a	0.55 a
8 Zidua.....pyroxasulfone Liberty 280.....glufosinate Dry Ammonium Sulfate	85 WG 2.34 SL 100 D		0.106 lb ai/a 0.366 lb ai/a 1.02 % w/v	PRE 28DAP 28DAP	A B B	100.0 a	88.0 abc	99.0 a	0.55 a
9 Dual II Magnum..s-metolachlor Sharpen.....saflufenacil Liberty 280.....glufosinate Dry Ammonium Sulfate	7.64 E 2.85 SC 2.34 SL 100 D		1.43 lb ai/a 0.0223 lb ai/a 0.366 lb ai/a 1.02 % w/v	PRE PRE 28DAP 28DAP	A A B B	100.0 a	77.3 bcd	98.3 a	0.54 a
10 Dual II Magnum..s-metolachlor Sharpen.....saflufenacil Liberty 280.....glufosinate Dry Ammonium Sulfate	7.64 E 2.85 SC 2.34 SL 100 D		1.43 lb ai/a 0.0445 lb ai/a 0.366 lb ai/a 1.02 % w/v	PRE PRE 28DAP 28DAP	A A B B	100.0 a	88.3 ab	98.3 a	0.62 a
LSD P=.05						9.66	16.35	5.41	0.151
Standard Deviation						5.63	9.53	3.15	0.088
CV						6.37	14.59	3.75	15.97
Replicate F						0.609	1.521	0.121	5.410
Replicate Prob(F)						0.5549	0.2454	0.8870	0.0145
Treatment F						92.050	24.813	279.262	0.391
Treatment Prob(F)						0.0001	0.0001	0.0001	0.9239

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Appl Timing	Appl Code	Yield (Ton/A)
	Pest Code Pest Name Crop Type, Code Crop Name Rating Type Rating Unit Rating Date							C ZEAMS Swt.Corn Yield Ton/A 08/03/16
1	Untreated Check							5.7 a
2	Dual II Magnum..s-metolachlor Cadet.....fluthiacet Basagran.....bentazon Nonionic Surfactant	7.64 0.91 4 100	E EC L L	0.64 0.0064 0.75 0.5	lb ai/a lb ai/a lb ai/a % v/v	PRE 28DAP 28DAP 28DAP	A B B B	6.3 a
3	Dual II Magnum..s-metolachlor Cadet.....fluthiacet Basagran.....bentazon Nonionic Surfactant	7.64 0.91 4 100	E EC L L	1.43 0.0064 0.75 0.5	lb ai/a lb ai/a lb ai/a % v/v	PRE 28DAP 28DAP 28DAP	A B B B	6.6 a
4	Dual II Magnum..s-metolachlor Prowl H2O.....pendimethalin Basagran.....bentazon Nonionic Surfactant	7.64 3.8 4 100	E CS L L	1.43 1.43 0.75 0.5	lb ai/a lb ai/a lb ai/a % v/v	PRE PRE 28DAP 28DAP	A A B B	5.4 a
5	Dual II Magnum..s-metolachlor Cadet.....fluthiacet Starane Ultra...fluroxypyr Nonionic Surfactant	7.64 0.91 2.8 100	E EC EC L	1.43 0.0064 0.14 0.5	lb ai/a lb ai/a lb ae/a % v/v	PRE 28DAP 28DAP 28DAP	A B B B	6.0 a
6	Dual II Magnum..s-metolachlor Impact.....topramezone Crop Oil Concentrate 30% Urea Ammonium Nitrate	7.64 2.81 100 100	E SC L L	1.43 0.0165 1.25 2	lb ai/a lb ai/a % v/v % v/v	PRE 28DAP 28DAP 28DAP	A B B B	5.6 a
7	Dual II Magnum..s-metolachlor Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	7.64 2.81 4 100 100	E SC L L L	1.43 0.0165 0.5 1.25 2	lb ai/a lb ai/a lb ai/a % v/v % v/v	PRE 28DAP 28DAP 28DAP 28DAP	A B B B B	6.2 a
8	Zidua.....pyroxasulfone Liberty 280.....glufosinate Dry Ammonium Sulfate	85 2.34 100	WG SL D	0.106 0.366 1.02	lb ai/a lb ai/a % w/v	PRE 28DAP 28DAP	A B B	6.1 a
9	Dual II Magnum..s-metolachlor Sharpen.....saflufenacil Liberty 280.....glufosinate Dry Ammonium Sulfate	7.64 2.85 2.34 100	E SC SL D	1.43 0.0223 0.366 1.02	lb ai/a lb ai/a lb ai/a % w/v	PRE PRE 28DAP 28DAP	A A B B	6.9 a
10	Dual II Magnum..s-metolachlor Sharpen.....saflufenacil Liberty 280.....glufosinate Dry Ammonium Sulfate	7.64 2.85 2.34 100	E SC SL D	1.43 0.0445 0.366 1.02	lb ai/a lb ai/a lb ai/a % w/v	PRE PRE 28DAP 28DAP	A A B B	6.9 a
	LSD P=.05							2.07
	Standard Deviation							1.21
	CV							19.5
	Replicate F							3.141
	Replicate Prob(F)							0.0676
	Treatment F							0.547
	Treatment Prob(F)							0.8215

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Anthem Maxx on Processing Sweet Corn  
 Trial ID: SCRN2-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: SCRN2-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: FMC

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C ZEAMS Zea mays saccharata Sweet corn      BBCH Scale: BCOR  
 Variety: See treatment list  
 Planting Date: 06/20/16      Planting Rate: 24000    S/A  
 Depth: 0.75 in  
 Row Spacing: 30 in      Planting Method: PLANTD planted  
 Planting Equipment: PP      Plot Planter  
 Seed Bed: MEDIUM medium  
 Soil Moisture: NORMAL normal, adequate  
 Soil Temperature: 89 F  
 Emergence Date: 06/25/16

**Site and Design**

Treated Plot Width: 2.5 FT      Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 62.5 FT<sup>2</sup>    Treatments: 48    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: SPLPLO Split-Plot

**Soil Description**

% Sand: 82    % OM: 1.2    Texture: LS loamy sand  
 % Silt: 11    pH: 6.5  
 % Clay: 7    CEC: 4.6    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B
Application Date	06/20/16	07/05/16
Appl. Stop Time	02:30 PM	11:55 AM
Interval to Prev. Appl.		15 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	EPost
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	89 F	86 F
% Relative Humidity Start, Stop	29	60
Wind Velocity+Dir. Start	3 mph W	4 mph W
Wet Leaves (Y/N)	N no	Y yes
Soil Temperature	89 F	86 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	20	55

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	ZEAMS BCOR	ZEAMS BCOR
Stage Scale Used		DESC
Stage Majority, Percent		V3 100
Height Average		3.5 in
Height Minimum, Maximum		3 4

**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	20 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

**Trial Comments**

07/07/16: Rating - leaf burn for POST and stunting for PRE.

07/15/16: Based on lack of weed control in Reps 2,3 it appears treatments 37-48 were not sprayed. Anthem Maxx treated (EPOST) look very healthy in Reps 2,3 but Bicep treated look really poor.(mis-application?)

07/23/16: Percent stunting is based on Bicep trts.

Anthem Maxx on Processing Sweet Corn					C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Trial ID: SCRN2-16      Location: Field #18      Trial Year: 2016												
Protocol ID: SCRN2-16      Investigator: Mark VanGessel												
Study Director:												
Sponsor Contact: FMC												
Crop Type, Code					C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name					Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn	
Rating Type					LeafBrn		Stunting		Stunting		Stunting	
Rating Unit					%		%		%		%	
Rating Date					07/07/16		07/07/16		07/15/16		07/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
1	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE GH 9597 (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
2	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE Silver King (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
3	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE Overland (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
4	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE Protege (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
5	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE Jubilee (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
6	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE GSS2259P (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
7	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE Argent (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
8	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE Battalion (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
9	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE Temptation (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4; Average=3



Crop Type, Code					C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name					Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn	
Rating Type					LeafBrn		Stunting		Stunting		Stunting	
Rating Unit					%		%		%		%	
Rating Date					07/07/16		07/07/16		07/15/16		07/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code					
10	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE EX08767143 (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
11	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE NK 199 (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
12	Bicep II Magnum Premix ----s-metolachlor ----atrazine PRE lochief (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	PRE	A	0.0 i		0.0 d		0.0 i 0.0 g
13	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn GH 9597 (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost	B	20.0 bcd				0.0 i 0.0 g
14	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn Silver King (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost	B	23.3 ab				0.0 i 0.0 g
15	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn Overland (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost	B	22.3 abc				0.0 i 0.0 g
16	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn Protege (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost	B	17.3 de				0.0 i 0.0 g
17	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn Jubilee (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost	B	25.0 a				0.0 i 0.0 g
18	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn GSS2259P (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost	B	23.0 abc				0.0 i 0.0 g
19	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn Argent (Proc)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost	B	23.3 ab				0.0 i 0.0 g

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4; Average=3

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn	
Rating Type						LeafBrn		Stunting		Stunting		Stunting	
Rating Unit						%		%		%		%	
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code						
20	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn Battalion (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost B		17.0 de		0.0 i		0.0 g	
21	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn Temptation (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost B		20.0 bcd		0.0 i		0.0 g	
22	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn EX08767143 (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost B		17.3 de		0.0 i		0.0 g	
23	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn NK 199 (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost B		22.3 abc		0.0 i		0.0 g	
24	Bicep II Magnum Premix ----s-metolachlor ----atrazine EPOST - V2 corn lochief (FM)	5.5 L 2.4 3.1		1.79 0.78 1.01	lb ai/a	EPost B		19.7 cd		0.0 i		0.0 g	
25	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE GH 9597 (Proc)	4.3 SC 4.174 0.126		0.101 0.098 0.00296	lb ai/a	PRE A		0.0 i	13.0 ab	13.3 bcd		12.3 d	
26	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE Silver King (Proc)	4.3 SC 4.174 0.126		0.101 0.098 0.00296	lb ai/a	PRE A		0.0 i	9.7 b	10.7 def		14.0 bcd	
27	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE Overland (Proc)	4.3 SC 4.174 0.126		0.101 0.098 0.00296	lb ai/a	PRE A		0.0 i	14.1 ab	15.0 abc		15.8 ab	
28	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE Protege (Proc)	4.3 SC 4.174 0.126		0.101 0.098 0.00296	lb ai/a	PRE A		0.0 i	13.7 ab	15.7 ab		9.0 e	
29	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE Jubilee (Proc)	4.3 SC 4.174 0.126		0.101 0.098 0.00296	lb ai/a	PRE A		0.0 i	11.3 ab	10.7 def		13.0 cd	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4; Average=3

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS		
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn			
Rating Type						LeafBrn		Stunting		Stunting		Stunting			
Rating Unit						%		%		%		%			
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code								
30	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE GSS2259P (Proc)	4.3	SC	0.101	lb ai/a	PRE	A	0.0	i	4.0	cd	11.7	cde	12.0	d
31	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE Argent (Proc)	4.3	SC	0.101	lb ai/a	PRE	A	0.0	i	11.3	ab	18.3	a	14.7	abc
32	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE Battalion (FM)	4.3	SC	0.101	lb ai/a	PRE	A	0.0	i	14.0	ab	14.7	abc	16.7	a
33	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE Temptation (FM)	4.3	SC	0.101	lb ai/a	PRE	A	0.0	i	11.3	ab	9.0	ef	15.7	ab
34	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE EX08767143 (FM)	4.3	SC	0.101	lb ai/a	PRE	A	0.0	i	5.0	c	2.3	hi	15.7	ab
35	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE NK 199 (FM)	4.3	SC	0.101	lb ai/a	PRE	A	0.0	i	14.0	ab	4.7	gh	2.3	f
36	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet PRE lochief (FM)	4.3	SC	0.101	lb ai/a	PRE	A	0.0	i	14.7	a	13.0	bcd	8.7	e
37	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn GH 9597 (Proc)	4.3	SC	0.101	lb ai/a	EPost	B	13.3	fg			0.0	i	0.0	g
38	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn Silver King (Proc)	4.3	SC	0.101	lb ai/a	EPost	B	12.3	fgh			0.0	i	0.0	g
39	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn Overland (Proc)	4.3	SC	0.101	lb ai/a	EPost	B	15.0	ef			12.0	b-e	0.0	g

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Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4; Average=3

Crop Type, Code					C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS		
Crop Name					Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn			
Rating Type					LeafBrn		Stunting		Stunting		Stunting			
Rating Unit					%		%		%		%			
Rating Date					07/07/16		07/07/16		07/15/16		07/23/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code							
40	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn Protege (Proc)	4.3	SC	0.101	lb ai/a	EPost	B	12.3	fgh		0.0	i	0.0	g
41	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn Jubilee (Proc)	4.3	SC	0.101	lb ai/a	EPost	B	11.7	fgh		0.0	i	0.0	g
42	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn GSS2259P (Proc)	4.3	SC	0.101	lb ai/a	EPost	B	13.0	fgh		0.0	i	0.0	g
43	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn Argent (Proc)	4.3	SC	0.101	lb ai/a	EPost	B	11.3	gh		0.0	i	0.0	g
44	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn Battalion (FM)	4.3	SC	0.101	lb ai/a	EPost	B	11.3	gh		0.0	i	0.0	g
45	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn Temptation (FM)	4.3	SC	0.101	lb ai/a	EPost	B	11.7	fgh		7.0	fg	0.0	g
46	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn EX08767143 (FM)	4.3	SC	0.101	lb ai/a	EPost	B	9.7	h		0.0	i	0.0	g
47	Anthem Maxx Premix ----pyroxasulfone ----fluthiacet EPOST - V2 corn NK 199 (FM)	4.3	SC	0.101	lb ai/a	EPost	B	11.3	gh		0.0	i	0.0	g

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4; Average=3

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn	
Rating Type						LeafBrn		Stunting		Stunting		Stunting	
Rating Unit						%		%		%		%	
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code						
48	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	EPost	B	10.3	gh			15.0	abc
	----pyroxasulfone	4.174		0.098									
	----fluthiacet	0.126		0.00296									
	EPOST - V2 corn												
	lochief (FM)												
	LSD P=.05							3.46		4.52		4.00	
	Standard Deviation							2.13		2.75		2.45	
	CV							25.96		48.43		68.01	
	Replicate F							11.017		4.725		2.278	
	Replicate Prob(F)							0.0001		0.0137		0.1108	
	Treatment F							53.657		15.733		17.369	
	Treatment Prob(F)							0.0001		0.0001		0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4; Average=3

Anthem Maxx on Processing Sweet Corn						
Trial ID: SCRN2-16		Location: Field #18		Trial Year: 2016		
Protocol ID: SCRN2-16		Investigator: Mark VanGessel			Study Director:	
Sponsor Contact: FMC						
Crop Type, Code	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name	Swt.Corn		Swt.Corn		Swt.Corn	
Rating Type	LeafBrn		Stunting		Stunting	
Rating Unit	%		%		%	
Rating Date	07/07/16		07/07/16		07/15/16	
Trt Treatment	Form	Form	Rate	Appl	Appl	
No. Name	Conc	Type	Rate	Unit	Timing	Code
TABLE OF R MEANS						
Replicate 1	7.4		4.2		2.8	
Replicate 2	9.4		3.1		2.6	
Replicate 3	7.9		3.5		3.9	
TABLE OF A (Herbicide) MEANS						
1 Bicep II Magnum Premix	5.5 L		1.79 lb ai/a	PRE	A	10.4 a
1 ----s-metolachlor	2.4		0.78			0.0 b
1 ----atrazine	3.1		1.01			0.0 b
2 Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	PRE	A	6.0 b
2 ----pyroxasulfone	4.174		0.098			7.2 a
2 ----fluthiacet	0.126		0.00296			6.2 a
LSD P=.05	0.77		0.86		0.57	
Standard Deviation	2.33		2.58		1.73	
CV	28.36		71.69		55.43	
TABLE OF B (Timing) MEANS						
1 PRE	0.0 b		5.8 a		6.2 a	
2 EPOST - V2 corn	16.4 a		1.4 b		0.0 b	
LSD P=.05	0.77		0.86		0.57	
Standard Deviation	2.33		2.58		1.73	
CV	28.36		71.69		55.43	
TABLE OF C (Variety) MEANS						
1 GH 9597 (Proc)	8.3 a		3.3 b		3.1 ab	
2 Silver King (Proc)	8.9 a		2.7 bcd		3.5 ab	
3 Overland (Proc)	9.3 a		6.8 a		4.0 a	
4 Protege (Proc)	7.4 a		3.9 b		2.3 b	
5 Jubilee (Proc)	9.2 a		2.7 bcd		3.3 ab	
6 GSS2259P (Proc)	9.0 a		2.9 bc		3.0 ab	
7 Argent (Proc)	8.7 a		4.6 b		3.7 a	
8 Battalion (FM)	7.1 a		3.7 b		4.2 a	
9 Temptation (FM)	7.9 a		4.0 b		3.9 a	
10 EX08767143 (FM)	6.8 a		0.6 d		3.9 a	
11 NK 199 (FM)	8.4 a		1.2 cd		0.6 c	
12 lochief (FM)	7.5 a		7.0 a		2.2 b	
LSD P=.05	1.89		2.10		1.40	
Standard Deviation	2.33		2.58		1.73	
CV	28.36		71.69		55.43	
TABLE OF A (Herbicide) B (Timing) MEANS						
1 Bicep II Magnum Premix	5.5 L		1.79 lb ai/a	PRE	A	0.0 c
1 ----s-metolachlor	2.4		0.78			0.0 c
1 ----atrazine	3.1		1.01			0.0 b
1 PRE						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS	
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn		
Rating Type						LeafBrn		Stunting		Stunting		Stunting		
Rating Unit						%		%		%		%		
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code							
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0	c		11.6	a	12.5	a
2	----pyroxasulfone	4.174		0.098										
2	----fluthiacet	0.126		0.00296										
1	PRE													
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	20.9	a		0.0	c	0.0	b
1	----s-metolachlor	2.4		0.78										
1	----atrazine	3.1		1.01										
2	EPOST - V2 corn													
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	11.9	b		2.8	b	0.0	b
2	----pyroxasulfone	4.174		0.098										
2	----fluthiacet	0.126		0.00296										
2	EPOST - V2 corn													
LSD P=.05						1.09		1.21		0.81				
Standard Deviation						2.33		2.58		1.73				
CV						28.36		71.69		55.43				
TABLE OF A (Herbicide) C (Variety) MEANS														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	10.0	a		0.0	d	0.0	d
1	----s-metolachlor	2.4		0.78										
1	----atrazine	3.1		1.01										
1	GH 9597 (Proc)													
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	6.7	a		6.7	bc	6.2	bc
2	----pyroxasulfone	4.174		0.098										
2	----fluthiacet	0.126		0.00296										
1	GH 9597 (Proc)													
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	11.7	a		0.0	d	0.0	d
1	----s-metolachlor	2.4		0.78										
1	----atrazine	3.1		1.01										
2	Silver King (Proc)													
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	6.2	a		5.3	c	7.0	ab
2	----pyroxasulfone	4.174		0.098										
2	----fluthiacet	0.126		0.00296										
2	Silver King (Proc)													
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	11.2	a		0.0	d	0.0	d
1	----s-metolachlor	2.4		0.78										
1	----atrazine	3.1		1.01										
3	Overland (Proc)													
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	7.5	a		13.5	a	7.9	ab
2	----pyroxasulfone	4.174		0.098										
2	----fluthiacet	0.126		0.00296										
3	Overland (Proc)													
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	8.7	a		0.0	d	0.0	d
1	----s-metolachlor	2.4		0.78										
1	----atrazine	3.1		1.01										
4	Protege (Proc)													
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	6.2	a		7.8	bc	4.5	c
2	----pyroxasulfone	4.174		0.098										
2	----fluthiacet	0.126		0.00296										
4	Protege (Proc)													
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	12.5	a		0.0	d	0.0	d
1	----s-metolachlor	2.4		0.78										
1	----atrazine	3.1		1.01										
5	Jubilee (Proc)													

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name						Swt.Corn	LeafBrn	Swt.Corn	Stunting	Swt.Corn	Stunting	Swt.Corn	Stunting
Rating Type						%	%	%	%	%	%	%	%
Rating Unit						07/07/16	07/07/16	07/15/16	07/23/16	07/07/16	07/07/16	07/15/16	07/23/16
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code						
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	5.8 a		5.3 c		6.5 ab	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
5	Jubilee (Proc)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	11.5 a		0.0 d		0.0 d	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
6	GSS2259P (Proc)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	6.5 a		5.8 c		6.0 bc	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
6	GSS2259P (Proc)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	11.7 a		0.0 d		0.0 d	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
7	Argent (Proc)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	5.7 a		9.2 b		7.3 ab	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
7	Argent (Proc)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	8.5 a		0.0 d		0.0 d	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
8	Battalion (FM)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	5.7 a		7.3 bc		8.3 a	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
8	Battalion (FM)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	10.0 a		0.0 d		0.0 d	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
9	Temptation (FM)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	5.8 a		8.0 bc		7.8 ab	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
9	Temptation (FM)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	8.7 a		0.0 d		0.0 d	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
10	EX08767143 (FM)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	4.8 a		1.2 d		7.8 ab	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
10	EX08767143 (FM)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	11.2 a		0.0 d		0.0 d	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
11	NK 199 (FM)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	5.7 a		2.3 d		1.2 d	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
11	NK 199 (FM)												

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn	
Rating Type						LeafBrn		Stunting		Stunting		Stunting	
Rating Unit						%		%		%		%	
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code						
1	Bicep II Magnum Premix	5.5 L		1.79 lb ai/a	PRE	A		9.8 a		0.0 d		0.0 d	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
12	lochief (FM)												
2	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	PRE	A		5.2 a		14.0 a		4.3 c	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
12	lochief (FM)												
LSD P=.05						2.67		2.98		1.98			
Standard Deviation						2.33		2.58		1.73			
CV						28.36		71.69		55.43			
TABLE OF B (Timing) C (Variety) MEANS													
1	PRE							0.0 a		6.7 abc		6.2 bc	
1	GH 9597 (Proc)												
2	EPOST - V2 corn							16.7 a		0.0 g		0.0 d	
1	GH 9597 (Proc)												
1	PRE							0.0 a		5.3 bcd		7.0 ab	
2	Silver King (Proc)												
2	EPOST - V2 corn							17.8 a		0.0 g		0.0 d	
2	Silver King (Proc)												
1	PRE							0.0 a		7.5 ab		7.9 ab	
3	Overland (Proc)												
2	EPOST - V2 corn							18.7 a		6.0 bcd		0.0 d	
3	Overland (Proc)												
1	PRE							0.0 a		7.8 ab		4.5 c	
4	Protege (Proc)												
2	EPOST - V2 corn							14.8 a		0.0 g		0.0 d	
4	Protege (Proc)												
1	PRE							0.0 a		5.3 bcd		6.5 ab	
5	Jubilee (Proc)												
2	EPOST - V2 corn							18.3 a		0.0 g		0.0 d	
5	Jubilee (Proc)												
1	PRE							0.0 a		5.8 bcd		6.0 bc	
6	GSS2259P (Proc)												
2	EPOST - V2 corn							18.0 a		0.0 g		0.0 d	
6	GSS2259P (Proc)												
1	PRE							0.0 a		9.2 a		7.3 ab	
7	Argent (Proc)												
2	EPOST - V2 corn							17.3 a		0.0 g		0.0 d	
7	Argent (Proc)												
1	PRE							0.0 a		7.3 abc		8.3 a	
8	Battalion (FM)												
2	EPOST - V2 corn							14.2 a		0.0 g		0.0 d	
8	Battalion (FM)												
1	PRE							0.0 a		4.5 cde		7.8 ab	
9	Temptation (FM)												
2	EPOST - V2 corn							15.8 a		3.5 def		0.0 d	
9	Temptation (FM)												

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name						Swt.Corn	LeafBrn	Swt.Corn	Stunting	Swt.Corn	Stunting	Swt.Corn	Stunting
Rating Type						%	%	%	%	%	%	%	%
Rating Unit						07/07/16	07/07/16	07/15/16	07/23/16	07/07/16	07/07/16	07/15/16	07/23/16
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code						
1	PRE							0.0 a		1.2 fg		7.8 ab	
10	EX08767143 (FM)												
2	EPOST - V2 corn							13.5 a		0.0 g		0.0 d	
10	EX08767143 (FM)												
1	PRE							0.0 a		2.3 efg		1.2 d	
11	NK 199 (FM)												
2	EPOST - V2 corn							16.8 a		0.0 g		0.0 d	
11	NK 199 (FM)												
1	PRE							0.0 a		6.5 abc		4.3 c	
12	lochief (FM)												
2	EPOST - V2 corn							15.0 a		7.5 ab		0.0 d	
12	lochief (FM)												
LSD P=.05						2.67				2.98		1.98	
Standard Deviation						2.33				2.58		1.73	
CV						28.36				71.69		55.43	
TABLE OF A (Herbicide) B (Timing) C (Variety) MEANS													
1	Bicep II Magnum Premix	5.5 L		1.79 lb ai/a	PRE	A		0.0 a	0.0 a	0.0 h		0.0 e	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
1	PRE												
1	GH 9597 (Proc)												
2	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	PRE	A		0.0 a	13.0 a	13.3 bc		12.3 c	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
1	PRE												
1	GH 9597 (Proc)												
1	Bicep II Magnum Premix	5.5 L		1.79 lb ai/a	PRE	A		20.0 a	.	0.0 h		0.0 e	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
2	EPOST - V2 corn												
1	GH 9597 (Proc)												
2	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	PRE	A		13.3 a	.	0.0 h		0.0 e	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
2	EPOST - V2 corn												
1	GH 9597 (Proc)												
1	Bicep II Magnum Premix	5.5 L		1.79 lb ai/a	PRE	A		0.0 a	0.0 a	0.0 h		0.0 e	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
1	PRE												
2	Silver King (Proc)												
2	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	PRE	A		0.0 a	9.7 a	10.7 cde		14.0 abc	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
1	PRE												
2	Silver King (Proc)												
1	Bicep II Magnum Premix	5.5 L		1.79 lb ai/a	PRE	A		23.3 a	.	0.0 h		0.0 e	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
2	EPOST - V2 corn												
2	Silver King (Proc)												

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS		
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn			
Rating Type						LeafBrn		Stunting		Stunting		Stunting			
Rating Unit						%		%		%		%			
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code								
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	12.3	a	.	0.0	h	0.0	e	
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
2	EPOST - V2 corn														
2	Silver King (Proc)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0	a	0.0	a	0.0	h	0.0	e
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
1	PRE														
3	Overland (Proc)														
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0	a	14.1	a	15.0	ab	15.8	a
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
1	PRE														
3	Overland (Proc)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	22.3	a	.	0.0	h	0.0	e	
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
2	EPOST - V2 corn														
3	Overland (Proc)														
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	15.0	a	.	12.0	bcd	0.0	e	
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
2	EPOST - V2 corn														
3	Overland (Proc)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0	a	0.0	a	0.0	h	0.0	e
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
1	PRE														
4	Protege (Proc)														
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0	a	13.7	a	15.7	ab	9.0	d
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
1	PRE														
4	Protege (Proc)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	17.3	a	.	0.0	h	0.0	e	
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
2	EPOST - V2 corn														
4	Protege (Proc)														
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	12.3	a	.	0.0	h	0.0	e	
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
2	EPOST - V2 corn														
4	Protege (Proc)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0	a	0.0	a	0.0	h	0.0	e
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
1	PRE														
5	Jubilee (Proc)														

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn	
Rating Type						LeafBrn		Stunting		Stunting		Stunting	
Rating Unit						%		%		%		%	
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code						
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0 a		11.3 a		10.7 cde	13.0 bc
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
1	PRE												
5	Jubilee (Proc)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	25.0 a	.			0.0 h	0.0 e
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
2	EPOST - V2 corn												
5	Jubilee (Proc)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	11.7 a	.			0.0 h	0.0 e
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
2	EPOST - V2 corn												
5	Jubilee (Proc)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 a		0.0 a		0.0 h	0.0 e
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
1	PRE												
6	GSS2259P (Proc)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0 a		4.0 a		11.7 bcd	12.0 c
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
1	PRE												
6	GSS2259P (Proc)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	23.0 a	.			0.0 h	0.0 e
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
2	EPOST - V2 corn												
6	GSS2259P (Proc)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	13.0 a	.			0.0 h	0.0 e
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
2	EPOST - V2 corn												
6	GSS2259P (Proc)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 a		0.0 a		0.0 h	0.0 e
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
1	PRE												
7	Argent (Proc)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0 a		11.3 a		18.3 a	14.7 abc
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
1	PRE												
7	Argent (Proc)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	23.3 a	.			0.0 h	0.0 e
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
2	EPOST - V2 corn												
7	Argent (Proc)												

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS		
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn			
Rating Type						LeafBrn		Stunting		Stunting		Stunting			
Rating Unit						%		%		%		%			
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code								
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	11.3	a	.	0.0	h	0.0	e	
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
2	EPOST - V2 corn														
7	Argent (Proc)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0	a	0.0	a	0.0	h	0.0	e
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
1	PRE														
8	Battalion (FM)														
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0	a	14.0	a	14.7	abc	16.7	a
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
1	PRE														
8	Battalion (FM)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	17.0	a	.	0.0	h	0.0	e	
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
2	EPOST - V2 corn														
8	Battalion (FM)														
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	11.3	a	.	0.0	h	0.0	e	
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
2	EPOST - V2 corn														
8	Battalion (FM)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0	a	0.0	a	0.0	h	0.0	e
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
1	PRE														
9	Temptation (FM)														
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0	a	11.3	a	9.0	de	15.7	ab
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
1	PRE														
9	Temptation (FM)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	20.0	a	.	0.0	h	0.0	e	
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
2	EPOST - V2 corn														
9	Temptation (FM)														
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	11.7	a	.	7.0	ef	0.0	e	
2	----pyroxasulfone	4.174		0.098											
2	----fluthiacet	0.126		0.00296											
2	EPOST - V2 corn														
9	Temptation (FM)														
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0	a	0.0	a	0.0	h	0.0	e
1	----s-metolachlor	2.4		0.78											
1	----atrazine	3.1		1.01											
1	PRE														
10	EX08767143 (FM)														

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn	
Rating Type						LeafBrn		Stunting		Stunting		Stunting	
Rating Unit						%		%		%		%	
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code						
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0 a	5.0 a	2.3 gh		15.7 ab	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
1	PRE												
10	EX08767143 (FM)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	17.3 a	.	0.0 h		0.0 e	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
2	EPOST - V2 corn												
10	EX08767143 (FM)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	9.7 a	.	0.0 h		0.0 e	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
2	EPOST - V2 corn												
10	EX08767143 (FM)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 a	0.0 a	0.0 h		0.0 e	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
1	PRE												
11	NK 199 (FM)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0 a	14.0 a	4.7 fg		2.3 e	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
1	PRE												
11	NK 199 (FM)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	22.3 a	.	0.0 h		0.0 e	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
2	EPOST - V2 corn												
11	NK 199 (FM)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	11.3 a	.	0.0 h		0.0 e	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
2	EPOST - V2 corn												
11	NK 199 (FM)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 a	0.0 a	0.0 h		0.0 e	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
1	PRE												
12	lochief (FM)												
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	0.0 a	14.7 a	13.0 bcd		8.7 d	
2	----pyroxasulfone	4.174		0.098									
2	----fluthiacet	0.126		0.00296									
1	PRE												
12	lochief (FM)												
1	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	19.7 a	.	0.0 h		0.0 e	
1	----s-metolachlor	2.4		0.78									
1	----atrazine	3.1		1.01									
2	EPOST - V2 corn												
12	lochief (FM)												

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	ZEAMS	C	ZEAMS	C	ZEAMS	C	ZEAMS	
Crop Name						Swt.Corn		Swt.Corn		Swt.Corn		Swt.Corn		
Rating Type						LeafBrn		Stunting		Stunting		Stunting		
Rating Unit						%		%		%		%		
Rating Date						07/07/16		07/07/16		07/15/16		07/23/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code							
2	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A	10.3	a	.	15.0	ab	0.0	e
2	----pyroxasulfone	4.174		0.098										
2	----fluthiacet	0.126		0.00296										
2	EPOST - V2 corn													
12	lochief (FM)													
LSD P=.05						3.77		4.52		4.21		2.81		
Standard Deviation						2.33		2.75		2.58		1.73		
CV						28.36		48.43		71.69		55.43		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

FACTORIAL/POOLED ERROR AOV For C ZEAMS Swt.Corn LeafBrn % 07/07/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	143	12059.750000				
R	2	100.041667	50.020833	9.232	0.0002	
A	1	720.027778	720.027778	132.896	0.0001	0.8
B	1	9702.250000	9702.250000	1790.745	0.0001	0.8
AB	1	720.027778	720.027778	132.896	0.0001	1.1
C	11	98.250000	8.931818	1.649	0.0978	1.9
AC	11	55.805556	5.073232	0.936	0.5096	2.7
BC	11	98.250000	8.931818	1.649	0.0978	2.7
ABC	11	55.805556	5.073232	0.936	0.5096	3.8
ERROR	94	509.291667	5.417996			

Randomized Complete Block (RCB) AOV For C ZEAMS Swt.Corn Stunting % 07/07/16 Missing factor B levels prevents analyzing column 2 as Split-Plot design; Missing values in column 2 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	70	3141.455340			
Replicate	2	71.315848	35.657924	4.725	0.0137
Treatment	23	2730.570652	118.720463	15.733	0.0001
ERROR	45	339.568841	7.545974		

FACTORIAL/POOLED ERROR AOV For C ZEAMS Swt.Corn Stunting % 07/15/16 Missing values in column 3 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	118	5392.437500				
R	2	27.375000	13.687500	2.050	0.1365	
A	1	1870.562500	1870.562500	280.204	0.0001	0.9
B	1	689.062500	689.062500	103.219	0.0001	0.9
AB	1	689.062500	689.062500	103.219	0.0001	1.2
C	11	480.187500	43.653409	6.539	0.0001	2.1
AC	11	480.187500	43.653409	6.539	0.0001	3.0
BC	11	347.687500	31.607955	4.735	0.0001	3.0
ABC	11	347.687500	31.607955	4.735	0.0001	4.2
ERROR	69	460.625000	6.675725			

FACTORIAL/POOLED ERROR AOV For C ZEAMS Swt.Corn Stunting % 07/23/16 Missing values in column 4 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	142	5094.860005				
R	2	48.385714	24.192857	8.080	0.0006	
A	1	1403.060321	1403.060321	468.603	0.0001	0.6
B	1	1403.060321	1403.060321	468.603	0.0001	0.6
AB	1	1403.060321	1403.060321	468.603	0.0001	0.8
C	11	139.709635	12.700876	4.242	0.0001	1.4
AC	11	139.709635	12.700876	4.242	0.0001	2.0
BC	11	139.709635	12.700876	4.242	0.0001	2.0
ABC	11	139.709635	12.700876	4.242	0.0001	2.8
ERROR	93	278.454787	2.994137			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Evaluating Experimental Herbicide Options for Weed Control in Sweet Corn  
 Trial ID: SCRN4-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: SCRN4-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C ZEAMS Zea mays saccharata Sweet corn      BBCH Scale: BCOR  
 Variety: BC0805  
 Planting Date: 06/20/16      Planting Rate: 24000    S/A  
 Depth: 0.75 in  
 Row Spacing: 30 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Moisture: NORMAL normal, adequate  
 Soil Temperature: 90 F  
 Emergence Date: 06/24/16  
 Harvest Date: 08/24/16      Harvest Equipment: hand-harvest  
 Harvested Width: 5 FT  
 Harvested Length: 24 FT

**Pest Description**

Pest 1 Type: W    Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 14    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**

% Sand: 82    % OM: 1.2    Texture: LS loamy sand  
 % Silt: 11    pH: 6.5  
 % Clay: 7    CEC: 4.6    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B
Application Date	06/20/16	07/18/16
Appl. Stop Time	02:30 PM	11:55 AM
Interval to Prev. Appl.		28 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	4WAP
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	89 F	92 F
% Relative Humidity Start, Stop	29	55
Wind Velocity+Dir. Start	3 mph W	5 mph SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	89 F	92 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	20	10

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	ZEAMS BCOR	ZEAMS BCOR
Stage Scale Used		DESC
Stage Majority, Percent		V7 55
Stage Minimum, Percent		V7 55
Stage Maximum, Percent		V8 45
Height Average		15 in
Height Minimum, Maximum		14 16

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		veg 55
Stage Minimum, Percent		veg 55
Stage Maximum, Percent		run 45
Height Average		12 in
Height Minimum, Maximum		5 18
Density Average		5 m2

**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	32 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

Evaluating Experimental Herbicide Options for Weed Control in Sweet Corn		
Trial ID: SCR4-16	Location: Field #18	Trial Year: 2016
Protocol ID: SCR4-16	Investigator: Mark VanGessel	
Study Director:		
Sponsor Contact:		

Trial Comments

07/23/16: plot 301 - new emergence of IPOSS is 97% control.

Evaluating Experimental Herbicide Options for Weed Control in Sweet Corn			
Trial ID: SCR4-16	Location: Field #18	Trial Year: 2016	
Protocol ID: SCR4-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Pest Code					IPOSS	GGGAN		
Pest Name					Morngrly	AnnGrass		
Crop Type, Code					C ZEAMS	C -	C -	C ZEAMS
Crop Name					Swt.Corn	Control	Control	Swt.Corn
Rating Type					Stunting	%	%	Stunting
Rating Unit					%	%	%	%
Rating Date					07/07/16	07/07/16	07/07/16	07/13/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 a
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	0.0 a
	----s-metolachlor	2.49		1.68				58.3 ab
	----mesotrione	0.25		0.169				100.0 a
	----atrazine	0.93		0.63				3.0 ab
3	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	0.0 a
	----atrazine	1		0.625				80.0 a
	----bicyclopyrone	0.06		0.0375				100.0 a
	----mesotrione	0.24		0.15				0.0 c
	----s-metolachlor	2.14		1.34				
4	Verdict Premix	5.57	EC	0.435	lb ai/a	PRE	A	0.0 a
	----saflufenacil	0.57		0.0445				80.0 a
	----dimethenamid	5		0.39				100.0 a
	Atrazine 4L	4 L		1 lb ai/a	PRE	A		1.0 bc
5	Zidua.....pyroxasulfone	4.17	SC	0.065	lb ai/a	PRE	A	2.0 a
	Atrazine 4L	4 L		1 lb ai/a	PRE	A		80.0 a
								100.0 a
								2.0 abc
6	Resicore Premix	3.28	SE	1.85	lb ai/a	PRE	A	3.3 a
	----acetochlor	2.8		1.58				78.3 a
	----mesotrione	0.3		0.17				100.0 a
	----clopypalid	0.18		0.102				2.0 abc
	Atrazine 4L	4 L		1 lb ai/a	PRE	A		
7	Cinch ATZ Premix	5.5	L	1.38	lb ai/a	PRE	A	1.7 a
	----s-metolachlor	2.4		0.6				23.3 bc
	----atrazine	3.1		0.78				98.7 a
	Revulin Q Premix	51	WG	0.108	lb ai/a	4 WAP	B	4.0 a
	----nicosulfuron	14.3		0.0303				
	----mesotrione	36.7		0.078				
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B	
8	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	0.0 a
	----s-metolachlor	2.4		0.6				53.3 ab
	----atrazine	3.1		0.78				100.0 a
	Solstice Premix	4	SC	0.094	lb ai/a	4 WAP	B	1.0 bc
	----fluthiacet	0.216		0.0051				
	----mesotrione	3.784		0.089				
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B	
9	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	0.0 a
	----s-metolachlor	2.4		0.6				33.3 abc
	----atrazine	3.1		0.78				100.0 a
	Impact.....topramezone	2.81	SC	0.011	lb ai/a	4 WAP	B	1.0 bc
	Atrazine 4L	4 L		0.5	lb ai/a	4 WAP	B	
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code Pest Name	AMAPA PalmerAm		IPOSS Mornglry		GGGAN AnnGrass						
Crop Type, Code	C -		C -		C -		C ZEAMS				
Crop Name							Swt. Corn				
Rating Type	Control		Control		Control		Stunting				
Rating Unit	%		%		%		%				
Rating Date	07/13/16		07/13/16		07/13/16		07/23/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 b	0.0 c	0.0 b	0.0 g
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	100.0 a	71.7 ab	100.0 a	9.0 cde
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.169							
	----atrazine	0.93		0.63							
3	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	100.0 a	94.3 a	100.0 a	9.7 b-e
	----atrazine	1		0.625							
	----bicyclopyrone	0.06		0.0375							
	----mesotrione	0.24		0.15							
	----s-metolachlor	2.14		1.34							
4	Verdict Premix	5.57	EC	0.435	lb ai/a	PRE	A	100.0 a	79.0 a	99.0 a	8.3 def
	----saflufenacil	0.57		0.0445							
	----dimethenamid	5		0.39							
	Atrazine 4L	4 L		1 lb ai/a	PRE	A					
5	Zidua.....pyroxasulfone	4.17	SC	0.065	lb ai/a	PRE	A	100.0 a	75.3 ab	99.0 a	15.3 ab
	Atrazine 4L	4 L		1 lb ai/a	PRE	A					
6	Resicore Premix	3.28	SE	1.85	lb ai/a	PRE	A	100.0 a	75.3 ab	100.0 a	11.7 b-e
	----acetochlor	2.8		1.58							
	----mesotrione	0.3		0.17							
	----clopypalid	0.18		0.102							
	Atrazine 4L	4 L		1 lb ai/a	PRE	A					
7	Cinch ATZ Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	10.0 c	98.3 a	14.7 abc
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Revulin Q Premix	51	WG	0.108	lb ai/a	4 WAP	B				
	----nicosulfuron	14.3		0.0303							
	----mesotrione	36.7		0.078							
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B				
8	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	38.3 bc	98.3 a	7.0 ef
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Solstice Premix	4	SC	0.094	lb ai/a	4 WAP	B				
	----fluthiacet	0.216		0.0051							
	----mesotrione	3.784		0.089							
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B				
9	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	10.0 c	97.3 a	8.3 def
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Impact.....topramezone	2.81	SC	0.011	lb ai/a	4 WAP	B				
	Atrazine 4L	4 L		0.5	lb ai/a	4 WAP	B				
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code Pest Name	AMAPA PalmerAm		IPOSS Mornglry		DIGSA L.crbgrs		
Crop Type, Code	C -		C -		C -		C ZEAMS
Crop Name							Swt.Corn
Rating Type	Control		Control		Control		Stunting
Rating Unit	%		%		%		%
Rating Date	07/23/16		07/23/16		07/23/16		08/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Check						
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A
	----s-metolachlor	2.49		1.68			
	----mesotrione	0.25		0.169			
	----atrazine	0.93		0.63			
3	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A
	----atrazine	1		0.625			
	----bicyclopyrone	0.06		0.0375			
	----mesotrione	0.24		0.15			
	----s-metolachlor	2.14		1.34			
4	Verdict Premix	5.57	EC	0.435	lb ai/a	PRE	A
	----saflufenacil	0.57		0.0445			
	----dimethenamid	5		0.39			
	Atrazine 4L	4 L		1 lb ai/a	PRE		A
5	Zidua.....pyroxasulfone	4.17	SC	0.065	lb ai/a	PRE	A
	Atrazine 4L	4 L		1 lb ai/a	PRE		A
6	Resicore Premix	3.28	SE	1.85	lb ai/a	PRE	A
	----acetochlor	2.8		1.58			
	----mesotrione	0.3		0.17			
	----clopypalid	0.18		0.102			
	Atrazine 4L	4 L		1 lb ai/a	PRE		A
7	Cinch ATZ Premix	5.5	L	1.38	lb ai/a	PRE	A
	----s-metolachlor	2.4		0.6			
	----atrazine	3.1		0.78			
	Revulin Q Premix	51	WG	0.108	lb ai/a	4 WAP	B
	----nicosulfuron	14.3		0.0303			
	----mesotrione	36.7		0.078			
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B
8	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A
	----s-metolachlor	2.4		0.6			
	----atrazine	3.1		0.78			
	Solstice Premix	4	SC	0.094	lb ai/a	4 WAP	B
	----fluthiacet	0.216		0.0051			
	----mesotrione	3.784		0.089			
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B
9	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A
	----s-metolachlor	2.4		0.6			
	----atrazine	3.1		0.78			
	Impact.....topramezone	2.81	SC	0.011	lb ai/a	4 WAP	B
	Atrazine 4L	4 L		0.5	lb ai/a	4 WAP	B
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code Pest Name	AMAPA PalmerAm		IPOSS Morgngly		GGGAN AnnGrass			
Crop Type, Code	C -		C -		C -		C ZEAMS	
Crop Name							Swt. Corn	
Rating Type	Control		Control		Control		Yld Wt	
Rating Unit	%		%		%		lb/ear	
Rating Date	08/04/16		08/04/16		08/04/16		08/24/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 c 0.0 d 0.0 c 0.24 cd
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	100.0 a 53.3 bc 98.3 ab 0.25 a-d
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
3	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	100.0 a 90.3 ab 99.0 a 0.26 abc
	----atrazine	1		0.625				
	----bicyclopyrone	0.06		0.0375				
	----mesotrione	0.24		0.15				
	----s-metolachlor	2.14		1.34				
4	Verdict Premix	5.57	EC	0.435	lb ai/a	PRE	A	100.0 a 99.3 a 94.0 ab 0.27 a
	----saflufenacil	0.57		0.0445				
	----dimethenamid	5		0.39				
	Atrazine 4L	4 L		1 lb ai/a	PRE	PRE	A	
5	Zidua.....pyroxasulfone	4.17	SC	0.065	lb ai/a	PRE	A	100.0 a 0.0 d 97.0 ab 0.24 bcd
	Atrazine 4L	4 L		1 lb ai/a	PRE	PRE	A	
6	Resicore Premix	3.28	SE	1.85	lb ai/a	PRE	A	93.3 b 67.3 abc 97.0 ab 0.26 abc
	----acetochlor	2.8		1.58				
	----mesotrione	0.3		0.17				
	----clopypalid	0.18		0.102				
	Atrazine 4L	4 L		1 lb ai/a	PRE	PRE	A	
7	Cinch ATZ Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a 97.7 a 98.3 ab 0.26 abc
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	Revulin Q Premix	51	WG	0.108	lb ai/a	4 WAP	B	
	----nicosulfuron	14.3		0.0303				
	----mesotrione	36.7		0.078				
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B	
8	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a 92.3 ab 96.7 ab 0.28 a
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	Solstice Premix	4	SC	0.094	lb ai/a	4 WAP	B	
	----fluthiacet	0.216		0.0051				
	----mesotrione	3.784		0.089				
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B	
9	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a 91.0 ab 100.0 a 0.27 abc
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	Impact.....topramezone	2.81	SC	0.011	lb ai/a	4 WAP	B	
	Atrazine 4L	4 L		0.5	lb ai/a	4 WAP	B	
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code						C ZEAMS Sw't.Corn Yield Ton/A 08/24/16
Pest Name						
Crop Type, Code						
Crop Name						
Rating Type						
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code
1	Untreated Check					2.8 a
2	Lumax EZ Premix	3.67	SC	2.48 lb ai/a	PRE	A
	----s-metolachlor	2.49		1.68		
	----mesotrione	0.25		0.169		
	----atrazine	0.93		0.63		
3	Acuron Premix	3.44	ZC	2.15 lb ai/a	PRE	A
	----atrazine	1		0.625		
	----bicyclopyrone	0.06		0.0375		
	----mesotrione	0.24		0.15		
	----s-metolachlor	2.14		1.34		
4	Verdict Premix	5.57	EC	0.435 lb ai/a	PRE	A
	----saflufenacil	0.57		0.0445		
	----dimethenamid	5		0.39		
	Atrazine 4L	4 L		1 lb ai/a	PRE	A
5	Zidua.....pyroxasulfone	4.17	SC	0.065 lb ai/a	PRE	A
	Atrazine 4L	4 L		1 lb ai/a	PRE	A
6	Resicore Premix	3.28	SE	1.85 lb ai/a	PRE	A
	----acetochlor	2.8		1.58		
	----mesotrione	0.3		0.17		
	----clopypalid	0.18		0.102		
	Atrazine 4L	4 L		1 lb ai/a	PRE	A
7	Cinch ATZ Premix	5.5	L	1.38 lb ai/a	PRE	A
	----s-metolachlor	2.4		0.6		
	----atrazine	3.1		0.78		
	Revulin Q Premix	51	WG	0.108 lb ai/a	4 WAP	B
	----nicosulfuron	14.3		0.0303		
	----mesotrione	36.7		0.078		
	Nonionic Surfactant	100	L	0.25 % v/v	4 WAP	B
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	4 WAP	B
8	Bicep II Magnum Premix	5.5	L	1.38 lb ai/a	PRE	A
	----s-metolachlor	2.4		0.6		
	----atrazine	3.1		0.78		
	Solstice Premix	4	SC	0.094 lb ai/a	4 WAP	B
	----fluthiacet	0.216		0.0051		
	----mesotrione	3.784		0.089		
	Crop Oil Concentrate	100	L	1.25 % v/v	4 WAP	B
9	Bicep II Magnum Premix	5.5	L	1.38 lb ai/a	PRE	A
	----s-metolachlor	2.4		0.6		
	----atrazine	3.1		0.78		
	Impact.....topramezone	2.81	SC	0.011 lb ai/a	4 WAP	B
	Atrazine 4L	4 L		0.5 lb ai/a	4 WAP	B
	Crop Oil Concentrate	100	L	1.25 % v/v	4 WAP	B
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	4 WAP	B

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.



Pest Code Pest Name						IPOSS Morngrly	GGGAN AnnGrass				
Crop Type, Code						C ZEAMS	C -	C -	C ZEAMS		
Crop Name						Swt.Corn	Control	Control	Swt.Corn		
Rating Type						Stunting	%	%	Stunting		
Rating Unit						%	%	%	%		
Rating Date						07/07/16	07/07/16	07/07/16	07/13/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
10	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	1.0 a	11.7 bc	100.0 a	1.0 bc
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4 WAP	B				
11	Prowl H2O.....pendimethalin	3.8	CS	1.43	lb ai/a	PRE	A	0.0 a	0.0 c	98.3 a	0.0 c
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4 WAP	B				
12	Zidua.....pyroxasulfone	4.17	SC	0.065	lb ai/a	PRE	A	1.7 a	0.0 c	100.0 a	4.3 a
	Armezon Pro Premix	5.35	EC	0.84	lb ai/a	4 WAP	B				
	----topramezone	0.1		0.0157							
	----dimethenamid-p	5.25		0.824							
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B				
13	Anthem Maxx Premix	4.3	SC	0.134	lb ai/a	PRE	A	1.7 a	23.3 bc	98.3 a	4.3 a
	----pyroxasulfone	4.174		0.13							
	----fluthiacet	0.126		0.00393							
	Solstice Premix	4	SC	0.094	lb ai/a	4 WAP	B				
	----fluthiacet	0.216		0.0051							
	----mesotrione	3.784		0.089							
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B				
14	Accent Q.....nicosulfuron	75	D	0.0234	lb ai/a	4 WAP	B	0.0 a	0.0 c	0.0 b	1.7 abc
	_isoxadifen-ethyl	50	WG	0.0156	lb ai/a	4 WAP	B				
	Impact.....topramezone	2.81	SC	0.011	lb ai/a	4 WAP	B				
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B				
LSD P=.05						2.76	51.77	2.18	2.77		
Standard Deviation						1.65	30.85	1.30	1.65		
CV						203.38	82.78	1.52	90.92		
Replicate F						1.511	0.305	0.014	0.037		
Replicate Prob(F)						0.2395	0.7400	0.9860	0.9642		
Treatment F						1.300	3.512	2322.782	2.689		
Treatment Prob(F)						0.2743	0.0031	0.0001	0.0163		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code Pest Name						AMAPA PalmerAm	IPOSS Mornglry	GGGAN AnnGrass			
Crop Type, Code						C -	C -	C -	C ZEAMS		
Crop Name						Control	Control	Control	Swt.Corn		
Rating Type						%	%	%	Stunting		
Rating Unit						07/13/16	07/13/16	07/13/16	%		
Rating Date									07/23/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
10	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	15.0 c	66.7 a	0.0 g
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4 WAP	B				
11	Prowl H2O.....pendimethalin	3.8	CS	1.43	lb ai/a	PRE	A	100.0 a	0.0 c	91.0 a	2.3 fg
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4 WAP	B				
12	Zidua.....pyroxasulfone	4.17	SC	0.065	lb ai/a	PRE	A	100.0 a	0.0 c	100.0 a	18.3 a
	Armezon Pro Premix	5.35	EC	0.84	lb ai/a	4 WAP	B				
	----topramezone	0.1		0.0157							
	----dimethenamid-p	5.25		0.824							
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B				
13	Anthem Maxx Premix	4.3	SC	0.134	lb ai/a	PRE	A	100.0 a	20.0 c	66.7 a	19.0 a
	----pyroxasulfone	4.174		0.13							
	----fluthiacet	0.126		0.00393							
	Solstice Premix	4	SC	0.094	lb ai/a	4 WAP	B				
	----fluthiacet	0.216		0.0051							
	----mesotrione	3.784		0.089							
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B				
14	Accent Q.....nicosulfuron	75	D	0.0234	lb ai/a	4 WAP	B	100.0 a	0.0 c	0.0 b	14.0 a-d
	_isoxadifen-ethyl	50	WG	0.0156	lb ai/a	4 WAP	B				
	Impact.....topramezone	2.81	SC	0.011	lb ai/a	4 WAP	B				
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B				
LSD P=.05						.	40.16	35.58	6.31		
Standard Deviation						0.00	23.93	21.20	3.76		
CV						0.0	68.5	26.59	38.22		
Replicate F						0.000	0.684	1.906	3.966		
Replicate Prob(F)						1.0000	0.5133	0.1689	0.0314		
Treatment F						0.000	6.789	8.509	8.062		
Treatment Prob(F)						1.0000	0.0001	0.0001	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code Pest Name						AMAPA PalmerAm	IPOSS Mornglry	DIGSA L.crbgrs		
Crop Type, Code						C -	C -	C -	C ZEAMS	
Crop Name						Control	Control	Control	Swt.Corn	
Rating Type						%	%	%	Stunting	
Rating Unit									%	
Rating Date						07/23/16	07/23/16	07/23/16	08/04/16	
Trt Treatment No. Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code				
10 Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	84.3 ab	100.0 a	1.0 b
----s-metolachlor	2.4		0.6							
----atrazine	3.1		0.78							
Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	4 WAP	B				
Dry Ammonium Sulfate	100	D	1.02	% w/v	4 WAP	B				
11 Prowl H2O.....pendimethalin	3.8	CS	1.43	lb ai/a	PRE	A	100.0 a	73.7 bcd	94.0 b	0.0 b
Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	4 WAP	B				
Dry Ammonium Sulfate	100	D	1.02	% w/v	4 WAP	B				
12 Zidua.....pyroxasulfone	4.17	SC	0.065	lb ai/a	PRE	A	100.0 a	50.0 e	100.0 a	4.3 ab
Armezon Pro Premix	5.35	EC	0.84	lb ai/a	4 WAP	B				
----topramezone	0.1		0.0157							
----dimethenamid-p	5.25		0.824							
Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B				
30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B				
13 Anthem Maxx Premix	4.3	SC	0.134	lb ai/a	PRE	A	100.0 a	89.3 ab	100.0 a	9.0 a
----pyroxasulfone	4.174		0.13							
----fluthiacet	0.126		0.00393							
Solstice Premix	4	SC	0.094	lb ai/a	4 WAP	B				
----fluthiacet	0.216		0.0051							
----mesotrione	3.784		0.089							
Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B				
14 Accent Q.....nicosulfuron	75	D	0.0234	lb ai/a	4 WAP	B	99.0 ab	67.7 cd	67.7 c	4.3 ab
_isoxadifen-ethyl	50	WG	0.0156	lb ai/a	4 WAP	B				
Impact.....topramezone	2.81	SC	0.011	lb ai/a	4 WAP	B				
Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B				
30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B				
LSD P=.05						2.22	16.08	4.56	4.90	
Standard Deviation						1.32	9.58	2.71	2.92	
CV						1.43	13.45	3.04	106.56	
Replicate F						2.676	0.390	1.292	5.247	
Replicate Prob(F)						0.0877	0.6812	0.2917	0.0122	
Treatment F						1221.168	18.306	296.663	2.272	
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0363	

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Missing data estimates are included in columns: Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code Pest Name						AMAPA PalmerAm	IPOSS Morngrly	GGGAN AnnGrass		
Crop Type, Code						C -	C -	C -	C ZEAMS	
Crop Name Rating Type Rating Unit Rating Date						Control % 08/04/16	Control % 08/04/16	Control % 08/04/16	Swt.Corn Yld Wt lb/ear 08/24/16	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code				
10 Bicep II Magnum Premix ----s-metolachlor ----atrazine Liberty 280.....glufosinate Dry Ammonium Sulfate	5.5 L 2.4 3.1 2.34 SL 100 D		1.38 0.6 0.78 0.366 lb ai/a 1.02 % w/v	ai/a ai/a ai/a w/v	PRE PRE PRE 4 WAP 4 WAP	A A A B B	100.0 a	87.7 ab	99.0 a	0.28 a
11 Prowl H2O.....pendimethalin Liberty 280.....glufosinate Dry Ammonium Sulfate	3.8 CS 2.34 SL 100 D		1.43 0.366 lb ai/a 1.02 % w/v	ai/a ai/a w/v	PRE PRE 4 WAP 4 WAP	A B B	100.0 a	31.3 cd	96.3 ab	0.27 ab
12 Zidua.....pyroxasulfone Armezon Pro Premix ----topramezone ----dimethenamid-p Nonionic Surfactant 30% Urea Ammonium Nitrate	4.17 SC 5.35 EC 0.1 5.25 100 L 100 L		0.065 0.84 lb ai/a 0.0157 0.824 0.25 % v/v 2.5 % v/v	ai/a ai/a v/v v/v	PRE PRE 4 WAP 4 WAP 4 WAP 4 WAP	A B B B B B	100.0 a	0.0 d	70.0 b	0.25 abc
13 Anthem Maxx Premix ----pyroxasulfone ----fluthiacet Solstice Premix ----fluthiacet ----mesotrione Crop Oil Concentrate	4.3 SC 4.174 0.126 4 SC 0.216 3.784 100 L		0.134 0.13 0.00393 0.094 lb ai/a 0.0051 0.089 1.25 % v/v	ai/a ai/a ai/a ai/a v/v v/v	PRE PRE 4 WAP 4 WAP 4 WAP 4 WAP	A A B B B B	100.0 a	91.7 ab	99.0 a	0.22 d
14 Accent Q.....nicosulfuron _isoxadifen-ethyl Impact.....topramezone Crop Oil Concentrate 30% Urea Ammonium Nitrate	75 D 50 WG 2.81 SC 100 L 100 L		0.0234 0.0156 lb ai/a 0.011 lb ai/a 1.25 % v/v 2.5 % v/v	ai/a ai/a ai/a v/v v/v	4 WAP 4 WAP 4 WAP 4 WAP 4 WAP	B B B B B	100.0 a	68.0 abc	79.7 ab	0.26 abc
LSD P=.05							5.18	43.31	28.46	0.032
Standard Deviation							3.09	25.80	16.95	0.019
CV							3.34	41.52	19.39	7.41
Replicate F							1.000	0.713	0.876	4.810
Replicate Prob(F)							0.3816	0.4997	0.4285	0.0167
Treatment F							223.692	6.716	7.383	2.295
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0346

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Missing data estimates are included in columns:Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code						C ZEAMS Swt.Corn Yield Ton/A 08/24/16		
Pest Name								
Crop Type, Code								
Crop Name								
Rating Type								
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code	
10	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	3.1 a
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	4 WAP	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4 WAP	B	
11	Prowl H2O.....pendimethalin	3.8	CS	1.43	lb ai/a	PRE	A	3.3 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	4 WAP	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4 WAP	B	
12	Zidua.....pyroxasulfone	4.17	SC	0.065	lb ai/a	PRE	A	2.7 a
	Armezon Pro Premix	5.35	EC	0.84	lb ai/a	4 WAP	B	
	----topramezone	0.1		0.0157				
	----dimethenamid-p	5.25		0.824				
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B	
13	Anthem Maxx Premix	4.3	SC	0.134	lb ai/a	PRE	A	2.4 a
	----pyroxasulfone	4.174		0.13				
	----fluthiacet	0.126		0.00393				
	Solstice Premix	4	SC	0.094	lb ai/a	4 WAP	B	
	----fluthiacet	0.216		0.0051				
	----mesotrione	3.784		0.089				
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B	
14	Accent Q.....nicosulfuron	75	D	0.0234	lb ai/a	4 WAP	B	3.0 a
	_isoxadifen-ethyl	50	WG	0.0156	lb ai/a	4 WAP	B	
	Impact.....topramezone	2.81	SC	0.011	lb ai/a	4 WAP	B	
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	B	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	4 WAP	B	
LSD P=.05								0.63
Standard Deviation								0.38
CV								12.68
Replicate F								4.076
Replicate Prob(F)								0.0289
Treatment F								1.386
Treatment Prob(F)								0.2309

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Evaluation of POST Grain Sorghum Herbicides  
 Trial ID: Milo1-16      Location: Field #6 west      Trial Year: 2016  
 Protocol ID: Milo1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Bayer

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      SORVU Sorghum bicolor Grain sorghum      BBCH Scale: BGRM  
 Variety: DKS36-06  
 Planting Date: 07/07/16      Planting Rate: 4      S/ROWFT  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDIUM medium  
 Soil Temperature: 92 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 07/11/16  
 Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 14.0

**Pest Description**

Pest 1 Type: W    Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 9    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Total PRE Dual II Magnum 1.25 pt/A 7-8-16.

**Soil Description**

% Sand: 82    % OM: 0.8    Texture: LS loamy sand  
 % Silt: 9      pH: 5.7  
 % Clay: 9      CEC: 4.6    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	08/10/16
Appl. Stop Time	10:00 AM
Application Method	SPRAY
Application Timing	POST
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	83 F
% Relative Humidity Start, Stop	85
Wind Velocity+Dir. Start	2 mph S
Wet Leaves (Y/N)	Y yes
Soil Temperature	82 F
Soil Moisture	NORMAL
% Cloud Cover	40

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	SORVU BGRM
Stage Scale Used	DESC
Stage Majority, Percent	V10 100
Height Average	27 in
Height Minimum, Maximum	24 30

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	IPOSS W
Stage Majority, Percent	run 100
Height Average	20 in
Height Minimum, Maximum	15 24
Density Average	1 m2

**Application Equipment**

	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	46 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

**Trial Comments**

07/28/16: Milo stand is a little variable in height.

08/20/16: Dual II Magnum PRE provided good to excellent control of summer annuals, except morningglory.





Evaluation of POST Grain Sorghum Herbicides			
Trial ID: Milo1-16	Location: Field #6 west	Trial Year: 2016	
Protocol ID: Milo1-16	Investigator: Mark VanGessel	Study Director:	
Sponsor Contact: Bayer			

Pest Code					C	SORVU	IPOSS	C	SORVU	IPOSS	
Pest Name							Morngrly			Morngrly	
Crop Type, Code							C -			C -	
Crop Name					GrnSrghm			GrnSrghm			
Rating Type					LeafBrn		Control	Stunting		Control	
Rating Unit					%		%	%		%	
Rating Date					08/15/16		08/15/16	08/24/16		08/24/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 b	0.0 b	0.0 c	0.0 c
2	Huskie Premix	2.05 EC		0.208 lb ai/a		POST A		23.3 a	70.0 a	11.3 a	76.7 a
	----pyrasulfotole	0.3		0.0304							
	----bromoxynil	1.75		0.178							
	Atrazine 4L	4 L		0.5 lb ai/a		POST A					
	Nonionic Surfactant	100 L		0.25 % v/v		POST A					
	Dry Ammonium Sulfate	100 D		0.6 % w/v		POST A					
3	Huskie Premix	2.05 EC		0.256 lb ai/a		POST A		28.3 a	70.8 a	7.3 b	83.3 a
	----pyrasulfotole	0.3		0.0375							
	----bromoxynil	1.75		0.219							
	Atrazine 4L	4 L		0.5 lb ai/a		POST A					
	Nonionic Surfactant	100 L		0.25 % v/v		POST A					
	Dry Ammonium Sulfate	100 D		0.6 % w/v		POST A					
4	Huskie Premix	2.05 EC		0.208 lb ai/a		POST A		20.7 a	68.3 a	8.0 ab	86.7 a
	----pyrasulfotole	0.3		0.0304							
	----bromoxynil	1.75		0.178							
	Atrazine 4L	4 L		0.5 lb ai/a		POST A					
	Starane Ultra...fluroxypyr	2.8 EC		0.0656 lb ae/a		POST A					
	Nonionic Surfactant	100 L		0.25 % v/v		POST A					
	Dry Ammonium Sulfate	100 D		0.6 % w/v		POST A					
5	Atrazine 4L	4 L		0.5 lb ai/a		POST A		25.0 a	68.3 a	8.0 ab	46.0 b
	Buctril 2EC.....bromoxynil	2 EC		0.25 lb ai/a		POST A					
6	Clarity.....dicamba	4 L		0.28 lb ai/a		POST A		1.0 b	63.3 a	2.3 c	86.0 a
	Atrazine 4L	4 L		0.5 lb ai/a		POST A					
	Nonionic Surfactant	100 L		0.25 % v/v		POST A					
7	Facet L.....quinclorac	1.5 L		0.375 lb ae/a		POST A		23.3 a	68.3 a	7.0 b	80.0 a
	Atrazine 4L	4 L		1 lb ai/a		POST A					
	Crop Oil Concentrate	100 L		1 % v/v		POST A					
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		POST A					
8	DiFlexx.....dicamba	4 L		0.28 lb ai/a		POST A		1.0 b	65.0 a	0.0 c	85.0 a
	Atrazine 4L	4 L		0.5 lb ai/a		POST A					
	Nonionic Surfactant	100 L		0.25 % v/v		POST A					
9	Permit.....halosulfuron	75 DF		0.0314 lb ai/a		POST A		4.0 b	63.3 a	6.3 b	74.3 a
	DiFlexx.....dicamba	4 L		0.28 lb ai/a		POST A					
	Crop Oil Concentrate	100 L		1 % v/v		POST A					
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		POST A					
LSD P=.05								7.75	11.06	3.74	12.89
Standard Deviation								4.48	6.27	2.16	7.41
CV								31.81	10.5	38.67	10.79
Replicate F								2.497	1.928	4.048	0.565
Replicate Prob(F)								0.1138	0.1849	0.0378	0.5799
Treatment F								22.067	38.839	9.887	44.853
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=2,4,6

Pest Code						C SORVU		
Pest Name						GrnSrghm		
Crop Type, Code						Yield		
Crop Name						Bu/A		
Rating Type						11/11/16		
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							71.8 a
2	Huskie Premix	2.05	EC	0.208	lb ai/a	POST	A	75.5 a
	----pyrasulfotole	0.3		0.0304				
	----bromoxynil	1.75		0.178				
	Atrazine 4L	4	L	0.5	lb ai/a	POST	A	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
	Dry Ammonium Sulfate	100	D	0.6	% w/v	POST	A	
3	Huskie Premix	2.05	EC	0.256	lb ai/a	POST	A	71.5 a
	----pyrasulfotole	0.3		0.0375				
	----bromoxynil	1.75		0.219				
	Atrazine 4L	4	L	0.5	lb ai/a	POST	A	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
	Dry Ammonium Sulfate	100	D	0.6	% w/v	POST	A	
4	Huskie Premix	2.05	EC	0.208	lb ai/a	POST	A	70.0 a
	----pyrasulfotole	0.3		0.0304				
	----bromoxynil	1.75		0.178				
	Atrazine 4L	4	L	0.5	lb ai/a	POST	A	
	Starane Ultra...fluroxypyr	2.8	EC	0.0656	lb ae/a	POST	A	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
	Dry Ammonium Sulfate	100	D	0.6	% w/v	POST	A	
5	Atrazine 4L	4	L	0.5	lb ai/a	POST	A	73.0 a
	Buctril 2EC.....bromoxynil	2	EC	0.25	lb ai/a	POST	A	
6	Clarity.....dicamba	4	L	0.28	lb ai/a	POST	A	58.1 ab
	Atrazine 4L	4	L	0.5	lb ai/a	POST	A	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
7	Facet L.....quinclorac	1.5	L	0.375	lb ae/a	POST	A	44.7 b
	Atrazine 4L	4	L	1	lb ai/a	POST	A	
	Crop Oil Concentrate	100	L	1	% v/v	POST	A	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	POST	A	
8	DiFlexx.....dicamba	4	L	0.28	lb ai/a	POST	A	60.5 ab
	Atrazine 4L	4	L	0.5	lb ai/a	POST	A	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
9	Permit.....halosulfuron	75	DF	0.0314	lb ai/a	POST	A	46.8 b
	DiFlexx.....dicamba	4	L	0.28	lb ai/a	POST	A	
	Crop Oil Concentrate	100	L	1	% v/v	POST	A	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	POST	A	
LSD P=.05								19.23
Standard Deviation								11.05
CV								17.39
Replicate F								7.853
Replicate Prob(F)								0.0046
Treatment F								3.310
Treatment Prob(F)								0.0219

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4,6

Weed Control and Crop Tolerance in Inzen Grain Sorghum  
 Trial ID: Milo2-16      Location: Field #6 east      Trial Year: 2016  
 Protocol ID: Milo2-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

**General Trial Information**

Investigator: Mark VanGessel      Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C SORVU Sorghum bicolor Grain sorghum  
 Variety: Altra  
 Attributes: Inzen  
 Planting Date: 07/07/16      Planting Rate: 80000      S/A  
 Depth: 1 in  
 Row Spacing: 7 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 92 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 07/11/16

**Pest Description**

Pest 1 Type: W      Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

Pest 2 Type: W      Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 6      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**

% Sand: 82      % OM: 0.8      Texture: LS loamy sand  
 % Silt: 9      pH: 5.7  
 % Clay: 9      CEC: 4.6      Fert. Level: G good  
 Soil Drainage: E excellent

**Application Description**

	A	B	C
Application Date	07/08/16	07/29/16	08/10/16
Appl. Stop Time	10:00 AM	10:30 AM	10:00 AM
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRE	EPost	MPost
Application Placement	BROADC	BROADC	BROADC
Applied By	Johnson	VanGessl	Johnson
Air Temperature Start, Stop	87 F	77 F	83 F
% Relative Humidity Start, Stop	61	84	85
Wind Velocity+Dir. Start	1 mph NW	2 mph N	2 mph S
Wet Leaves (Y/N)	N no	Y yes	Y yes
Soil Temperature	86 F	77 F	82 F
Soil Moisture	NORMAL	NORMAL	NORMAL
% Cloud Cover	15	90	40

**Crop Stage At Each Application**

	A	B	C
Crop 1 Code, BBCH Scale	SORVU BGRM	SORVU BGRM	SORVU BGRM
Stage Scale Used		DESC	DESC
Stage Majority, Percent		V4 100	V10 100
Height Average		7 in	24 in
Height Minimum, Maximum		6 8	20 26

**Pest Stage At Each Application**

	A	B	C
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent		veg 100	run 100
Height Average		3 in	15 in
Height Minimum, Maximum		2 5	12 20
Density Average		1 m2	2 plot
Pest 2 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent		3-leaf 100	1-2tr 100
Height Average		3 in	3 in
Height Minimum, Maximum		2 4	2 4
Density Average		1 m2	2 plot

**Application Equipment**

	A	B	C
Appl. Equipment	Tractor	Backpack	Tractor
Equipment Type	TRMOSP	SPRBAC	TRMOSP
Operation Pressure	40 psi	31 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002
Nozzle Spacing	20 in	18 in	20 in
Boom Length	10 ft	9 ft	10 ft
Boom Height	18 in	23 in	40 in
Ground Speed	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac
Propellant	COMAIR	COMCO2	COMAIR

Weed Control and Crop Tolerance in Inzen Grain Sorghum Trial ID: Milo2-16      Location: Field #6 east      Trial Year: 2016 Protocol ID: Milo2-16      Investigator: Mark VanGessel Study Director: Sponsor Contact: DuPont
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Trial Comments

07/28/16: Excellent weed control in all treated plots. Palmer amaranth, common purslane, carpetweed, and common lambsquarters are in the untreated checks, but not observed in any treated plot.

Weed Control and Crop Tolerance in Inzen Grain Sorghum							
Trial ID: Milo2-16		Location: Field #6 east		Trial Year: 2016			
Protocol ID: Milo2-16		Investigator: Mark VanGessel			Study Director:		
Sponsor Contact: DuPont							
Pest Code	Pest Name						
Crop Type, Code		C	SORVU	C	SORVU	C	SORVU
Crop Name		GrnSrghm	Stunting	GrnSrghm	Stunting	GrnSrghm	Stunting
Rating Type		%		%		%	
Rating Unit							
Rating Date		07/20/16		07/28/16		08/07/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code
1	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A
	----rimsulfuron	20		0.0156			
	----thifensulfuron	10		0.0078			
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	MPost	C
	Atrazine 4L	4	L	0.75	lb ai/a	MPost	C
	Herbimax Crop Oil Conc.	100	L	1	% v/v	MPost	C
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPost	C
2	Cinch ATZ Premix	5.5	L	1.38	lb ai/a	PRE	A
	----s-metolachlor	2.4		0.6			
	----atrazine	3.1		0.78			
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	MPost	C
	Atrazine 4L	4	L	0.75	lb ai/a	MPost	C
	Herbimax Crop Oil Conc.	100	L	1	% v/v	MPost	C
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPost	C
3	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	EPost	B
	Atrazine 4L	4	L	0.75	lb ai/a	EPost	B
	Herbimax Crop Oil Conc.	100	L	1	% v/v	EPost	B
	Dry Ammonium Sulfate	100	D	1.2	% w/v	EPost	B
4	Cinch ATZ Premix	5.5	L	2.2	lb ai/a	EPost	B
	----s-metolachlor	2.4		0.96			
	----atrazine	3.1		1.24			
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	EPost	B
	Atrazine 4L	4	L	0.75	lb ai/a	EPost	B
	Herbimax Crop Oil Conc.	100	L	1	% v/v	EPost	B
	Dry Ammonium Sulfate	100	D	1.2	% w/v	EPost	B
5	Cinch ATZ Premix	5.5	L	2.2	lb ai/a	PRE	A
	----s-metolachlor	2.4		0.96			
	----atrazine	3.1		1.24			
6	Untreated Check						
	LSD P=.05			2.52		3.60	0.86
	Standard Deviation			1.39		1.80	0.47
	CV			19.5		180.28	8.66
	Replicate F			1.416		1.000	0.261
	Replicate Prob(F)			0.2874		0.4219	0.7764
	Treatment F			108.324		3.692	962.800
	Treatment Prob(F)			0.0001		0.0813	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4; Average=10

Pest Code Pest Name						AMAPA PalmerAm					
Crop Type, Code						C - C	SORVU	C SORVU	C SORVU		
Crop Name						Control	GrnSrghm LeafBrn	GrnSrghm Stunting	GrnSrghm StandCt		
Rating Type						%	%	%	#/10 ft		
Rating Unit						08/07/16	08/15/16	08/15/16	08/17/16		
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	100.0 a	18.0 a	5.0 a	54 a
	----rimsulfuron	20		0.0156							
	----thifensulfuron	10		0.0078							
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A				
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	MPost	C				
	Atrazine 4L	4	L	0.75	lb ai/a	MPost	C				
	Herbimax Crop Oil Conc.	100	L	1	% v/v	MPost	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPost	C				
2	Cinch ATZ Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	17.3 a	12.3 a	57 a
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	MPost	C				
	Atrazine 4L	4	L	0.75	lb ai/a	MPost	C				
	Herbimax Crop Oil Conc.	100	L	1	% v/v	MPost	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPost	C				
3	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	EPost	B	97.7 c	0.0 b	14.0 a	52 a
	Atrazine 4L	4	L	0.75	lb ai/a	EPost	B				
	Herbimax Crop Oil Conc.	100	L	1	% v/v	EPost	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	EPost	B				
4	Cinch ATZ Premix	5.5	L	2.2	lb ai/a	EPost	B	99.0 b	0.0 b	20.7 a	49 a
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	EPost	B				
	Atrazine 4L	4	L	0.75	lb ai/a	EPost	B				
	Herbimax Crop Oil Conc.	100	L	1	% v/v	EPost	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	EPost	B				
5	Cinch ATZ Premix	5.5	L	2.2	lb ai/a	PRE	A	100.0 a	0.0 b	5.7 a	56 a
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Untreated Check							0.0 d	0.0 b	0.0 a	69 a
LSD P=.05						0.86	2.43	15.19	19.7		
Standard Deviation						0.47	1.34	8.35	10.4		
CV						0.57	22.71	86.86	18.58		
Replicate F						1.000	0.217	0.195	0.007		
Replicate Prob(F)						0.4019	0.8083	0.8263	0.9934		
Treatment F						22212.402	139.652	2.394	1.282		
Treatment Prob(F)						0.0001	0.0001	0.1125	0.3587		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=4; Average=10

Pest Code Pest Name								AMAPA PalmerAm	IPOSS Morngrly		
Crop Type, Code						C SORVU	C SORVU	C -	C -		
Crop Name						GrnSrghm	GrnSrghm	Control	Control		
Rating Type						Chloros	Stunting	%	%		
Rating Unit						%	%	%	%		
Rating Date						08/24/16	08/24/16	08/24/16	08/24/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	17.0 a	11.7 a	100.0 a	99.7 a
	----rimsulfuron	20		0.0156							
	----thifensulfuron	10		0.0078							
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A				
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	MPost	C				
	Atrazine 4L	4	L	0.75	lb ai/a	MPost	C				
	Herbimax Crop Oil Conc.	100	L	1	% v/v	MPost	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPost	C				
2	Cinch ATZ Premix	5.5	L	1.38	lb ai/a	PRE	A	12.0 b	13.3 a	100.0 a	100.0 a
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	MPost	C				
	Atrazine 4L	4	L	0.75	lb ai/a	MPost	C				
	Herbimax Crop Oil Conc.	100	L	1	% v/v	MPost	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPost	C				
3	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	EPost	B	4.0 c	15.0 a	96.7 a	95.0 a
	Atrazine 4L	4	L	0.75	lb ai/a	EPost	B				
	Herbimax Crop Oil Conc.	100	L	1	% v/v	EPost	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	EPost	B				
4	Cinch ATZ Premix	5.5	L	2.2	lb ai/a	EPost	B	1.7 cd	13.0 a	100.0 a	100.0 a
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	EPost	B				
	Atrazine 4L	4	L	0.75	lb ai/a	EPost	B				
	Herbimax Crop Oil Conc.	100	L	1	% v/v	EPost	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	EPost	B				
5	Cinch ATZ Premix	5.5	L	2.2	lb ai/a	PRE	A	0.0 d	11.3 a	100.0 a	100.0 a
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Untreated Check							0.0 d	0.0 b	0.0 b	0.0 b
LSD P=.05						3.18	4.63	4.29	6.49		
Standard Deviation						1.75	2.55	2.36	3.57		
CV						30.25	23.76	2.85	4.33		
Replicate F						1.982	0.548	1.000	0.921		
Replicate Prob(F)						0.1884	0.5946	0.4019	0.4293		
Treatment F						49.382	13.550	889.000	385.590		
Treatment Prob(F)						0.0001	0.0003	0.0001	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4; Average=10



Pest Code						DIGSA		
Pest Name						L.crbgrs		
Crop Type, Code						C -		
Crop Name								
Rating Type						Control		
Rating Unit						%		
Rating Date						08/24/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	100.0 a
	----rimsulfuron	20		0.0156				
	----thifensulfuron	10		0.0078				
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A	
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	MPost	C	
	Atrazine 4L	4	L	0.75	lb ai/a	MPost	C	
	Herbimax Crop Oil Conc.	100	L	1	% v/v	MPost	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPost	C	
2	Cinch ATZ Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	MPost	C	
	Atrazine 4L	4	L	0.75	lb ai/a	MPost	C	
	Herbimax Crop Oil Conc.	100	L	1	% v/v	MPost	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPost	C	
3	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	EPost	B	98.0 a
	Atrazine 4L	4	L	0.75	lb ai/a	EPost	B	
	Herbimax Crop Oil Conc.	100	L	1	% v/v	EPost	B	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	EPost	B	
4	Cinch ATZ Premix	5.5	L	2.2	lb ai/a	EPost	B	98.3 a
	----s-metolachlor	2.4		0.96				
	----atrazine	3.1		1.24				
	Zest.....nicosulfuron	0.33	SC	0.031	lb ai/a	EPost	B	
	Atrazine 4L	4	L	0.75	lb ai/a	EPost	B	
	Herbimax Crop Oil Conc.	100	L	1	% v/v	EPost	B	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	EPost	B	
5	Cinch ATZ Premix	5.5	L	2.2	lb ai/a	PRE	A	100.0 a
	----s-metolachlor	2.4		0.96				
	----atrazine	3.1		1.24				
6	Untreated Check							0.0 b
LSD P=.05								2.71
Standard Deviation								1.49
CV								1.8
Replicate F								0.100
Replicate Prob(F)								0.9057
Treatment F								2218.225
Treatment Prob(F)								0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=4; Average=10

Evaluating PRE Weed Control for Grain Sorghum  
 Trial ID: Milo3-16      Location: Field #6 center      Trial Year: 2016  
 Protocol ID: Milo3-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**  
 Investigator: Mark VanGessel      Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      SORVU Sorghum bicolor Grain sorghum      BBCH Scale: BGRM  
 Variety: DKS36-06  
 Planting Date: 07/07/16      Planting Rate: 4      S/ROWFT  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDIUM medium  
 Soil Moisture: NORMAL normal, adequate  
 Soil Temperature: 92 F  
 Emergence Date: 07/11/16      Harvest Equipment: Plot combine  
 Harvest Date: 11/11/16      Harvested Width: 6.25 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 14.0

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 12      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**  
 % Sand: 82      % OM: 0.8      Texture: LS loamy sand  
 % Silt: 9      pH: 5.7  
 % Clay: 9      CEC: 4.6      Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	07/08/16
Appl. Stop Time	10:45 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	87 F
% Relative Humidity Start, Stop	61
Wind Velocity+Dir. Start	1 mph NW
Wet Leaves (Y/N)	N no
Soil Temperature	86 F
Soil Moisture	NORMAL
% Cloud Cover	15

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	SORVU BGRM

**Application Equipment**

	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

**Trial Comments**

07/28/16 Untreated checks have Palmer amaranth, common purslane, carpetweed, and common lambsquarters, but none of these weeds were observed in the treated plots. An occasional ("random") morningglory observed but only cotyledons present.

08/15/16 Preemergence weed control is excellent for all treatments. This site did not have any late emergence of weed species. Stand counts were not taken in plots 301 and 302 due to weediness - misspray? Plot # 201 severely injured.

Evaluating PRE Weed Control for Grain Sorghum		
Trial ID: Milo3-16	Location: Field #6 center	Trial Year: 2016
Protocol ID: Milo3-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact:	

Crop Type, Code						C SORVU	C SORVU	C SORVU
Crop Name						GrnSrghm	GrnSrghm	GrnSrghm
Rating Type						Stunting	Stunting	Stunting
Rating Unit						%	%	%
Rating Date						07/20/16	07/28/16	08/07/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 g 0.0 d 0.0 f
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	28.3 c 15.7 ab 13.0 cde
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
3	Lumax EZ Premix	3.67	SC	1.48	lb ai/a	PRE	A	14.0 ef 7.3 cd 5.7 ef
	----s-metolachlor	2.49		1				
	----mesotrione	0.25		0.101				
	----atrazine	0.93		0.375				
	Bicep II Magnum Premix	5.5	L	1.1	lb ai/a	PRE	A	
	----s-metolachlor	2.4		0.48				
	----atrazine	3.1		0.62				
4	Lumax EZ Premix	3.67	SC	0.99	lb ai/a	PRE	A	16.7 de 12.3 bc 9.0 def
	----s-metolachlor	2.49		0.67				
	----mesotrione	0.25		0.0674				
	----atrazine	0.93		0.25				
	Bicep II Magnum Premix	5.5	L	1.65	lb ai/a	PRE	A	
	----s-metolachlor	2.4		0.72				
	----atrazine	3.1		0.93				
5	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	53.3 a 21.7 a 20.0 c
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
	Atrazine 4L	4	L	0.625	lb ai/a	PRE	A	
6	Bicep II Magnum Premix	5.5	L	2.75	lb ai/a	PRE	A	24.3 cd 18.3 ab 13.0 cde
	----s-metolachlor	2.4		1.2				
	----atrazine	3.1		1.55				
7	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	16.7 de 19.0 ab 56.7 a
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A	
8	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A	7.0 fg 14.0 bc 45.2 b
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	
9	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A	17.3 de 16.3 ab 53.3 ab
	----flumioxazin	33.5		0.063				
	----pyroxasulfone	42.5		0.08				
10	Dual II Magnum..s-metolachlor	7.64	E	1.2	lb ai/a	PRE	A	12.3 ef 1.7 d 4.7 ef
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A	
11	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	40.0 b 19.7 ab 20.7 c
	----atrazine	1		0.625				
	----bicyclopyrone	0.06		0.0375				
	----mesotrione	0.24		0.15				
	----s-metolachlor	2.14		1.34				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,3,4; Average=7

Crop Type, Code						C	SORVU	C	SORVU	C	SORVU
Crop Name						GrnSrghm		GrnSrghm		GrnSrghm	
Rating Type						Stunting	%	Stand Ct	/10rowFt	Yield	Bu/A
Rating Unit						08/15/16		08/15/16		11/11/16	
Rating Date											
Trt	Treatment	Form	Form	Rate	Appl	Appl					
No.	Name	Conc	Type	Rate	Unit	Timing	Code				
1	Untreated Check							0.0 e	34 a	47.3 d	
2	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	8.7 de	32 a	77.9 ab	
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.169							
	----atrazine	0.93		0.63							
3	Lumax EZ Premix	3.67	SC	1.48	lb ai/a	PRE	A	2.3 e	39 a	85.0 a	
	----s-metolachlor	2.49		1							
	----mesotrione	0.25		0.101							
	----atrazine	0.93		0.375							
	Bicep II Magnum Premix	5.5	L	1.1	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.48							
	----atrazine	3.1		0.62							
4	Lumax EZ Premix	3.67	SC	0.99	lb ai/a	PRE	A	6.3 de	35 a	82.7 a	
	----s-metolachlor	2.49		0.67							
	----mesotrione	0.25		0.0674							
	----atrazine	0.93		0.25							
	Bicep II Magnum Premix	5.5	L	1.65	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.72							
	----atrazine	3.1		0.93							
5	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	15.7 d	32 a	80.3 ab	
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.169							
	----atrazine	0.93		0.63							
	Atrazine 4L	4	L	0.625	lb ai/a	PRE	A				
6	Bicep II Magnum Premix	5.5	L	2.75	lb ai/a	PRE	A	13.0 d	28 a	81.6 a	
	----s-metolachlor	2.4		1.2							
	----atrazine	3.1		1.55							
7	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	56.7 a	30 a	65.0 bc	
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A				
8	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A	44.7 b	31 a	57.4 cd	
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A				
9	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A	33.3 c	31 a	73.0 ab	
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
10	Dual II Magnum..s-metolachlor	7.64	E	1.2	lb ai/a	PRE	A	2.3 e	37 a	80.1 ab	
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A				
11	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	12.3 d	34 a	71.1 abc	
	----atrazine	1		0.625							
	----bicyclopyrone	0.06		0.0375							
	----mesotrione	0.24		0.15							
	----s-metolachlor	2.14		1.34							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,3,4; Average=7

Crop Type, Code						C	SORVU	C	SORVU	C	SORVU		
Crop Name						GrnSrghm		GrnSrghm		GrnSrghm			
Rating Type						Stunting		Stunting		Stunting			
Rating Unit						%		%		%			
Rating Date						07/20/16		07/28/16		08/07/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code						
12	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	43.3	b	21.7	a	15.7	cd
	----atrazine	1		0.625									
	----bicyclopyrone	0.06		0.0375									
	----mesotrione	0.24		0.15									
	----s-metolachlor	2.14		1.34									
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A						
LSD P=.05						8.82		7.50		9.26			
Standard Deviation						5.20		4.42		5.45			
CV						22.81		31.61		25.46			
Replicate F						0.375		2.058		3.507			
Replicate Prob(F)						0.6921		0.1526		0.0485			
Treatment F						27.705		8.347		38.072			
Treatment Prob(F)						0.0001		0.0001		0.0001			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,3,4; Average=7

Crop Type, Code						C	SORVU	C	SORVU	C	SORVU		
Crop Name						GrnSrghm	GrnSrghm	GrnSrghm	GrnSrghm	GrnSrghm	GrnSrghm		
Rating Type						Stunting	Stand Ct	Stand Ct	Stand Ct	Yield	Yield		
Rating Unit						%	/10rowFt	/10rowFt	/10rowFt	Bu/A	Bu/A		
Rating Date						08/15/16	08/15/16	08/15/16	08/15/16	11/11/16	11/11/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code						
12	Acuron Premix	3.44	ZC	2.15	lb ai/a	PRE	A	8.0	de	35	a	82.6	a
	----atrazine	1		0.625									
	----bicyclopyrone	0.06		0.0375									
	----mesotrione	0.24		0.15									
	----s-metolachlor	2.14		1.34									
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A						
LSD P=.05						9.75	8.0	15.42					
Standard Deviation						5.74	4.7	9.11					
CV						33.88	14.16	12.36					
Replicate F						0.351	1.697	3.634					
Replicate Prob(F)						0.7080	0.2099	0.0433					
Treatment F						30.042	1.274	4.928					
Treatment Prob(F)						0.0001	0.3098	0.0007					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,3,4; Average=7

Residual Weed Control in Pasture  
 Trial ID: For1-16      Location: Georgetown      Trial Year: 2016  
 Protocol ID: For1-16      Investigator: Mark VanGessel  
                                  Study Director: Quintin Johnson  
                                  Sponsor Contact: Bayer

**Contacts**

Study Director: Quintin Johnson

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C FESAR Festuca arundinacea Tall fescue      BBCH Scale: BGRM  
 Variety: unknown  
 Attributes: perennial

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 10      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RAOBL Randomized Complete Block (RCB)

**Application Description**

	A	B
Application Date	03/10/16	03/17/16
Appl. Stop Time	02:30 PM	11:30 AM
Interval to Prev. Appl.		7 DAYS
Application Method	SPRAY	SPRAY
Application Timing	Greenup	EaSprn
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	76 F	57 F
% Relative Humidity Start, Stop	50	75
Wind Velocity+Dir. Start	4 mph SW	1 mph SW
Wet Leaves (Y/N)	N no	Y yes
Soil Temperature	76 F	57 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	85	0

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	FESAR BGRM	FESAR BGRM
Stage Scale Used	DESC	DESC
Stage Majority, Percent	greenup 100	greenup 100



**Application Equipment**

	A	B
Appl. Equipment	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Boom Length	9 ft	9 ft
Boom Height	20 in	22 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Propellant	COMCO2	COMCO2

## Trial Comments

03/10/16: Crop is just starting to green-up.

03/17/16: Crop has 1-2 inches of spring regrowth.

08/11/16: Horsenettle and yellow woodsorrel are present but not consistent enough to rate. None of the treatments are providing acceptable control of horsenettle. Alion is not controlling yellow woodsorrel.

Residual Weed Control in Pasture									
Trial ID: For1-16		Location: Georgetown		Trial Year: 2016					
Protocol ID: For1-16		Investigator: Mark VanGessel		Study Director: Quintin Johnson					
Sponsor Contact: Bayer									
Pest Code					C	C	C	C	
Pest Name					FESAR	FESAR	FESAR	FESAR	
Crop Type, Code									
Crop Name					T.fescue	T.fescue	T.fescue	T.fescue	
Rating Type					LeafBrn	LeafBrn	Stunting	Stunting	
Rating Unit					%	%	%	%	
Rating Date					03/22/16	03/30/16	03/30/16	04/07/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	2.3	e
	Alion.....indaziflam	1.67	SC	0.039	lb ai/a	EaSprn	B	0.0	c
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	0.0	c
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B	0.0	d
2	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	2.3	e
	Alion.....indaziflam	1.67	SC	0.052	lb ai/a	EaSprn	B	0.0	c
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	0.0	c
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B	0.0	d
3	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	2.3	e
	Alion.....indaziflam	1.67	SC	0.065	lb ai/a	EaSprn	B	0.0	c
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	0.0	c
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B	0.0	d
4	Alion.....indaziflam	1.67	SC	0.065	lb ai/a	EaSprn	B	5.3	bc
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	0.0	c
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B	0.0	c
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B	0.0	d
5	Metsulfuron	60	WG	0.015	lb ai/a	EaSprn	B	4.7	c
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B	9.3	b
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B	6.7	a
6	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	EaSprn	B	20.0	a
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B	13.7	a
	Methylated Seed Oil	100	L	1	% v/v	EaSprn	B	3.7	b
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B	4.7	c
7	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	2.7	de
	Sandea.....halosulfuron	75	DF	0.047	lb ai/a	EaSprn	B	0.0	c
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B	0.0	c
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	0.0	c
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B	0.0	d
8	Metsulfuron	60	WG	0.015	lb ai/a	EaSprn	B	6.0	b
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	9.3	b
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B	6.7	a
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B	20.0	b
9	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	3.3	d
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B	0.0	c
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B	0.0	c

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,11

Pest Code Pest Name Crop Type, Code						C FESAR	PLALA BknPlntn C -	RANAC T.btrcup C -	TRFRE DchWClvr C -	
Crop Name Rating Type Rating Unit Rating Date						T.fescue Stunting % 06/01/16	Control % 06/01/16	Control % 06/01/16	Control % 06/01/16	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1 30% Urea Ammonium Nitrate Alion.....indaziflam 2,4-D amine Clarity.....dicamba	3.25 L 1.67 SC 3.8 L 4 L	L SC L L	40.6 lb ai/a 0.039 lb ai/a 0.95 lb ae/a 0.5 lb ai/a	ai/a ai/a ae/a ai/a	Greenup EaSprn EaSprn EaSprn	A B B B	0.0 b	99.3 a	100.0 a	100.0 a
2 30% Urea Ammonium Nitrate Alion.....indaziflam 2,4-D amine Clarity.....dicamba	3.25 L 1.67 SC 3.8 L 4 L	L SC L L	40.6 lb ai/a 0.052 lb ai/a 0.95 lb ae/a 0.5 lb ai/a	ai/a ai/a ae/a ai/a	Greenup EaSprn EaSprn EaSprn	A B B B	0.0 b	99.3 a	100.0 a	100.0 a
3 30% Urea Ammonium Nitrate Alion.....indaziflam 2,4-D amine Clarity.....dicamba	3.25 L 1.67 SC 3.8 L 4 L	L SC L L	40.6 lb ai/a 0.065 lb ai/a 0.95 lb ae/a 0.5 lb ai/a	ai/a ai/a ae/a ai/a	Greenup EaSprn EaSprn EaSprn	A B B B	0.0 b	99.7 a	100.0 a	100.0 a
4 Alion.....indaziflam 2,4-D amine Clarity.....dicamba 30% Urea Ammonium Nitrate	1.67 SC 3.8 L 4 L 3.25 L	SC L L L	0.065 lb ai/a 0.95 lb ae/a 0.5 lb ai/a 40.6 lb ai/a	ai/a ae/a ai/a ai/a	EaSprn EaSprn EaSprn EaSprn	B B B B	0.0 b	100.0 a	100.0 a	100.0 a
5 Metsulfuron Prowl H2O.....pendimethalin 30% Urea Ammonium Nitrate	60 WG 3.8 CS 3.25 L	WG CS L	0.015 lb ai/a 4 lb ai/a 40.6 lb ai/a	ai/a ai/a ai/a	EaSprn EaSprn EaSprn	B B B	20.0 a	82.7 b	100.0 a	100.0 a
6 Sharpen.....saflufenacil Prowl H2O.....pendimethalin Methylated Seed Oil 30% Urea Ammonium Nitrate	2.85 SC 3.8 CS 100 L 3.25 L	SC CS L L	0.0445 lb ai/a 4 lb ai/a 1 % v/v 40.6 lb ai/a	ai/a ai/a v/v ai/a	EaSprn EaSprn EaSprn EaSprn	B B B B	0.0 b	33.3 d	50.1 c	30.0 b
7 30% Urea Ammonium Nitrate Sanda.....halosulfuron Prowl H2O.....pendimethalin 2,4-D amine Clarity.....dicamba	3.25 L 75 DF 3.8 CS 3.8 L 4 L	L DF CS L L	40.6 lb ai/a 0.047 lb ai/a 4 lb ai/a 0.95 lb ae/a 0.5 lb ai/a	ai/a ai/a ai/a ae/a ai/a	Greenup EaSprn EaSprn EaSprn EaSprn	A B B B B	0.0 b	86.7 b	100.0 a	100.0 a
8 Metsulfuron 2,4-D amine Clarity.....dicamba 30% Urea Ammonium Nitrate	60 WG 3.8 L 4 L 3.25 L	WG L L L	0.015 lb ai/a 0.95 lb ae/a 0.5 lb ai/a 40.6 lb ai/a	ai/a ae/a ai/a ai/a	EaSprn EaSprn EaSprn EaSprn	B B B B	0.0 b	86.7 b	100.0 a	100.0 a
9 2,4-D amine Clarity.....dicamba 30% Urea Ammonium Nitrate	3.8 L 4 L 3.25 L	L L L	0.95 lb ae/a 0.5 lb ai/a 40.6 lb ai/a	ae/a ai/a ai/a	EaSprn EaSprn EaSprn	B B B	0.0 b	71.0 c	98.3 b	100.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,11

Pest Code		DIGSA	PLALA	TRFRE	DIGSA										
Pest Name		L.crbgrs	BknPlntn	DchWCivr	L.crbgrs										
Crop Type, Code		C -	C -	C -	C -										
Crop Name															
Rating Type		Control	Control	Control	Control										
Rating Unit		%	%	%	%										
Rating Date		06/01/16	08/11/16	08/11/16	08/11/16										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code								
1	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	100.0	a	100.0	a	100.0	a	75.0	b
	Alion.....indaziflam	1.67	SC	0.039	lb ai/a	EaSprn	B								
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
2	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	99.7	a	100.0	a	100.0	a	83.3	a
	Alion.....indaziflam	1.67	SC	0.052	lb ai/a	EaSprn	B								
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
3	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	100.0	a	100.0	a	100.0	a	86.7	a
	Alion.....indaziflam	1.67	SC	0.065	lb ai/a	EaSprn	B								
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
4	Alion.....indaziflam	1.67	SC	0.065	lb ai/a	EaSprn	B	100.0	a	100.0	a	100.0	a	86.7	a
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								
5	Metsulfuron	60	WG	0.015	lb ai/a	EaSprn	B	100.0	a	60.0	d	100.0	a	80.0	ab
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								
6	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	EaSprn	B	100.0	a	0.0	e	15.0	b	81.7	ab
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B								
	Methylated Seed Oil	100	L	1	% v/v	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								
7	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	100.0	a	76.7	c	100.0	a	81.7	ab
	Sandea.....halosulfuron	75	DF	0.047	lb ai/a	EaSprn	B								
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B								
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
8	Metsulfuron	60	WG	0.015	lb ai/a	EaSprn	B	30.7	b	90.0	b	100.0	a	0.0	c
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								
9	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	29.3	c	70.0	c	100.0	a	0.0	c
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,11

Pest Code		DIGSA	DIGSA	PLALA	RANAC										
Pest Name		L.crbgrs	L.crbgrs	BknPlntn	T.btrcup										
Crop Type, Code		C -	C -	C -	C -										
Crop Name															
Rating Type		Control	Control	Control	Control										
Rating Unit		%	%	%	%										
Rating Date		09/07/16	09/30/16	03/23/17	03/23/17										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code								
1	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	35.0	b	33.3	b	99.3	a	96.3	a
	Alion.....indaziflam	1.67	SC	0.039	lb ai/a	EaSprn	B								
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
2	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	73.3	a	68.3	a	100.0	a	100.0	a
	Alion.....indaziflam	1.67	SC	0.052	lb ai/a	EaSprn	B								
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
3	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	80.0	a	76.7	a	100.0	a	100.0	a
	Alion.....indaziflam	1.67	SC	0.065	lb ai/a	EaSprn	B								
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
4	Alion.....indaziflam	1.67	SC	0.065	lb ai/a	EaSprn	B	80.0	a	79.3	a	100.0	a	100.0	a
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								
5	Metsulfuron	60	WG	0.015	lb ai/a	EaSprn	B	78.3	a	77.7	a	66.7	ab	100.0	a
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								
6	Sharpen.....safufenacil	2.85	SC	0.0445	lb ai/a	EaSprn	B	80.0	a	79.0	a	56.7	bc	93.3	a
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B								
	Methylated Seed Oil	100	L	1	% v/v	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								
7	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	80.0	a	79.3	a	90.0	ab	66.7	ab
	Sandea.....halosulfuron	75	DF	0.047	lb ai/a	EaSprn	B								
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B								
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
8	Metsulfuron	60	WG	0.015	lb ai/a	EaSprn	B	0.0	c	0.0	c	95.0	a	95.7	a
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B								
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								
9	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	0.0	c	0.0	c	26.7	cd	73.3	a
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B								
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,11

Pest Code					TRFRE	CERVU			
Pest Name					DchWClvr	ME chkwd			
Crop Type, Code					C -	C -			
Crop Name									
Rating Type					Control	Control			
Rating Unit					%	%			
Rating Date					03/23/17	03/23/17			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	100.0	a
	Alion.....indaziflam	1.67	SC	0.039	lb ai/a	EaSprn	B		98.3
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B		
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B		
2	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	100.0	a
	Alion.....indaziflam	1.67	SC	0.052	lb ai/a	EaSprn	B		100.0
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B		
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B		
3	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	100.0	a
	Alion.....indaziflam	1.67	SC	0.065	lb ai/a	EaSprn	B		100.0
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B		
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B		
4	Alion.....indaziflam	1.67	SC	0.065	lb ai/a	EaSprn	B	100.0	a
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B		99.7
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B		
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B		
5	Metsulfuron	60	WG	0.015	lb ai/a	EaSprn	B	99.3	a
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B		99.3
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B		
6	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	EaSprn	B	66.7	b
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B		83.3
	Methylated Seed Oil	100	L	1	% v/v	EaSprn	B		ab
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B		
7	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	Greenup	A	99.7	a
	Sandea.....halosulfuron	75	DF	0.047	lb ai/a	EaSprn	B		93.3
	Prowl H2O.....pendimethalin	3.8	CS	4	lb ai/a	EaSprn	B		
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B		
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B		
8	Metsulfuron	60	WG	0.015	lb ai/a	EaSprn	B	100.0	a
	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B		95.0
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B		
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B		
9	2,4-D amine	3.8	L	0.95	lb ae/a	EaSprn	B	94.0	a
	Clarity.....dicamba	4	L	0.5	lb ai/a	EaSprn	B		71.7
	30% Urea Ammonium Nitrate	3.25	L	40.6	lb ai/a	EaSprn	B		b

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,11

Pest Code	University of Delaware					C FESAR	C FESAR	C FESAR	C FESAR
Pest Name						T.fescue	T.fescue	T.fescue	T.fescue
Crop Type, Code						LeafBrn	LeafBrn	Stunting	Stunting
Crop Name						%	%	%	%
Rating Type						03/22/16	03/30/16	03/30/16	04/07/16
Rating Unit									
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
10	30% Urea Ammonium Nitrate Untreated Check	3.25	L	40.6	lb ai/a	Greenup A		2.0 e	0.0 c
								0.0 c	0.0 d
LSD P=.05						0.93	1.08	1.16	1.61
Standard Deviation						0.54	0.63	0.67	0.94
CV						10.61	19.47	39.7	19.6
Replicate F						9.228	3.617	1.976	0.791
Replicate Prob(F)						0.0017	0.0478	0.1676	0.4686
Treatment F						301.532	215.710	53.732	277.088
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,11

Pest Code						PLALA	RANAC	TRFRE	
Pest Name						BknPIntn	T.btrcup	DchWCivr	
Crop Type, Code						C -	C -	C -	
Crop Name						T.fescue			
Rating Type						Stunting	Control	Control	
Rating Unit						%	%	%	
Rating Date						06/01/16	06/01/16	06/01/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
10	30% Urea Ammonium Nitrate Untreated Check	3.25	L	40.6	lb ai/a	Greenup A		0.0 b	
								0.0 e	
								0.0 d	
								0.0 c	
LSD P=.05						2.71	9.06	1.62	10.85
Standard Deviation						1.58	5.28	0.94	6.32
CV						79.06	6.96	1.11	7.62
Replicate F						1.000	1.438	1.003	1.000
Replicate Prob(F)						0.3874	0.2634	0.3875	0.3874
Treatment F						48.000	120.839	3863.769	100.083
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,11



Pest Code					DIGSA	PLALA	TRFRE	DIGSA
Pest Name					L.crbgrs	BknPlntn	DchWCivr	L.crbgrs
Crop Type, Code					C -	C -	C -	C -
Crop Name								
Rating Type					Control	Control	Control	Control
Rating Unit					%	%	%	%
Rating Date					06/01/16	08/11/16	08/11/16	08/11/16
Trt Treatment No. Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
10 30% Urea Ammonium Nitrate Untreated Check	3.25 L		40.6 lb ai/a		Greenup A		0.0 d	0.0 e
							0.0 c	0.0 c
LSD P=.05							0.98	8.81
Standard Deviation							0.57	5.14
CV							0.76	7.37
Replicate F							0.101	0.789
Replicate Prob(F)							0.9043	0.4692
Treatment F							14182.574	176.126
Treatment Prob(F)							0.0001	0.0001
							0.944	5.581
							0.4084	0.0130
							193.121	286.955
							0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,11



Pest Code						TRFRE	CERVU
Pest Name						DchWClvr	ME chkwd
Crop Type, Code						C -	C -
Crop Name							
Rating Type						Control	Control
Rating Unit						%	%
Rating Date						03/23/17	03/23/17
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code
10	30% Urea Ammonium Nitrate Untreated Check	3.25 L		40.6 lb ai/a		Greenup A	
						10.0 c	10.0 c
LSD P=.05						20.67	18.08
Standard Deviation						12.05	10.54
CV						13.86	12.39
Replicate F						1.657	2.345
Replicate Prob(F)						0.2186	0.1244
Treatment F						17.323	21.079
Treatment Prob(F)						0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=7,11

## University of Delaware

PRE Grass Weed Control in Pasture/Hayfields  
 Trial ID: For2-16      Location: Lincoln      Trial Year: 2016  
 Protocol ID: For2-16      Investigator: Mark VanGessel  
 Study Director: Quintin Johnson  
 Sponsor Contact:

**Contacts**

Study Director: Quintin Johnson

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C DACGL Dactylis glomerata Orchard grass      BBCH Scale: BGRM  
 Variety: unknown  
 Attributes: perennial

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 140 FT  
 Treated Plot Area: 1400 FT<sup>2</sup>      Treatments: 5      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RACOBL Randomized Complete Block (RCB)

**Maintenance**

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit	Tank Mix Code
1.	03/18/16	Clarity	4	L	1	PT/A	Y
2.	03/18/16	2,4-D Amine	3.8	L	1	QT/A	Y

Comment: Clarity + 2,4-D was tankmixed with POSPRE treatments on 3-18-16 for control of existing winter annual weeds.

Field Prep./Maintenance:

First cutting occurred on 5-25-16; Second cutting 8-23-16.

**Application Description**

	A	B
Application Date	03/18/16	05/31/16
Appl. Stop Time	09:00 AM	12:30 PM
Interval to Prev. Appl.		74 DAYS
Application Method	SPRAY	SPRAY
Application Timing	POSPRE	aftr1stCut
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	51 F	79 F
% Relative Humidity Start, Stop	48	64
Wind Velocity+Dir. Start	0 mph N/A	1 mph N
Wet Leaves (Y/N)	Y yes	Y yes
Soil Temperature	50 F	79 F
Soil Moisture	NORMAL	WET
% Cloud Cover	0	55

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	DACGL BGRM	DACGL BGRM
Stage Scale Used	DESC	DESC
Stage Majority, Percent	greenup 100	regrowth 100
Height Average	8 in	11 in
Height Minimum, Maximum	6 9	10 12

**Application Equipment**

	A	B
Appl. Equipment	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Boom Length	9 ft	9 ft
Boom Height	24 in	28 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Propellant	COMCO2	COMCO2

## Trial Comments

03/18/16: Orchardgrass has 3-5 inches of Spring regrowth.

03/30/16: No injury to orchardgrass from POSPRE treatments.

05/31/16: No injury in any plots. Orchardgrass has 4-6 inches regrowth since first cutting.

PRE Grass Wed Control in Pasture/Hayfields										
Trial ID: For2-16		Location: Lincoln		Trial Year: 2016						
Protocol ID: For2-16		Investigator: Mark VanGessel								
Study Director: Quintin Johnson										
Sponsor Contact:										
Pest Code		DIGSA	DIGSA	DIGSA	DIGSA					
Pest Name		L.crabgrs	L.crabgrs	L.crabgrs	L.crabgrs					
Crop Type, Code		C -	C -	C -	C -					
Crop Name		Control	Control	Control	Control					
Rating Type										
Rating Unit		%	%	%	%					
Rating Date		05/31/16	06/08/16	07/08/16	07/08/16					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code				
1	Prowl H2O.....pendimethalin	3.8	CS	1 lb ai/a	POSPRE	A	80.7 c	75.3 d	23.3 c	23.2 d
2	Prowl H2O.....pendimethalin	3.8	CS	2 lb ai/a	POSPRE	A	97.0 b	94.3 c	66.7 b	67.2 c
3	Prowl H2O.....pendimethalin	3.8	CS	4 lb ai/a	POSPRE	A	100.0 a	99.0 a	95.3 a	95.4 b
4	Prowl H2O.....pendimethalin	3.8	CS	2 lb ai/a	POSPRE	A	97.0 b	97.0 b	100.0 a	100.0 a
	Prowl H2O.....pendimethalin	3.8	CS	2 lb ai/a	aft1stCut	B				
5	Untreated Check						0.0 d	0.0 e	0.0 d	0.0 e
LSD P=.05							2.36	1.79	12.79	1.91 - 12.59
Standard Deviation							1.25	0.95	6.79	4.22t
CV							1.67	1.3	11.9	8.4t
Replicate F							0.681	1.185	1.831	1.975
Replicate Prob(F)							0.5333	0.3541	0.2215	0.2009
Treatment F							3470.788	5867.889	126.714	224.582
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	DIGSA L.crabgrs	DIGSA L.crabgrs		DIGSA L.crabgrs						
Crop Type, Code Crop Name Rating Type	C - Control	C - Control	C DACGL Orchdgrs GrndCvr	C - GrndCvr						
Rating Unit Rating Date	% 08/30/16	% 09/22/16	% 10/06/16	% 10/06/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1 Prowl H2O.....pendimethalin	3.8	CS	1 lb ai/a	POSPRE	A		5.0 d	0.0 d	34.7 c	54.0 ab
2 Prowl H2O.....pendimethalin	3.8	CS	2 lb ai/a	POSPRE	A		23.3 c	21.7 c	41.7 bc	40.3 bc
3 Prowl H2O.....pendimethalin	3.8	CS	4 lb ai/a	POSPRE	A		70.0 b	45.0 b	47.7 b	28.3 c
4 Prowl H2O.....pendimethalin	3.8	CS	2 lb ai/a	POSPRE	A		93.3 a	95.7 a	69.0 a	3.3 d
Prowl H2O.....pendimethalin	3.8	CS	2 lb ai/a	aft1stCut	B					
5 Untreated Check							0.0 d	0.0 d	32.3 c	57.7 a
LSD P=.05	8.42							15.19	11.98	15.47
Standard Deviation	4.47							8.07	6.36	8.22
CV	11.67							24.85	14.12	22.37
Replicate F	5.583							0.373	2.680	3.129
Replicate Prob(F)	0.0304							0.7002	0.1285	0.0991
Treatment F	256.250							73.458	15.965	21.499
Treatment Prob(F)	0.0001							0.0001	0.0007	0.0002

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	OXAST Y.wdsorl	CYPES Y.nutsge	SOLCA Horsentl	RUMCR Curly dock
Crop Type, Code Crop Name Rating Type	C - GrndCvr	C - GrndCvr	C - GrndCvr	C - GrndCvr
Rating Unit Rating Date	% 10/06/16	% 10/06/16	% 10/06/16	% 10/06/16
Trt Treatment No. Name	Form Form Conc Type	Rate Rate Unit	Appl Timing	Appl Code
1 Prowl H2O.....pendimethalin	3.8 CS	1 lb ai/a	POSPRE A	
2 Prowl H2O.....pendimethalin	3.8 CS	2 lb ai/a	POSPRE A	
3 Prowl H2O.....pendimethalin	3.8 CS	4 lb ai/a	POSPRE A	
4 Prowl H2O.....pendimethalin Prowl H2O.....pendimethalin	3.8 CS 3.8 CS	2 lb ai/a 2 lb ai/a	POSPRE A aft1stCut B	
5 Untreated Check				
LSD P=.05	3.20	1.97	3.08	1.40
Standard Deviation	1.70	1.05	1.64	0.74
CV	134.06	131.1	204.76	158.92
Replicate F	2.936	5.091	0.969	0.848
Replicate Prob(F)	0.1106	0.0375	0.4199	0.4633
Treatment F	3.376	1.909	0.534	0.182
Treatment Prob(F)	0.0673	0.2024	0.7151	0.9414

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code							
Pest Name							
Crop Type, Code							
Crop Name							
Rating Type							
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
	1 Prowl H2O.....pendimethalin	3.8	CS	1 lb ai/a		POSPRE A	
	2 Prowl H2O.....pendimethalin	3.8	CS	2 lb ai/a		POSPRE A	
	3 Prowl H2O.....pendimethalin	3.8	CS	4 lb ai/a		POSPRE A	
	4 Prowl H2O.....pendimethalin	3.8	CS	2 lb ai/a		POSPRE A	
	Prowl H2O.....pendimethalin	3.8	CS	2 lb ai/a		aft1stCut B	
	5 Untreated Check						
	LSD P=.05	1.46		10.17		5.209 - 12.097	5.28
	Standard Deviation	0.77		5.40		0.153t	2.80
	CV	387.3		36.84		13.64t	79.38
	Replicate F	1.000		0.372		0.121	1.127
	Replicate Prob(F)	0.4096		0.7006		0.8880	0.3705
	Treatment F	1.000		6.661		8.675	0.479
	Treatment Prob(F)	0.4609		0.0116		0.0052	0.7512

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code		DIGSA			
Pest Name		L.crbgrs			
Crop Type, Code	C -	C -			
Crop Name	Non-Crp	Non-Crp			
Rating Type	Bare+Othr	Bare+Othr			
Rating Unit	%	%			
Rating Date	10/06/16	10/06/16			
Trt Treatment	Form Form	Rate			
No. Name	Conc Type	Rate Unit			
		Appl Appl			
		Timing Code			
1 Prowl H2O.....pendimethalin	3.8 CS	1 lb ai/a	POSPRE A	11.3 cd	65.3 a
2 Prowl H2O.....pendimethalin	3.8 CS	2 lb ai/a	POSPRE A	18.0 bc	58.3 ab
3 Prowl H2O.....pendimethalin	3.8 CS	4 lb ai/a	POSPRE A	24.0 ab	52.3 b
4 Prowl H2O.....pendimethalin	3.8 CS	2 lb ai/a	POSPRE A	27.7 a	31.0 c
Prowl H2O.....pendimethalin	3.8 CS	2 lb ai/a	aft1stCut B		
5 Untreated Check				10.0 d	67.7 a
LSD P=.05				7.26	11.98
Standard Deviation				3.86	6.36
CV				21.19	11.58
Replicate F				2.637	2.680
Replicate Prob(F)				0.1320	0.1285
Treatment F				11.991	15.965
Treatment Prob(F)				0.0018	0.0007

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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POST Grass Weed Control in Pastures/Hayfields  
 Trial ID: For3-16      Location: Lincoln      Trial Year: 2016  
 Protocol ID: For3-16      Investigator: Mark VanGessel  
 Study Director: Quintin Johnson  
 Sponsor Contact:

**Contacts**

Study Director: Quintin Johnson

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C DACGL Dactylis glomerata Orchard grass      BBCH Scale: BGRM  
 Variety: unknown  
 Attributes: perennial

**Pest Description**

Pest 1 Type: W      Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 140 FT  
 Treated Plot Area: 1400 FT<sup>2</sup>      Treatments: 5      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RACOB      Randomized Complete Block (RCB)

**Maintenance**

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit	Tank Mix Code
1.	03/18/16	Clarity	4	L	1	PT/A	Y
2.	03/18/16	2,4-D Amine	3.8	L	1	QT/A	Y

Comment: Clarity + 2,4-D was either tankmixed with POSPRE treatments or applied alone to other treatments (included untreated) on 3-18-16 for control of existing winter annual weeds.

**Field Prep./Maintenance:**

First cutting occurred on 5-25-16; Second cutting 8-23-16.

**Soil Description**

Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B	C	D
Application Date	03/18/16	05/31/16	05/31/16	09/02/16
Appl. Stop Time	09:00 AM	12:50 PM	12:50 PM	12:30 PM
Interval to Prev. Appl.		74 DAYS	74 DAYS	94 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	POSPRE	1-2"grass	aftr1stCut	POST
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	51 F	79 F	79 F	73 F
% Relative Humidity Start, Stop	48	64	64	60
Wind Velocity+Dir. Start	0 mph N/A	1 mph N	1 mph N	1 mph NE
Wet Leaves (Y/N)	Y yes	Y yes	Y yes	Y yes
Soil Temperature	50 F	79 F	79 F	73 F
Soil Moisture	NORMAL	WET	WET	NORMAL
% Cloud Cover	0	55	55	30

<b>Crop Stage At Each Application</b>								
	A		B		C		D	
Crop 1 Code, BBCH Scale	DACGL	BGRM	DACGL	BGRM	DACGL	BGRM	DACGL	BGRM
Stage Scale Used	DESC		DESC		DESC		DESC	
Stage Majority, Percent	greenup 100		regrowth 100		regrowth 100		regrowth 100	
Height Average	8 in		11 in		11 in		12 in	
Height Minimum, Maximum	6 9		10 12		10 12		11 14	

<b>Pest Stage At Each Application</b>								
	A		B		C		D	
Pest 1 Code, Type, Scale	DIGSA	W	DIGSA	W	DIGSA	W	DIGSA	W
Stage Majority, Percent			2-leaf 60				eaFlwr 100	
Stage Minimum, Percent			cotyl 20					
Stage Maximum, Percent			3-leaf 20					
Height Average			0.6 in				7 in	
Height Minimum, Maximum			0.2 1				6 8	
Density Average			25 m2				5 m2	

<b>Application Equipment</b>								
	A		B		C		D	
Appl. Equipment	Backpack		Backpack		Backpack		Backpack	
Equipment Type	SPRBAC		SPRBAC		SPRBAC		SPRBAC	
Operation Pressure	31 psi		31 psi		31 psi		31 psi	
Nozzle Type	AIRMIX		AIRMIX		AIRMIX		AIRMIX	
Nozzle Size	11002		11002		11002		11002	
Nozzle Spacing	18 in		18 in		18 in		18 in	
Boom Length	9 ft		9 ft		9 ft		9 ft	
Boom Height	24 in		28 in		28 in		30 in	
Ground Speed	3 mph		3 mph		3 mph		3 mph	
Carrier	WATER		WATER		WATER		WATER	
Application Amount	20 gal/ac		20 gal/ac		20 gal/ac		20 gal/ac	
Propellant	COMCO2		COMCO2		COMCO2		COMCO2	

#### Trial Comments

03/18/16: Orchardgrass has 3-5 inches of Spring regrowth.

03/30/16: No injury to orchardgrass from POSPRE treatments.

05/31/16: No injury to orchardgrass.

08/30/16: Facet Injury in treatment 1 not visible at this time; should be evaluated after more regrowth.

09/02/16: Crabgrass had been cut and was regrowing with 2-4 inches of new growth and just beginning to flower again.

Facet 32fl.oz/A + crop oil concentrate was sprayed in one of the border areas to compare to trt. #2.

09/22/16: Facet + COC provided 60-70% control vs. 80 to 85% control with Facet + MSO. Stunting from either was very similar.

10/06/16: Percent stand was determined by counting component of stand (orchardgrass, large crabgrass, bare ground, and other weeds) every foot along a 100 foot tape in the center of each plot.

POST Grass Weed Control in Pastures/Hayfields							
Trial ID: For3-16		Location: Lincoln		Trial Year: 2016			
Protocol ID: For3-16		Investigator: Mark VanGessel			Study Director: Quintin Johnson		
Sponsor Contact:							
Pest Code					DIGSA	DIGSA	
Pest Name					L.crbgrs	L.crbgrs	
Crop Type, Code		C DACGL		C -	C DACGL	C -	
Crop Name		OrchdGrs		OrchdGrs			
Rating Type		Injury		Control	Stunting	Control	
Rating Unit		%		%	%	%	
Rating Date		06/08/16		06/08/16	07/08/16	07/08/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code
1	Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L		0.375 lb ae/a 1.25 % v/v		1-2"grass B 1-2"grass B	
							9.0 a
							99.0 b
							15.7 a
							97.3 b
2	Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L		0.375 lb ae/a 1.25 % v/v		POST POST	D D
3	Prowl H2O.....pendimethalin Prowl H2O.....pendimethalin	3.8 CS 3.8 CS		2 lb ai/a 2 lb ai/a		POSPRE A aftr1stCut C	
							0.0 b
							100.0 a
							0.0 b
							100.0 a
4	Prowl H2O.....pendimethalin Facet L.....quinclorac Methylated Seed Oil	3.8 CS 1.5 L 100 L		4 lb ai/a 0.375 lb ae/a 1.25 % v/v		POSPRE A 1-2"grass D 1-2"grass D	
							0.0 b
							98.3 c
							0.0 b
							98.0 b
5	Untreated Check						
							0.0 b
							0.0 d
							0.0 b
							0.0 c
LSD P=.05							1.00
Standard Deviation							0.58
CV							2.08
Replicate F							2.00
Replicate Prob(F)							0.50
Treatment F							0.29
Treatment Prob(F)							0.39
							1.04
							1.00
							26.57
							1.35
							1.000
							1.000
							1.000
							2.333
							0.4219
							0.4219
							0.4219
							0.1780
							243.000
							88424.009
							169.923
							7272.334
							0.0001
							0.0001
							0.0001
							0.0001

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	DIGSA	DIGSA									
Pest Name	L.crbgrs	L.crbgrs									
Crop Type, Code	C -	C -	C DACGL	C DACGL							
Crop Name			OrchdGrs	OrchdGrs							
Rating Type	Control	Control	Stunting	GrndCvr							
Rating Unit	%	%	%	%							
Rating Date	08/30/16	09/22/16	10/06/16	10/06/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code				
1	Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L		0.375 lb 1.25 %	ae/a v/v	1-2"grass 1-2"grass	B B	55.0 c	38.3 c	0.0 b	38.0 b
2	Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L		0.375 lb 1.25 %	ae/a v/v	POST POST	D D		83.3 b	10.0 a	44.3 b
3	Prowl H2O.....pendimethalin Prowl H2O.....pendimethalin	3.8 CS 3.8 CS		2 lb 2 lb	ai/a ai/a	POSPRE aftr1stCut	A C	95.0 a	95.0 a	0.0 b	64.7 a
4	Prowl H2O.....pendimethalin Facet L.....quinclorac Methylated Seed Oil	3.8 CS 1.5 L 100 L		4 lb 0.375 lb 1.25 %	ai/a ae/a v/v	POSPRE 1-2"grass 1-2"grass	A D D	75.0 b	95.0 a	10.0 a	58.3 a
5	Untreated Check							0.0 d	0.0 d	0.0 b	40.0 b
LSD P=.05								8.22	6.32	2.53	10.85
Standard Deviation								4.11	3.35	1.34	5.76
CV								7.31	5.38	33.54	11.75
Replicate F								0.015	1.926	0.444	2.469
Replicate Prob(F)								0.9854	0.2076	0.6561	0.1461
Treatment F								296.675	469.111	50.000	12.555
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0016

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	DIGSA L.crbgrs									
Crop Type, Code Crop Name	C -	C -	C -	C -						
Rating Type	GrndCvr	BareGrnd	OthrWds	Bare+Othr						
Rating Unit	%	%	%	%						
Rating Date	10/06/16	10/06/16	10/06/16	10/06/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1 Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L		0.375 lb ae/a 1.25 % v/v	ae/a	1-2"grass 1-2"grass	B B	23.0 b	25.7 bc	13.3 a	39.0 ab
2 Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L		0.375 lb ae/a 1.25 % v/v	ae/a	POST POST	D D	11.7 c	39.3 a	4.7 b	44.0 a
3 Prowl H2O.....pendimethalin Prowl H2O.....pendimethalin	3.8 CS 3.8 CS		2 lb ai/a 2 lb ai/a	ai/a	POSPRE aftr1stCut	A C	2.7 cd	30.0 ab	2.7 b	32.7 b
4 Prowl H2O.....pendimethalin Facet L.....quinclorac Methylated Seed Oil	3.8 CS 1.5 L 100 L		4 lb ai/a 0.375 lb ae/a 1.25 % v/v	ai/a	POSPRE 1-2"grass 1-2"grass	A D D	2.3 d	36.7 ab	2.7 b	39.3 ab
5 Untreated Check							39.7 a	15.0 c	5.3 b	20.3 c
LSD P=.05							9.07	13.44	4.69	10.06
Standard Deviation							4.82	7.14	2.49	5.34
CV							30.37	24.33	43.43	15.23
Replicate F							0.623	1.654	2.075	1.713
Replicate Prob(F)							0.5604	0.2504	0.1879	0.2404
Treatment F							32.057	5.494	9.419	8.840
Treatment Prob(F)							0.0001	0.0199	0.0040	0.0049

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	DIGSA L.crbgrs	OXAST Y.wdsorl	CYPES Y.nutsge	SOLCA Horsentl				
Crop Type, Code Crop Name Rating Type	C - Non-crop Bare+Othr	C - GrndCvr	C - GrndCvr	C - GrndCvr				
Rating Unit Rating Date	% 10/06/16	% 10/06/16	% 10/06/16	% 10/06/16				
Trt Treatment No. Name	Form Form Conc Type	Rate Rate Unit	Appl Timing	Appl Code				
1 Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L	0.375 lb ae/a 1.25 % v/v	1-2"grass 1-2"grass	B B	62.0 a	10.0 a	2.3 a	0.3 a
2 Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L	0.375 lb ae/a 1.25 % v/v	POST POST	D D	55.7 a	3.0 b	0.0 a	0.7 a
3 Prowl H2O.....pendimethalin Prowl H2O.....pendimethalin	3.8 CS 3.8 CS	2 lb ai/a 2 lb ai/a	POSPRE aftr1stCut	A C	35.3 b	0.0 c	0.7 a	1.0 a
4 Prowl H2O.....pendimethalin Facet L.....quinclorac Methylated Seed Oil	3.8 CS 1.5 L 100 L	4 lb ai/a 0.375 lb ae/a 1.25 % v/v	POSPRE 1-2"grass 1-2"grass	A D D	41.7 b	0.0 c	2.7 a	0.0 a
5 Untreated Check					60.0 a	3.0 b	0.0 a	0.7 a
LSD P=.05					10.85	2.82	3.59	1.82
Standard Deviation CV					5.76 11.32	1.50 46.88	1.91 168.19	0.97 181.14
Replicate F					2.469	2.222	1.229	0.286
Replicate Prob(F)					0.1461	0.1708	0.3423	0.7588
Treatment F					12.555	22.267	1.358	0.464
Treatment Prob(F)					0.0016	0.0002	0.3294	0.7608

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code Pest Name	RUMCR CrlyDock		DIGSA L.crbgrs				
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C -	C FESAR T.fescue	C -				
	GrndCvr %	GrndCvr %	GrndCvr %				
	10/06/16	10/06/16	10/06/16				
Trt Treatment No. Name	Form Form Conc Type Rate	Rate Unit	Appl Timing	Appl Code			
1 Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L	0.375 lb ae/a 1.25 % v/v	1-2"grass B 1-2"grass B	B B	0.0 a	0.7 a	22.4 b
2 Facet L.....quinclorac Methylated Seed Oil	1.5 L 100 L	0.375 lb ae/a 1.25 % v/v	POST POST	D D	0.7 a	0.3 a	11.6 c
3 Prowl H2O.....pendimethalin Prowl H2O.....pendimethalin	3.8 CS 3.8 CS	2 lb ai/a 2 lb ai/a	POSPRE aftr1stCut	A C	0.0 a	1.0 a	2.2 d
4 Prowl H2O.....pendimethalin Facet L.....quinclorac Methylated Seed Oil	3.8 CS 1.5 L 100 L	4 lb ai/a 0.375 lb ae/a 1.25 % v/v	POSPRE 1-2"grass 1-2"grass	A D D	0.0 a	0.0 a	2.3 d
5 Untreated Check					1.0 a	0.7 a	39.7 a
LSD P=.05					1.14	1.82	5.57 - 14.08
Standard Deviation					0.61	0.97	0.65t
CV					181.66	181.14	18.23t
Replicate F					2.364	0.286	0.127
Replicate Prob(F)					0.1561	0.7588	0.8828
Treatment F					1.818	0.464	28.831
Treatment Prob(F)					0.2187	0.7608	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Winter Peas for Cover Crops  
 Planting Strategies  
 Trial ID: Cover2-16 Cooperator: NE-IPM  
 Location: Field #16 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science  
 Affiliation: University of Delaware Research & Education Center  
 Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Planting Date: 10/12/15 Planting Method: Drilled- Cone System Depth: 1 in  
 Soil Moisture: Moist

SITE AND DESIGN

Plot Width, Unit: 5.6 FT Plot Length, Unit: 15 FT Reps: 3  
 Study Design: FACTORIAL

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

Field Sheet

Planting Date: Oct-12-2015

Planting Method: Drilled- Cone System  
 Depth: 1 , in  
 Soil Mstr: Moist  
 Plot Wdth: 5.6 , FT Plot Lgth: 15 , FT # Replications: 3

Trial Comments

Planted with Almaco.

Winter Peas for Cover Crops Planting Strategies Trial ID: Cover2-16 Cooperator: NE-IPM Location: Field #16 Investigator: Mark VanGessel							
Crop Code	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	Rye/Wint Pea GrndCvr %	Rye/Wint Pea GrndCvr %	SECCE Rye dry wght g/0.5m2
Trt No.	Treatment Name	Form Conc	Form Type	Appl Code			
1	Austrian Winter Pea - REC Rye	100 D 100 D	D D	B B	6.7 f	18.3 c	
2	Austrian Winter Pea - REC Rye	100 D 100 D	D D	B B	16.0 c	50.0 b	351.5 a
3	Austrian Winter Pea - REC Rye	100 D 100 D	D D	B B	22.0 b	66.7 a	389.1 a
4	Austrian Winter Pea - REC Rye	100 D 100 D	D D	B B	8.7 ef	18.3 c	
5	Austrian Winter Pea - REC Rye	100 D 100 D	D D	B B	16.0 c	50.0 b	
6	Austrian Winter Pea - REC Rye	100 D 100 D	D D	B B	20.7 b	53.3 b	
7	Austrian Winter Pea - REC Rye	100 D 100 D	D D	B B	9.3 de	20.0 c	
8	Austrian Winter Pea - REC Rye	100 D 100 D	D D	B B	17.0 c	50.0 b	
9	Austrian Winter Pea - REC Rye	100 D 100 D	D D	B B	23.0 b	66.7 a	
10	Untreated Check				0.0 g	0.0 d	
11	Austrian Winter Pea - REC	100 D	D	B	11.3 d	20.0 c	
12	Rye	100 D	D	B	27.7 a	70.0 a	546.7 a
	LSD P=.05				2.46	8.26	757.80
	Standard Deviation				1.45	4.88	215.71
	CV				9.78	12.11	50.27
	Replicate F				2.263	6.507	0.371
	Replicate Prob(F)				0.1277	0.0060	0.7292
	Treatment F				89.324	70.334	0.691
	Treatment Prob(F)				0.0001	0.0001	0.5914

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=3

Winter Peas for Cover Crops Planting Strategies Trial ID: Cover2-16 Cooperator: NE-IPM Location: Field #16 Investigator: Mark VanGessel					Rye/Wint Pea GrndCvr %	Rye/Wint Pea GrndCvr %	SECCE Rye dry wght g/0.5m2
Trt No.	Treatment Name	Form Conc	Form Type	Appl Code	11/24/15	12/15/15	
Crop Code							
Weed or Crop Name							
Weed or Crop Name							
Rating Data Type							
Rating Unit							
Rating Date							
TABLE OF R MEANS							
Replicate 1					16.1	48.3	
Replicate 2					15.2	42.2	
Replicate 3					15.1	40.6	
TABLE OF A (AWP Seeding rate) MEANS							
	1 Austrian Winter Pea - REC	100 D		B	14.9 a	45.0 a	
	2 Austrian Winter Pea - REC	100 D		B	15.1 a	40.6 a	
	3 Austrian Winter Pea - REC	100 D		B	16.4 a	45.6 a	
LSD P=.05					1.48	4.88	
Standard Deviation					1.48	4.88	
CV					9.59	11.17	
TABLE OF B (Cereal Rye Seeding rate) MEANS							
	1 Rye	100 D		B	8.2 c	18.9 c	
	2 Rye	100 D		B	16.3 b	50.0 b	
	3 Rye	100 D		B	21.9 a	62.2 a	
LSD P=.05					1.48	4.88	
Standard Deviation					1.48	4.88	
CV					9.59	11.17	
TABLE OF A (AWP Seeding rate) B (Cereal Rye Seeding rate) MEANS							
	1 Austrian Winter Pea - REC	100 D		B	6.7 a	18.3 a	.
	1 Rye	100 D		B			
	2 Austrian Winter Pea - REC	100 D		B	8.7 a	18.3 a	.
	1 Rye	100 D		B			
	3 Austrian Winter Pea - REC	100 D		B	9.3 a	20.0 a	.
	1 Rye	100 D		B			
	1 Austrian Winter Pea - REC	100 D		B	16.0 a	50.0 a	351.5 a
	2 Rye	100 D		B			
	2 Austrian Winter Pea - REC	100 D		B	16.0 a	50.0 a	.
	2 Rye	100 D		B			
	3 Austrian Winter Pea - REC	100 D		B	17.0 a	50.0 a	.
	2 Rye	100 D		B			
	1 Austrian Winter Pea - REC	100 D		B	22.0 a	66.7 a	389.1 a
	3 Rye	100 D		B			
	2 Austrian Winter Pea - REC	100 D		B	20.7 a	53.3 a	.
	3 Rye	100 D		B			
	3 Austrian Winter Pea - REC	100 D		B	23.0 a	66.7 a	.
	3 Rye	100 D		B			
LSD P=.05					2.57	8.45	757.80
Standard Deviation					1.48	4.88	215.71
CV					9.59	11.17	58.25

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

FACTORIAL/POOLED ERROR AOV For Rye/Wint Pea GrndCvr % 11/24/15						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	26	912.740741				
R	2	5.407407	2.703704	1.227	0.3194	
A	2	12.740741	6.370370	2.891	0.0848	1.5
B	2	850.296296	425.148148	192.924	0.0001	1.5
AB	4	9.037037	2.259259	1.025	0.4242	2.6
ERROR	16	35.259259	2.203704			

FACTORIAL/POOLED ERROR AOV For Rye/Wint Pea GrndCvr % 12/15/15						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	26	10029.629630				
R	2	301.851852	150.925926	6.330	0.0094	
A	2	135.185185	67.592593	2.835	0.0883	4.9
B	2	8985.185185	4492.592593	188.427	0.0001	4.9
AB	4	225.925926	56.481481	2.369	0.0962	8.5
ERROR	16	381.481481	23.842593			

Randomized Complete Block (RCB) AOV For SECCE Rye dry wght g/0.5m2 Missing factor A levels prevents analyzing column 3 as Factorial design; Missing factor A2 B2 levels prevents analyzing column 3 as Factorial design; Missing factor A3 B2 levels prevents analyzing column 3 as Factorial design; Missing factor A2 B3 levels prevents analyzing column 3 as Factorial design; Missing factor A3 B3 levels prevents analyzing column 3 as Factorial design; Missing values in column 3 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	
Total	6	191917.897034				
Replicate	2	34553.447215	17276.723607	0.371	0.7292	
Treatment	2	64306.075287	32153.037643	0.691	0.5914	
ERROR	2	93058.374532	46529.187266			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Cover Crop Management for Winter and Summer Annual Weed Control IPM/PSU  
Trial ID: Cover3-16      Location: Field #28      Trial Year: 2016  
Protocol ID: Cover3-16      Investigator: Mark VanGessel  
Study Director:  
Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel

**Crop Description**

C

**Site and Design**

Treated Plot Width: 10 FT

Treated Plot Length: 12.5 FT

Treated Plot Area: 125 FT<sup>2</sup>      Treatments: 14

Replications: 4

Study Design: STRBLO Strip-Block

**Trial Comments**

10/21/15: plot 207 - poor stand in front; 303 has poor stand of radish. Henbit was the only weed consistent at this time.

## University of Delaware

Cover Crop Management for Winter and Summer Annual Weed Control IPM/PSU  
 Trial ID: Cover3-16 Location: Field #28 Trial Year: 2016  
 Protocol ID: Cover3-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Pest Code Crop Type, Code	LOLMG C -	ERICA C -	C -	C -	C SECCE	C AVESS	C RAPSR	C VICVI
Description	A.ryegrass	C.Horswd			Rye	Oats	Sm.Rad	H.Vetch
Rating Type Rating Unit	Count #/0.25m <sup>2</sup>	Count #/0.25m <sup>2</sup>	GrndCvr %	GrndCvr %	biomass g/0.5m <sup>2</sup>	biomass g/0.5m <sup>2</sup>	biomass g/0.5m <sup>2</sup>	biomass g/0.5m <sup>2</sup>
Rating Date	10/21/15	10/21/15	10/21/15	10/21/15	12/04/15	12/04/15	12/04/15	12/04/15
Trt Treatment No. Name								
1 no cover No Nitrogen	4.5 a	0.0 a	0.00 f	0.000 e				
2 no cover Nitrogen (60 #/A)	15.8 a	0.0 a	0.00 f	0.000 e				
3 cereal rye (120) No Nitrogen	22.8 a	0.0 a	9.25 bc		28.3 b			
4 cereal rye (120) Nitrogen (60 #/A)	30.0 a	0.0 a	14.75 a		46.5 a			
5 rye + hairy vetch (60 + 20) No Nitrogen	8.8 a	0.0 a	1.75 ef	3.250 cd	13.5 b		5.2 a	
6 rye + hairy vetch (60 + 20) Nitrogen (60 #/A)	10.5 a	0.0 a	3.13 ef	2.250 cd	17.8 b		3.6 a	
7 oats + radish (60 + 5) No Nitrogen	9.0 a	0.0 a	7.00 cd	6.250 b		36.3 d		11.3 a
8 oats + radish (60 + 5) Nitrogen (60 #/A)	11.3 a	0.0 a	12.75 ab	2.750 cd		65.3 ab		5.0 a
9 rye + radish (60 + 5) No Nitrogen	6.0 a	0.0 a	2.50 ef	10.000 a	15.8 b			13.8 a
10 rye + radish (60 + 5) Nitrogen (60 #/A)	17.3 a	0.0 a	4.00 de	4.250 bc	23.0 b			9.3 a
11 spring oats (120) No Nitrogen	1.5 a	0.0 a	8.00 c			57.3 bc		
12 spring oats (120) Nitrogen (60 #/A)	10.0 a	0.0 a	10.75 bc			82.8 a		
13 oats + hairy vetch (60 + 20) No Nitrogen	3.3 a	0.0 a	7.00 cd	1.313 de		45.8 cd	2.1 a	
14 oats + hairy vetch (60 + 20) Nitrogen (60 #/A)	10.3 a	0.0 a	9.50 bc	1.563 de		67.8 ab	1.6 a	
LSD P=.05	18.08	.	3.828	2.2364	15.00	18.79	3.75 - 4.10	10.37
Standard Deviation	12.64	0.00	2.677	1.5414	9.95	12.47	0.26t	6.49
CV	110.09	0.0	41.46	48.74	41.25	21.07	43.04t	66.09
Replicate F	0.472	0.000	3.236	0.220	0.110	1.226	3.595	0.219
Replicate Prob(F)	0.7034	1.0000	0.0324	0.8816	0.9527	0.3346	0.0591	0.8805
Treatment F	1.513	0.000	12.249	15.800	5.999	7.083	1.703	1.301
Treatment Prob(F)	0.1562	1.0000	0.0001	0.0001	0.0031	0.0014	0.2353	0.3327

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 11: >=-99998.0100 and <=0.0000) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns: Average=13,14,15,17,19,21

Could not calculate LSD (% mean diff) for columns 2,11 because error mean square = 0.

Pest Code Crop Type, Code Description	ERICA C - C.Horswd	ERICA C - C.Horswd	LOLMG C - A.ryegrs	LOLMG C - A.ryegrs	LOLMG C - A.ryegrs	LOLMG C - A.ryegrs	LAMAM C - Henbit	LAMAM C - Henbit
Rating Type Rating Unit	Count #/0.25m2	AvgWidth Inches	Count #/0.25m2	MinHght Inches	MaxHght Inches	AvgHght Inches	Count #/0.25m2	AvgWidth Inches
Rating Date	12/09/15	12/09/15	12/09/15	12/09/15	12/09/15	12/09/15	12/11/15	12/11/15
Trt Treatment No. Name								
1 no cover No Nitrogen	0.0 a		5.0 a	3.3 a	6.0 a	4.3 a	5.8 a	1.500 b
2 no cover Nitrogen (60 #/A)	2.8 a	1.000	13.0 a	2.8 a	8.0 a	5.8 a	4.8 a	2.250 a
3 cereal rye (120) No Nitrogen	0.0 a		10.0 a	2.8 a	6.3 a	4.5 a	1.0 a	1.500 b
4 cereal rye (120) Nitrogen (60 #/A)	0.0 a		10.5 a	3.5 a	6.8 a	5.3 a	2.8 a	0.667 d
5 rye + hairy vetch (60 + 20) No Nitrogen	0.0 a		5.3 a	2.8 a	6.3 a	5.0 a	2.5 a	1.375 bc
6 rye + hairy vetch (60 + 20) Nitrogen (60 #/A)	1.0 a	0.750	5.0 a	3.3 a	6.0 a	4.8 a	5.3 a	2.000 ab
7 oats + radish (60 + 5) No Nitrogen	0.0 a		7.8 a	3.0 a	6.5 a	4.5 a	3.0 a	0.583 d
8 oats + radish (60 + 5) Nitrogen (60 #/A)	0.5 a	0.750	12.3 a	2.8 a	6.8 a	5.3 a	4.0 a	0.750 cd
9 rye + radish (60 + 5) No Nitrogen	1.5 a	0.750	4.8 a	2.3 a	6.0 a	4.0 a	2.3 a	0.500 d
10 rye + radish (60 + 5) Nitrogen (60 #/A)	0.0 a		14.0 a	3.5 a	8.3 a	5.8 a	2.0 a	0.750 cd
11 spring oats (120) No Nitrogen	0.0 a		7.8 a	3.3 a	6.7 a	4.7 a	2.5 a	0.750 cd
12 spring oats (120) Nitrogen (60 #/A)	0.3 a	1.000	8.5 a	2.7 a	9.3 a	6.3 a	0.5 a	0.750 cd
13 oats + hairy vetch (60 + 20) No Nitrogen	0.0 a		1.3 a	3.0 a	7.5 a	3.5 a	2.0 a	0.625 d
14 oats + hairy vetch (60 + 20) Nitrogen (60 #/A)	0.3 a	0.750	7.3 a	4.0 a	7.3 a	4.8 a	3.0 a	0.500 d
LSD P=.05	2.59	.	9.34	1.38	3.04	1.55	7.07	0.6883
Standard Deviation	1.81	.	6.53	0.96	2.11	1.08	4.95	0.4614
CV	406.12	.	81.47	31.38	30.34	22.09	167.83	44.55
Replicate F	0.614		1.133	1.869	1.608	2.202	2.522	0.287
Replicate Prob(F)	0.6101		0.3476	0.1535	0.2057	0.1057	0.0718	0.8341
Treatment F	0.786		1.240	0.832	0.890	1.952	0.378	6.303
Treatment Prob(F)	0.6697		0.2900	0.6253	0.5709	0.0588	0.9692	0.0003

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 11: >=-99998.0100 and <=0.0000) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns:Average=13,14,15,17,19,21

Could not calculate LSD (% mean diff) for columns 2,11 because error mean square = 0.



Pest Code Crop Type, Code Description Rating Type Rating Unit	OEOLA C - CEprmrse Count #/0.25m2	OEOLA C - CEprmrse AvgWidth Inches	SCRAN C - knawel Count #/0.25m2	SCRAN C - knawel AvgHght Inches
Rating Date	12/11/15	12/11/15	12/11/15	12/11/15
Trt Treatment No. Name				
1 no cover No Nitrogen	3.8 a	2.88 a	8.0 a	1.25 a
2 no cover Nitrogen (60 #/A)	6.8 a	1.88 b	12.8 a	1.63 a
3 cereal rye (120) No Nitrogen	0.5 a	0.50 c	1.0 a	1.00 a
4 cereal rye (120) Nitrogen (60 #/A)	1.3 a	0.50 c	0.0 a	
5 rye + hairy vetch (60 + 20) No Nitrogen	2.0 a	1.00 bc	11.0 a	1.00 a
6 rye + hairy vetch (60 + 20) Nitrogen (60 #/A)	3.8 a	1.33 bc	4.5 a	1.00 a
7 oats + radish (60 + 5) No Nitrogen	1.3 a	0.50 c	0.0 a	
8 oats + radish (60 + 5) Nitrogen (60 #/A)	4.0 a	0.50 c	1.0 a	1.00 a
9 rye + radish (60 + 5) No Nitrogen	0.8 a	0.50 c	4.3 a	1.00 a
10 rye + radish (60 + 5) Nitrogen (60 #/A)	0.5 a	0.50 c	2.8 a	1.00 a
11 spring oats (120) No Nitrogen	4.5 a	0.50 c	1.5 a	1.00 a
12 spring oats (120) Nitrogen (60 #/A)	7.8 a	0.50 c	1.8 a	1.00 a
13 oats + hairy vetch (60 + 20) No Nitrogen	5.0 a	1.00 bc	0.3 a	1.00 a
14 oats + hairy vetch (60 + 20) Nitrogen (60 #/A)	11.8 a	0.63 c	2.8 a	1.00 a
LSD P=.05	9.44	0.943	9.08	0.724
Standard Deviation	6.60	0.640	6.35	0.474
CV	172.68	70.45	172.5	44.19
Replicate F	0.772	0.448	0.432	0.765
Replicate Prob(F)	0.5170	0.7218	0.7311	0.5338
Treatment F	0.967	4.825	1.673	0.630
Treatment Prob(F)	0.4991	0.0009	0.1066	0.7754

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Due to missing data, larger LSD values (col. 11: >=-99998.0100 and <=0.0000) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns:Average=13,14,15,17,19,21

Could not calculate LSD (% mean diff) for columns 2,11 because error mean square = 0.

Cover Crop Management for Winter and Summer Annual Weed Control IPM/PSU		
Trial ID: Cover3-16	Location: Field #28	Trial Year: 2016
Protocol ID: Cover3-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact:	

Pest Code Crop Type, Code	LOLMG C -	ERICA C -	C -	C -	C SECCE	C AVESS
Description	A.ryegrs	C.Horswd			Rye	Oats
Rating Type Rating Unit	Count #/0.25m2	Count #/0.25m2	GrndCvr %	GrndCvr %	biomass g/0.5m2	biomass g/0.5m2
Rating Date	10/21/15	10/21/15	10/21/15	10/21/15	12/04/15	12/04/15
Trt Treatment No. Name						
TABLE OF R MEANS						
Replicate 1	11.2	0.0	5.79	3.200	22.8	53.8
Replicate 2	14.8	0.0	7.25	2.900	25.7	61.5
Replicate 3	10.5	0.0	7.79	3.450	23.2	66.0
Replicate 4	9.4	0.0	5.00	3.100	24.8	55.3
TABLE OF A (Cover Crop) MEANS						
1 no cover	10.1 b	0.0 a	0.00 b	0.000 d	.	.
2 cereal rye (120)	26.4 a	0.0 a	12.00 a	.	37.4 a	.
3 rye + hairy vetch (60 + 20)	9.6 b	0.0 a	2.44 b	2.750 bc	15.6 b	.
4 oats + radish (60 + 5)	10.1 b	0.0 a	9.88 a	4.500 b	.	50.8 a
5 rye + radish (60 + 5)	11.6 b	0.0 a	3.25 b	7.125 a	19.4 b	.
6 spring oats (120)	5.8 b	0.0 a	9.38 a	.	.	70.0 a
7 oats + hairy vetch (60 + 20)	6.8 b	0.0 a	8.25 a	1.438 cd	.	56.8 a
LSD P=.05	11.32	.	3.814	2.0112	15.18	18.39
Standard Deviation	10.78	0.00	3.631	1.8462	12.41	15.04
CV	93.86	0.00	56.245	58.3768	51.42	25.41
TABLE OF B (Nitrogen) MEANS						
1 No Nitrogen	8.0 a	0.0 a	5.07 b	4.163 a	19.2 b	46.4 b
2 Nitrogen (60 #/A)	15.0 a	0.0 a	7.84 a	2.163 b	29.1 a	71.9 a
LSD P=.05	16.94	.	1.489	0.9573	2.29	10.15
Standard Deviation	19.91	0.00	1.750	1.1255	2.70	11.93
CV	173.42	0.00	27.116	35.5878	11.17	20.16
TABLE OF A (Cover Crop) B (Nitrogen) MEANS						
1 no cover 1 No Nitrogen	4.5 a	0.0 a	0.00 h	0.000 e	.	.
2 cereal rye (120) 1 No Nitrogen	22.8 a	0.0 a	9.25 cd	.	28.3 a	.
3 rye + hairy vetch (60 + 20) 1 No Nitrogen	8.8 a	0.0 a	1.75 gh	3.250 cd	13.5 a	.
4 oats + radish (60 + 5) 1 No Nitrogen	9.0 a	0.0 a	7.00 e	6.250 b	.	36.3 a
5 rye + radish (60 + 5) 1 No Nitrogen	6.0 a	0.0 a	2.50 fg	10.000 a	15.8 a	.
6 spring oats (120) 1 No Nitrogen	1.5 a	0.0 a	8.00 de	.	.	57.3 a
7 oats + hairy vetch (60 + 20) 1 No Nitrogen	3.3 a	0.0 a	7.00 e	1.313 de	.	45.8 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Pest Code Crop Type, Code	C RAPSR	C VICVI	ERICA C -	ERICA C -	LOLMG C -	LOLMG C -	LOLMG C -
Description	Sm.Rad	H.Vetch	C.Horswd	C.Horswd	A.ryegrs	A.ryegrs	A.ryegrs
Rating Type Rating Unit	biomass g/0.5m2	biomass g/0.5m2	Count #/0.25m2	AvgWidth Inches	Count #/0.25m2	MinHght Inches	MaxHght Inches
Rating Date	12/04/15	12/04/15	12/09/15	12/09/15	12/09/15	12/09/15	12/09/15
Trt Treatment No. Name							
TABLE OF R MEANS							
Replicate 1	5.9	8.5	0.3		6.8	3.5	7.5
Replicate 2	1.0	11.0	0.6		10.8	3.0	7.1
Replicate 3	2.1	8.5	0.9		7.2	3.1	7.3
Replicate 4	4.4	11.3	0.0		7.3	2.6	5.9
TABLE OF A (Cover Crop) MEANS							
1 no cover	.	.	1.4 a		9.0 a	3.0 a	7.0 a
2 cereal rye (120)	.	.	0.0 a		10.3 a	3.1 a	6.5 a
3 rye + hairy vetch (60 + 20)	4.3 a	.	0.5 a		5.1 a	3.0 a	6.1 a
4 oats + radish (60 + 5)	.	8.1 a	0.3 a		10.0 a	2.9 a	6.6 a
5 rye + radish (60 + 5)	.	11.5 a	0.8 a		9.4 a	2.9 a	7.1 a
6 spring oats (120)	.	.	0.1 a		8.1 a	3.0 a	8.0 a
7 oats + hairy vetch (60 + 20)	1.9 a	.	0.1 a		4.3 a	3.5 a	7.4 a
LSD P=.05	0.56	14.49	1.93		6.29	0.98	1.85
Standard Deviation	0.35t	9.10	1.84		5.99	0.94	1.76
CV	58.88t	92.79	412.60		74.66	30.57	25.26
TABLE OF B (Nitrogen) MEANS							
1 No Nitrogen	3.4 a	12.5 a	0.2 a		6.0 a	2.9 a	6.5 a
2 Nitrogen (60 #/A)	2.5 a	7.1 a	0.7 a		10.1 a	3.2 a	7.5 a
LSD P=.05	0.65 - 0.69	3.76	1.48		12.26	0.52	3.44
Standard Deviation	0.09t	4.42	1.74		14.42	0.61	4.05
CV	14.75t	45.07	389.13		179.84	19.89	58.12
TABLE OF A (Cover Crop) B (Nitrogen) MEANS							
1 no cover 1 No Nitrogen	.	.	0.0 a		5.0 a	3.3 a	6.0 a
2 cereal rye (120) 1 No Nitrogen	.	.	0.0 a		10.0 a	2.8 a	6.3 a
3 rye + hairy vetch (60 + 20) 1 No Nitrogen	5.2 a	.	0.0 a		5.3 a	2.8 a	6.3 a
4 oats + radish (60 + 5) 1 No Nitrogen	.	11.3 a	0.0 a		7.8 a	3.0 a	6.5 a
5 rye + radish (60 + 5) 1 No Nitrogen	.	13.8 a	1.5 a		4.8 a	2.3 a	6.0 a
6 spring oats (120) 1 No Nitrogen	.	.	0.0 a		7.8 a	3.3 a	6.7 a
7 oats + hairy vetch (60 + 20) 1 No Nitrogen	2.1 a	.	0.0 a		1.3 a	3.0 a	7.5 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Pest Code Crop Type, Code Description Rating Type Rating Unit	LOLMG C - A.ryegr AvgHght Inches	LAMAM C - Henbit Count #/0.25m2	LAMAM C - Henbit AvgWidth Inches	OEOLA C - CEprmrse Count #/0.25m2	OEOLA C - CEprmrse AvgWidth Inches	SCRAN C - knawel Count #/0.25m2	SCRAN C - knawel AvgHght Inches
Rating Date	12/09/15	12/11/15	12/11/15	12/11/15	12/11/15	12/11/15	12/11/15
Trt Treatment No. Name							
TABLE OF R MEANS							
Replicate 1	5.1	4.4	1.089	1.9	0.81	4.6	
Replicate 2	4.7	1.1	1.068	4.3	0.86	3.9	
Replicate 3	5.3	5.1	1.045	5.6	1.07	4.1	
Replicate 4	4.4	1.1	0.940	3.6	0.89	2.1	
TABLE OF A (Cover Crop) MEANS							
1 no cover	5.0 a	5.3 a	1.875 a	5.3 a	2.38 a	10.4 a	
2 cereal rye (120)	4.9 a	1.9 a	1.083 b	0.9 a	0.50 c	0.5 a	
3 rye + hairy vetch (60 + 20)	4.9 a	3.9 a	1.688 a	2.9 a	1.17 b	7.8 a	
4 oats + radish (60 + 5)	4.9 a	3.5 a	0.667 c	2.6 a	0.50 c	0.5 a	
5 rye + radish (60 + 5)	4.9 a	2.1 a	0.625 c	0.6 a	0.50 c	3.5 a	
6 spring oats (120)	5.5 a	1.5 a	0.750 bc	6.1 a	0.50 c	1.6 a	
7 oats + hairy vetch (60 + 20)	4.1 a	2.5 a	0.563 c	8.4 a	0.81 bc	1.5 a	
LSD P=.05	1.27	6.47	0.3840	8.00	0.525	8.93	
Standard Deviation	1.21	6.16	0.3655	7.62	0.500	8.51	
CV	24.87	209.00	35.2943	199.29	55.100	231.20	
TABLE OF B (Nitrogen) MEANS							
1 No Nitrogen	4.3 b	2.7 a	0.976 a	2.5 b	0.98 a	3.7 a	
2 Nitrogen (60 #/A)	5.4 a	3.2 a	1.095 a	5.1 a	0.83 a	3.6 a	
LSD P=.05	1.00	4.22	0.2142	1.62	0.331	4.17	
Standard Deviation	1.18	4.96	0.2518	1.90	0.389	4.91	
CV	24.23	168.46	24.3129	49.78	42.849	133.37	
TABLE OF A (Cover Crop) B (Nitrogen) MEANS							
1 no cover 1 No Nitrogen	4.3 a	5.8 a	1.500	3.8 a	2.88	8.0 a	1.25 a
2 cereal rye (120) 1 No Nitrogen	4.5 a	1.0 a	1.500	0.5 a	0.50	1.0 a	1.00 a
3 rye + hairy vetch (60 + 20) 1 No Nitrogen	5.0 a	2.5 a	1.375	2.0 a	1.00	11.0 a	1.00 a
4 oats + radish (60 + 5) 1 No Nitrogen	4.5 a	3.0 a	0.583	1.3 a	0.50	0.0 a	.
5 rye + radish (60 + 5) 1 No Nitrogen	4.0 a	2.3 a	0.500	0.8 a	0.50	4.3 a	1.00 a
6 spring oats (120) 1 No Nitrogen	4.7 a	2.5 a	0.750	4.5 a	0.50	1.5 a	1.00 a
7 oats + hairy vetch (60 + 20) 1 No Nitrogen	3.5 a	2.0 a	0.625	5.0 a	1.00	0.3 a	1.00 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
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Pest Code Crop Type, Code	LOLMG C -	ERICA C -	C -	C -	C SECCE	C AVESS
Description	A.ryegrs	C.Horswd			Rye	Oats
Rating Type Rating Unit	Count #/0.25m2	Count #/0.25m2	GrndCvr %	GrndCvr %	biomass g/0.5m2	biomass g/0.5m2
Rating Date	10/21/15	10/21/15	10/21/15	10/21/15	12/04/15	12/04/15
Trt Treatment No. Name						
1 no cover 2 Nitrogen (60 #/A)	15.8 a	0.0 a	0.00 h	0.000 e	.	.
2 cereal rye (120) 2 Nitrogen (60 #/A)	30.0 a	0.0 a	14.75 a	.	46.5 a	.
3 rye + hairy vetch (60 + 20) 2 Nitrogen (60 #/A)	10.5 a	0.0 a	3.13 fg	2.250 d	17.8 a	.
4 oats + radish (60 + 5) 2 Nitrogen (60 #/A)	11.3 a	0.0 a	12.75 ab	2.750 cd	.	65.3 a
5 rye + radish (60 + 5) 2 Nitrogen (60 #/A)	17.3 a	0.0 a	4.00 f	4.250 c	23.0 a	.
6 spring oats (120) 2 Nitrogen (60 #/A)	10.0 a	0.0 a	10.75 bc	.	.	82.8 a
7 oats + hairy vetch (60 + 20) 2 Nitrogen (60 #/A)	10.3 a	0.0 a	9.50 cd	1.563 de	.	67.8 a
LSD P=.05	19.02	.	2.008	1.9614	16.42	16.53
Standard Deviation	12.81	0.00	1.352	1.2731	9.49	9.55
CV	111.53	0.00	20.944	40.2567	39.34	16.15

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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## University of Delaware

Pest Code Crop Type, Code	C RAPSR	C VICVI	ERICA C -	ERICA C -	LOLMG C -	LOLMG C -	LOLMG C -
Description	Sm.Rad	H.Vetch	C.Horswd	C.Horswd	A.ryegrs	A.ryegrs	A.ryegrs
Rating Type Rating Unit	biomass g/0.5m2	biomass g/0.5m2	Count #/0.25m2	AvgWidth Inches	Count #/0.25m2	MinHght Inches	MaxHght Inches
Rating Date	12/04/15	12/04/15	12/09/15	12/09/15	12/09/15	12/09/15	12/09/15
Trt Treatment No. Name							
1 no cover 2 Nitrogen (60 #/A)	.	.	2.8 a		13.0 a	2.8 a	8.0 a
2 cereal rye (120) 2 Nitrogen (60 #/A)	.	.	0.0 a		10.5 a	3.5 a	6.8 a
3 rye + hairy vetch (60 + 20) 2 Nitrogen (60 #/A)	3.6 a	.	1.0 a		5.0 a	3.3 a	6.0 a
4 oats + radish (60 + 5) 2 Nitrogen (60 #/A)	.	5.0 a	0.5 a		12.3 a	2.8 a	6.8 a
5 rye + radish (60 + 5) 2 Nitrogen (60 #/A)	.	9.3 a	0.0 a		14.0 a	3.5 a	8.3 a
6 spring oats (120) 2 Nitrogen (60 #/A)	.	.	0.3 a		8.5 a	2.7 a	9.3 a
7 oats + hairy vetch (60 + 20) 2 Nitrogen (60 #/A)	1.6 a	.	0.3 a		7.3 a	4.0 a	7.3 a
LSD P=.05	0.58	10.96	2.67		6.96	1.61	2.90
Standard Deviation	0.26t	4.87	1.80		4.69	1.06	1.90
CV	43.29t	49.64	402.34		58.45	34.49	27.28

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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## University of Delaware

Pest Code	LOLMG	LAMAM	LAMAM	OEOLA	OEOLA	SCRAN	SCRAN
Crop Type, Code	C -	C -	C -	C -	C -	C -	C -
Description	A.ryegr	Henbit	Henbit	CEprmrse	CEprmrse	knawel	knawel
Rating Type	AvgHght	Count	AvgWidth	Count	AvgWidth	Count	AvgHght
Rating Unit	Inches	#/0.25m <sup>2</sup>	Inches	#/0.25m <sup>2</sup>	Inches	#/0.25m <sup>2</sup>	Inches
Rating Date	12/09/15	12/11/15	12/11/15	12/11/15	12/11/15	12/11/15	12/11/15
Trt Treatment No. Name							
1 no cover 2 Nitrogen (60 #/A)	5.8 a	4.8 a	2.250	6.8 a	1.88	12.8 a	1.63 a
2 cereal rye (120) 2 Nitrogen (60 #/A)	5.3 a	2.8 a	0.667	1.3 a	0.50	0.0 a	.
3 rye + hairy vetch (60 + 20) 2 Nitrogen (60 #/A)	4.8 a	5.3 a	2.000	3.8 a	1.33	4.5 a	1.00 a
4 oats + radish (60 + 5) 2 Nitrogen (60 #/A)	5.3 a	4.0 a	0.750	4.0 a	0.50	1.0 a	1.00 a
5 rye + radish (60 + 5) 2 Nitrogen (60 #/A)	5.8 a	2.0 a	0.750	0.5 a	0.50	2.8 a	1.00 a
6 spring oats (120) 2 Nitrogen (60 #/A)	6.3 a	0.5 a	0.750	7.8 a	0.50	1.8 a	1.00 a
7 oats + hairy vetch (60 + 20) 2 Nitrogen (60 #/A)	4.8 a	3.0 a	0.500	11.8 a	0.63	2.8 a	1.00 a
LSD P=.05	1.25	4.92	0.0000	8.88	0.000	4.90	0.724
Standard Deviation	0.82	3.31	0.0000	5.98	0.000	3.30	0.474
CV	16.85	112.34	0.0000	156.45	0.000	89.71	44.187

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COMPLETE STRIP-BLOCK AOV For LOLMG C A.ryegrs Count #/0.25m2 10/21/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	55	9601.982143				
R	3	226.339286	75.446429	0.460	0.7136	
A	6	2273.607143	378.934524	3.263	0.0238	11.3
RA	18	2090.535714	116.140873			
B	1	693.017857	693.017857	1.748	0.2779	16.9
RB	3	1189.482143	396.494048			
AB	6	177.107143	29.517857	0.180	0.9788	19.0
RAB	18	2951.892857	163.994048			

COMPLETE STRIP-BLOCK AOV For ERICA C C.Horswd Count #/0.25m2 10/21/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	55	0.000000				
R	3	0.000000	0.000000	0.000	1.0000	
A	6	0.000000	0.000000	0.000	1.0000	.
RA	18	0.000000	0.000000			
B	1	0.000000	0.000000	0.000	1.0000	.
RB	3	0.000000	0.000000			
AB	6	0.000000	0.000000	0.000	1.0000	.
RAB	18	0.000000	0.000000			

COMPLETE STRIP-BLOCK AOV For C GrndCvr % 10/21/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	55	1489.638393				
R	3	69.549107	23.183036	12.683	0.0001	
A	6	978.169643	163.028274	12.367	0.0001	3.81
RA	18	237.294643	13.183036			
B	1	107.254464	107.254464	35.005	0.0096	1.49
RB	3	9.191964	3.063988			
AB	6	55.276786	9.212798	5.040	0.0034	2.01
RAB	18	32.901786	1.827877			

COMPLETE STRIP-BLOCK AOV For C GrndCvr % 10/21/15 Analysis will skip factor level A2 for column 4 - all A2 treatments are missing; Analysis will skip factor level A6 for column 4 - all A6 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	39	403.568750				
R	3	1.568750	0.522917	0.323	0.8090	
A	4	245.100000	61.275000	17.978	0.0001	2.011
RA	12	40.900000	3.408333			
B	1	40.000000	40.000000	31.579	0.0111	0.957
RB	3	3.800000	1.266667			
AB	4	52.750000	13.187500	8.136	0.0021	1.961
RAB	12	19.450000	1.620833			

COMPLETE STRIP-BLOCK AOV For C SECCE Rye biomass g/0.5m2 12/04/15 Analysis will skip factor level A1 for column 5 - all A1 treatments are missing; Analysis will skip factor level A4 for column 5 - all A4 treatments are missing; Analysis will skip factor level A6 for column 5 - all A6 treatments are missing; Analysis will skip factor level A7 for column 5 - all A7 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	4488.625000				
R	3	32.791667	10.930556	0.121	0.9442	
A	2	2163.000000	1081.500000	7.028	0.0268	15.2
RA	6	923.333333	153.888889			
B	1	590.041667	590.041667	81.229	0.0029	2.3
RB	3	21.791667	7.263889			
AB	2	217.333333	108.666667	1.207	0.3627	16.4
RAB	6	540.333333	90.055556			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL. t=Mean descriptions are reported in transformed data units, and are not de-transformed.



COMPLETE STRIP-BLOCK AOV For C AVES Oats biomass g/0.5m2 12/04/15 Analysis will skip factor level A1 for column 6 - all A1 treatments are missing; Analysis will skip factor level A2 for column 6 - all A2 treatments are missing; Analysis will skip factor level A3 for column 6 - all A3 treatments are missing; Analysis will skip factor level A5 for column 6 - all A5 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	8405.333333				
R	3	571.666667	190.555556	2.088	0.2033	
A	2	1552.333333	776.166667	3.434	0.1014	18.4
RA	6	1356.333333	226.055556			
B	1	3901.500000	3901.500000	27.422	0.0136	10.1
RB	3	426.833333	142.277778			
AB	2	49.000000	24.500000	0.268	0.7733	16.5
RAB	6	547.666667	91.277778			

COMPLETE STRIP-BLOCK AOV For C RAPS R Sm.Rad biomass g/0.5m2 12/04/15 Analysis will skip factor level A1 for column 7 - all A1 treatments are missing; Analysis will skip factor level A2 for column 7 - all A2 treatments are missing; Analysis will skip factor level A4 for column 7 - all A4 treatments are missing; Analysis will skip factor level A5 for column 7 - all A5 treatments are missing; Analysis will skip factor level A6 for column 7 - all A6 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	15	1.619567				
R	3	0.701641	0.233880	3.554	0.1627	
A	1	0.289932	0.289932	2.382	0.2204	0.6
RA	3	0.365168	0.121723			
B	1	0.040043	0.040043	5.244	0.1060	0.7 - 0.7
RB	3	0.022909	0.007636			
AB	1	0.002459	0.002459	0.037	0.8591	0.6
RAB	3	0.197414	0.065805			

COMPLETE STRIP-BLOCK AOV For C VICVI H.Vetch biomass g/0.5m2 12/04/15 Analysis will skip factor level A1 for column 8 - all A1 treatments are missing; Analysis will skip factor level A2 for column 8 - all A2 treatments are missing; Analysis will skip factor level A3 for column 8 - all A3 treatments are missing; Analysis will skip factor level A6 for column 8 - all A6 treatments are missing; Analysis will skip factor level A7 for column 8 - all A7 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	15	570.437500				
R	3	27.687500	9.229167	0.389	0.7708	
A	1	45.562500	45.562500	0.550	0.5122	14.5
RA	3	248.687500	82.895833			
B	1	115.562500	115.562500	5.907	0.0933	3.8
RB	3	58.687500	19.562500			
AB	1	3.062500	3.062500	0.129	0.7432	11.0
RAB	3	71.187500	23.729167			

COMPLETE STRIP-BLOCK AOV For ERICA C C.Horswd Count #/0.25m2 12/09/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	55	167.839286				
R	3	6.053571	2.017857	0.625	0.6078	
A	6	11.214286	1.869048	0.551	0.7631	1.9
RA	18	61.071429	3.392857			
B	1	3.017857	3.017857	1.000	0.3910	1.5
RB	3	9.053571	3.017857			
AB	6	19.357143	3.226190	1.000	0.4552	2.7
RAB	18	58.071429	3.226190			

COMPLETE STRIP-BLOCK AOV For LOLMG C A.ryegr Count #/0.25m2 12/09/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	55	2496.982143				
R	3	145.053571	48.351190	2.201	0.1231	
A	6	274.357143	45.726190	1.276	0.3169	6.3
RA	18	645.071429	35.837302			
B	1	236.160714	236.160714	1.136	0.3647	12.3
RB	3	623.767857	207.922619			
AB	6	177.214286	29.535714	1.345	0.2889	7.0
RAB	18	395.357143	21.964286			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL. t=Mean descriptions are reported in transformed data units, and are not de-transformed.

COMPLETE STRIP-BLOCK AOV For LOLMG C A.ryegrs MinHght Inches 12/09/15 Missing values in column 13 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	50	46.468254				
R	3	5.166667	1.722222	1.547	0.2495	
A	6	2.107143	0.351190	0.401	0.8684	1.0
RA	18	15.750000	0.875000			
B	1	1.142857	1.142857	3.086	0.1772	0.5
RB	3	1.111111	0.370370			
AB	6	6.718254	1.119709	1.006	0.4621	1.6
RAB	13	14.472222	1.113248			

COMPLETE STRIP-BLOCK AOV For LOLMG C A.ryegrs MaxHght Inches 12/09/15 Missing values in column 14 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	50	224.984127				
R	3	21.535714	7.178571	1.989	0.1655	
A	6	18.428571	3.071429	0.992	0.4597	1.8
RA	18	55.714286	3.095238			
B	1	14.674603	14.674603	0.896	0.4138	3.4
RB	3	49.154762	16.384921			
AB	6	18.547619	3.091270	0.856	0.5505	2.9
RAB	13	46.928571	3.609890			

COMPLETE STRIP-BLOCK AOV For LOLMG C A.ryegrs AvgHght Inches 12/09/15 Missing values in column 15 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	50	76.513889				
R	3	7.660714	2.553571	3.784	0.0376	
A	6	7.750000	1.291667	0.879	0.5299	1.3
RA	18	26.464286	1.470238			
B	1	15.716270	15.716270	11.267	0.0438	1.0
RB	3	4.184524	1.394841			
AB	6	5.964286	0.994048	1.473	0.2618	1.3
RAB	13	8.773810	0.674908			

COMPLETE STRIP-BLOCK AOV For LAMAM C Henbit Count #/0.25m2 12/11/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	55	1258.839286				
R	3	185.053571	61.684524	5.630	0.0067	
A	6	84.714286	14.119048	0.372	0.8870	6.5
RA	18	682.571429	37.920635			
B	1	3.017857	3.017857	0.122	0.7495	4.2
RB	3	73.910714	24.636905			
AB	6	32.357143	5.392857	0.492	0.8058	4.9
RAB	18	197.214286	10.956349			

COMPLETE STRIP-BLOCK AOV For LAMAM C Henbit AvgWidth Inches 12/11/15 Missing values in column 17 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	33	21.244544				
R	3	0.183284	0.061095	0.000	1.0000	
A	6	13.935516	2.322586	17.381	0.0001	0.384
RA	18	2.405258	0.133625			
B	1	0.198413	0.198413	3.129	0.1751	0.214
RB	3	0.190228	0.063409			
AB	6	3.308532	0.551422	0.000	1.0000	
RAB	-4	1.023313	-0.255828			

COMPLETE STRIP-BLOCK AOV For OEOLA C CEprmrse Count #/0.25m2 12/11/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	55	2346.214286				
R	3	100.785714	33.595238	0.940	0.4420	
A	6	394.464286	65.744048	1.134	0.3828	8.0
RA	18	1043.964286	57.998016			
B	1	92.571429	92.571429	25.579	0.0149	1.6
RB	3	10.857143	3.619048			
AB	6	60.178571	10.029762	0.281	0.9387	8.9
RAB	18	643.392857	35.744048			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL. t=Mean descriptions are reported in transformed data units, and are not de-transformed.

COMPLETE STRIP-BLOCK AOV For OEOLA C CEprmrse AvgWidth Inches 12/11/15 Missing values in column 19 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	36	34.384425				
R	3	0.549107	0.183036	0.000	1.0000	
A	6	23.151786	3.858631	15.424	0.0001	0.53
RA	18	4.502976	0.250165			
B	1	0.310020	0.310020	2.049	0.2477	0.33
RB	3	0.453869	0.151290			
AB	6	2.193452	0.365575	0.000	1.0000	
RAB	-1	3.223214	-3.223214			

COMPLETE STRIP-BLOCK AOV For SCRAN C knawel Count #/0.25m2 12/11/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	55	2498.214286				
R	3	52.214286	17.404762	1.598	0.2248	
A	6	724.964286	120.827381	1.670	0.1857	8.9
RA	18	1302.035714	72.335317			
B	1	0.071429	0.071429	0.003	0.9600	4.2
RB	3	72.214286	24.071429			
AB	6	150.678571	25.113095	2.306	0.0792	4.9
RAB	18	196.035714	10.890873			

Randomized Complete Block (RCB) AOV For SCRAN C knawel AvgHght Inches 12/11/15 Missing factor A4 B1 levels prevents analyzing column 21 as Strip-Block (Criss-Cross) design; Missing factor A2 B2 levels prevents analyzing column 21 as Strip-Block (Criss-Cross) design; Missing values in column 21 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	27	4.994792			
Replicate	3	0.515625	0.171875	0.765	0.5338
Treatment	11	1.557292	0.141572	0.630	0.7754
ERROR	13	2.921875	0.224760		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Control of Crimson Clover Before NT Corn  
 Trial ID: Cover7-16 Location: REC Fld 32 Trial Year: 2016  
 Protocol ID: Cover7-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel Title: Extension Weed Specialist

Trial Status: E established  
 Trial Status Date: 03/26/19 Last Changed By: Mark VanGessel

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

C  
 Attributes: non-crop

**Pest Description**

Pest 1 Type: W Code: TRFIE Trifolium incarnatum elatius  
 Common Name: Crimson clover Artificial Population: X  
 Establishment Date: 10/14/15  
 Establishment Method/Description: Drilled  
 Pest 2 Type: W Code: ERICA Conyza canadensis  
 Common Name: Canada horseweed

**Site and Design**

Treated Plot Width: 7 FT Site Type: FIELD field  
 Treated Plot Length: 20 FT  
 Treated Plot Area: 140 FT2 Treatments: 6 Tillage Type: NOTILL no-till  
 Replications: 4 Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**

% Sand: 77 % OM: 1.5 Texture: SL sandy loam  
 % Silt: 12 pH: 6.5  
 % Clay: 11 CEC: 5.2 Fert. Level: G good  
 Soil Drainage: G good

**Moisture and Weather Conditions**

Overall Moisture Conditions: NORMAL normal  
 Closest Weather Station: UD REC Distance: 0.5 mi

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	TRFIE W
Stage Majority, Percent	fulBlm 100
Height Average	18 in
Height Minimum, Maximum	16 20
Pest 2 Code, Type, Scale	ERICA W
Stage Majority, Percent	bolt 100
Height Average	5 in
Height Minimum, Maximum	3 7
Density Average	5 m2
Density Min, Max	1 10

<b>Application Equipment</b>	
	A
Appl. Equipment	Bckpck4Nozl
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	6 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Minimum Mix/Treatment	0.9733 L
Propellant	COMCO2

Trial Comments

05/12/16: Horseweed plants: larger were over 5" at time of application, and small were 5" or less at time of application.

Control of Crimson Clover Before NT Corn								
Trial ID: Cover7-16			Location: REC Fld 32		Trial Year: 2016			
Protocol ID: Cover7-16			Investigator: Mark VanGessel					
			Study Director:					
			Sponsor Contact:					
Pest Code	TRFIE	ERICA	TRFIE	ERICA				
Description	CrimClvr	Horsewd	CrimClvr	Horsewd				
Rating Type	Control	Control	Control	LgPICntrl				
Rating Unit	%	%	%	%				
Rating Date	05/23/16	05/23/16	06/02/16	06/02/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code	
1	Bicep II Magnum Premix	5.5 L		2.5 lb ai/a		PrePlant A		85.0 a
	----s-metolachlor	2.4		1.09				71.3 a
	----atrazine	3.1		1.41				97.0 a
	Gramoxone SL....paraquat	2 SL		1 lb ai/a		PrePlant A		78.3 b
	Crop Oil Concentrate	100 L		1.25 % v/v		PrePlant A		
2	Acuron Premix	3.44 ZC		2.5 lb ai/a		PrePlant A		85.0 a
	----atrazine	1		0.73				77.0 a
	----bicyclopyrone	0.06		0.0436				97.0 a
	----mesotrione	0.24		0.174				83.5 b
	----s-metolachlor	2.14		1.56				
	Gramoxone SL....paraquat	2 SL		1 lb ai/a		PrePlant A		
	Crop Oil Concentrate	100 L		1.25 % v/v		PrePlant A		
3	Stinger.....clopypalid	3 EC		0.188 lb ae/a		PrePlant A		40.0 c
	Roundup PowerMax..glyphosate	4.5 AS		1.55 lb ae/a		PrePlant A		57.2 b
4	Tricor DF.....metribuzin	75 DF		0.188 lb ai/a		PrePlant A		79.8 a
	Gramoxone SL....paraquat	2 SL		1 lb ai/a		PrePlant A		57.5 b
	Crop Oil Concentrate	100 L		1.25 % v/v		PrePlant A		93.0 a
5	Acuron Premix	3.44 ZC		2.5 lb ai/a		PrePlant A		57.5 b
	----atrazine	1		0.73				73.8 a
	----bicyclopyrone	0.06		0.0436				82.0 b
	----mesotrione	0.24		0.174				100.0 a
	----s-metolachlor	2.14		1.56				
	Roundup PowerMax..glyphosate	4.5 AS		1.55 lb ae/a		PrePlant A		
6	2,4-D ester	3.8 L		0.375 lb ae/a		PrePlant A		42.5 c
	Roundup PowerMax..glyphosate	4.5 AS		1.55 lb ae/a		PrePlant A		70.0 a
LSD P=.05								5.35
Standard Deviation								10.66
CV								6.80
Replicate F								6.17
Replicate Prob(F)								3.55
Treatment F								7.03
Treatment Prob(F)								4.51
								5.34
								4.77
								0.206
								2.086
								1.154
								0.910
								0.8905
								0.1481
								0.3598
								0.4610
								140.034
								5.740
								34.160
								94.179
								0.0001
								0.0044
								0.0001
								0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4

Pest Code					ERICA	TRFIE	ERICA	ERICA
Description					Horsewd	CrimClvr	Horsewd	Horsewd
Rating Type					SmPICntrl	Control	LgPICntrl	SmPICntrl
Rating Unit					%	%	%	%
Rating Date					06/02/16	06/13/16	06/13/16	06/13/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Bicep II Magnum Premix	5.5 L		2.5 lb ai/a		PrePlant A		
	----s-metolachlor	2.4		1.09				
	----atrazine	3.1		1.41				
	Gramoxone SL....paraquat	2 SL		1 lb ai/a		PrePlant A		
	Crop Oil Concentrate	100 L		1.25 % v/v		PrePlant A		
2	Acuron Premix	3.44 ZC		2.5 lb ai/a		PrePlant A		
	----atrazine	1		0.73				
	----bicyclopyrone	0.06		0.0436				
	----mesotrione	0.24		0.174				
	----s-metolachlor	2.14		1.56				
	Gramoxone SL....paraquat	2 SL		1 lb ai/a		PrePlant A		
	Crop Oil Concentrate	100 L		1.25 % v/v		PrePlant A		
3	Stinger.....clopypalid	3 EC		0.188 lb ae/a		PrePlant A		
	Roundup PowerMax..glyphosate	4.5 AS		1.55 lb ae/a		PrePlant A		
4	Tricor DF.....metribuzin	75 DF		0.188 lb ai/a		PrePlant A		
	Gramoxone SL....paraquat	2 SL		1 lb ai/a		PrePlant A		
	Crop Oil Concentrate	100 L		1.25 % v/v		PrePlant A		
5	Acuron Premix	3.44 ZC		2.5 lb ai/a		PrePlant A		
	----atrazine	1		0.73				
	----bicyclopyrone	0.06		0.0436				
	----mesotrione	0.24		0.174				
	----s-metolachlor	2.14		1.56				
	Roundup PowerMax..glyphosate	4.5 AS		1.55 lb ae/a		PrePlant A		
6	2,4-D ester	3.8 L		0.375 lb ae/a		PrePlant A		
	Roundup PowerMax..glyphosate	4.5 AS		1.55 lb ae/a		PrePlant A		
LSD P=.05					8.58	1.83	4.03	3.08
Standard Deviation					4.71	1.22	2.67	2.04
CV					5.02	1.28	3.25	2.16
Replicate F					1.000	3.684	2.864	1.000
Replicate Prob(F)					0.4019	0.0361	0.0717	0.4199
Treatment F					30.250	58.850	456.612	169.000
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4

Control of Crimson Clover with HPPD Herbicides  
 Trial ID: Cover8-16      Location: REC Fld 32      Trial Year: 2016  
 Protocol ID: Cover8-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

C  
 Attributes: non-crop

**Pest Description**

Pest 1 Type: W      Code: TRFIE Trifolium incarnatum elatius  
 Common Name: Crimson clover      Artificial Population: X  
 Establishment Date: 10/14/15  
 Establishment Method/Description: Drilled  
 Pest 2 Type: W      Code: ERICA Conyza canadensis  
 Common Name: Canada horseweed

**Site and Design**

Treated Plot Width: 8 FT  
 Treated Plot Length: 20 FT  
 Treated Plot Area: 160 FT<sup>2</sup>    Treatments: 3  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**

% Sand: 77    % OM: 1.5    Texture: SL sandy loam  
 % Silt: 12    pH: 6.5  
 % Clay: 11    CEC: 5.2    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	05/12/16
Appl. Stop Time	04:15 PM
Application Method	SPRAY
Application Timing	PrePlant
Application Placement	BROADC
Applied By	VanGessel
Air Temperature Start, Stop	57 57 F
% Relative Humidity Start, Stop	80 80
Wind Velocity+Dir. Start	2 MPH N
Wind Velocity+Dir. Stop	2 MPH N
Wind Velocity+Dir. Max	2 MPH N
Wet Leaves (Y/N)	Y yes
Soil Temperature	57 F
Soil Moisture	NORMAL
% Cloud Cover	100



**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	TRFIE W
Stage Majority, Percent	fulBlm 100
Height Average	18 in
Height Minimum, Maximum	16 20
Pest 2 Code, Type, Scale	ERICA W
Stage Majority, Percent	bolt 100
Height Average	5 in
Height Minimum, Maximum	3 7
Density Average	5 m2
Density Min, Max	1 10

**Application Equipment**

	A
Appl. Equipment	Bckpck4Nozl
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	6 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMCO2

## Trial Comments

06/13/16: No differences observed in control of crimson clover. All treatments providing >99% control of horseweed

Control of Crimson Clover with HPPD Herbicides							TRFIE	ERICA	TRFIE
Trial ID: Cover8-16		Location: REC Fld 32		Trial Year: 2016			CrimClvr	Horsewd	CrimClvr
Protocol ID: Cover8-16		Investigator: Mark VanGessel			Study Director:		Control	Control	Control
		Sponsor Contact:			Rating Type		%	%	%
Pest Code				Rating Unit		05/23/16	05/23/16	06/13/16	
Description				Rating Date					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code			
1	Lexar EZ Premix	3.71	SC	2.5 lb ai/a	PrePlant A		40.0 b	75.0 b	99.0 a
	----s-metolachlor	1.742819		1.17					
	----mesotrione	0.2243629		0.151					
	----atrazine	1.742819		1.17					
	Roundup PowerMax..glyphosate	4.5	AS	1.55 lb ae/a	PrePlant A				
	Dry Ammonium Sulfate	100	D	10 lb/100 gal	PrePlant A				
2	Lumax EZ Premix	3.67	SC	2.2 lb ai/a	PrePlant A		46.7 ab	84.3 a	99.0 a
	----s-metolachlor	2.49		1.5					
	----mesotrione	0.25		0.15					
	----atrazine	0.93		0.56					
	Roundup PowerMax..glyphosate	4.5	AS	1.55 lb ae/a	PrePlant A				
	Dry Ammonium Sulfate	100	D	10 lb/100 gal	PrePlant A				
3	Acuron Premix	3.44	ZC	2.15 lb ai/a	PrePlant A		53.3 a	83.3 a	99.0 a
	----atrazine	1		0.625					
	----bicyclopyrone	0.06		0.0375					
	----mesotrione	0.24		0.15					
	----s-metolachlor	2.14		1.34					
	Roundup PowerMax..glyphosate	4.5	AS	1.55 lb ae/a	PrePlant A				
	Dry Ammonium Sulfate	100	D	10 lb/100 gal	PrePlant A				
LSD P=.05							9.25	6.39	.
Standard Deviation							4.08	2.82	0.00
CV							8.75	3.48	0.0
Replicate F							2.000	2.364	0.000
Replicate Prob(F)							0.2500	0.2101	1.0000
Treatment F							8.000	9.916	0.000
Treatment Prob(F)							0.0400	0.0282	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 3 because error mean square = 0.

Early-Season Weed Control in No-Till Winter Wheat  
 Trial ID: SG1-16      Location: Field #22      Trial Year: 2015  
 Protocol ID: SG1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/14/15      Planting Rate: 150      LB/A  
 Depth: 0.75 in  
 Row Spacing: 7 in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 69 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/22/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 13.5

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 12    Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**

% Sand: 80    % OM: 1.1    Texture: SL sandy loam  
 % Silt: 10    pH: 6.5  
 % Clay: 10    CEC: 4.2    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B	C
Application Date	10/08/15	10/15/15	10/23/15
Appl. Stop Time	01:45 PM	09:15 AM	02:30 PM
Interval to Prev. Appl.		7 DAYS	8 DAYS
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	7 DPP	PRE	Spike
Application Placement	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson
Air Temperature Start, Stop	75 F	53 F	64 F
% Relative Humidity Start, Stop	48	77	45
Wind Velocity+Dir. Start	2 mph SE	1 mph NW	3 mph NE
Wet Leaves (Y/N)	N no	Y yes	N no
Soil Temperature	75 F	53 F	64 F
Soil Moisture	NORMAL	NORMAL	NORMAL
% Cloud Cover	60	5	0

**Crop Stage At Each Application**

	A	B	C
Crop 1 Code, BBCH Scale	TRZAW BCER	TRZAW BCER	TRZAW BCER
Stage Scale Used			DESC
Stage Majority, Percent			spike 100
Height Average			0.8 in
Height Minimum, Maximum			0.7 1

**Application Equipment**

	A	B	C
Appl. Equipment	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002
Nozzle Spacing	18 in	18 in	18 in
Boom Length	9 ft	9 ft	9 ft
Boom Height	18 in	18 in	18 in
Ground Speed	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L	2 L
Propellant	COMCO2	COMCO2	COMCO2

## Trial Comments

10/31/15: Weeds at cotyledon to 1-true leaf.

12/08/15: Mouseear chickweed in treatment # 5.

Early-Season Weed Control in No-Till Winter Wheat  
 Trial ID: SG1-16      Location: Field #22      Trial Year: 2015  
 Protocol ID: SG1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Pest Code	C TRZAW		C TRZAW	HLOUM						
Crop Type, Code	W.Wheat		W.Wheat	C -						
Description	Stunting %		Stunting %	JagChkwd %						
Rating Type	10/31/15		12/08/15	12/08/15						
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 d	0.0 f	0.0 e
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	PRE	B				
2	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	7 DPP	A		9.0 ab	12.3 b-e	66.7 bcd
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	7 DPP	A				
3	Afforia Premix	50.8 DG		0.079 lb ai/a	7 DPP	A		10.7 a	15.0 bcd	98.3 a
	----flumioxazin	40.8		0.0634						
	----thifensulfuron	5		0.0078						
	----tribenuron	5		0.0078						
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	7 DPP	A				
4	Sharpen.....saflufenacil	2.85 SC		0.067 lb ai/a	PRE	B		0.0 d	2.3 ef	55.6 cd
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	PRE	B				
	Methylated Seed Oil	100 L		1 % v/v	PRE	B				
5	Sharpen.....saflufenacil	2.85 SC		0.089 lb ai/a	PRE	B		5.7 c	2.3 ef	53.3 cd
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	PRE	B				
	Methylated Seed Oil	100 L		1 % v/v	PRE	B				
6	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	PRE	B		0.0 d	9.7 c-f	68.3 bcd
	Zidua.....pyoxasulfone	85 WG		0.053 lb ai/a	Spike	C				
7	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	PRE	B		7.0 bc	8.7 def	65.6 bcd
	Zidua.....pyoxasulfone	85 WG		0.08 lb ai/a	Spike	C				
8	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	PRE	B		8.3 abc	10.7 c-f	56.7 cd
	Anthem Flex Premix	4 SE		0.094 lb ai/a	Spike	C				
	----pyoxasulfone	3.733		0.088						
	----carfentrazone	0.267		0.0063						
9	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	PRE	B		1.7 d	21.7 b	86.7 ab
	Axiom Premix	68 WG		0.17 lb ai/a	Spike	C				
	----flufenacet	54		0.135						
	----metribuzin	14		0.035						
	Nonionic Surfactant	100 L		0.25 % v/v	Spike	C				
10	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	PRE	B		7.3 bc	19.7 bc	71.7 bc
	Axiom Premix	68 WG		0.255 lb ai/a	Spike	C				
	----flufenacet	54		0.202						
	----metribuzin	14		0.0525						
	Nonionic Surfactant	100 L		0.25 % v/v	Spike	C				
11	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	PRE	B		1.7 d	14.0 bcd	46.7 d
	Glory.....metribuzin	75 DF		0.047 lb ai/a	Spike	C				
	Nonionic Surfactant	100 L		0.25 % v/v	Spike	C				

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 Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code	LAMAM	SCRAN	VIORA	CERVU							
Crop Type, Code	C -	C -	C -	C -							
Description	Henbit	knawel	FldPansy	ME chkwd							
Rating Type	Control	Control	Control	Control							
Rating Unit	%	%	%	%							
Rating Date	12/08/15	12/08/15	12/08/15	04/18/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 e	0.0	0.0 e	0.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B				
2	Valor SX.....flumioxazin	51	WG	0.064 lb	ai/a	7 DPP	A	33.3 d	100.0	34.1 abc	0.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	7 DPP	A				
3	Afforia Premix	50.8	DG	0.079 lb	ai/a	7 DPP	A	89.3 a	100.0	41.7 ab	
	----flumioxazin	40.8		0.0634							
	----thifensulfuron	5		0.0078							
	----tribenuron	5		0.0078							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	7 DPP	A				
4	Sharpen.....saflufenacil	2.85	SC	0.067 lb	ai/a	PRE	B	50.0 c	35.0	41.6 ab	40.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B				
	Methylated Seed Oil	100	L	1 %	v/v	PRE	B				
5	Sharpen.....saflufenacil	2.85	SC	0.089 lb	ai/a	PRE	B	65.0 b	45.0	45.0 a	60.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B				
	Methylated Seed Oil	100	L	1 %	v/v	PRE	B				
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	73.3 b	30.0	33.3 abc	
	Zidua.....pyoxasulfone	85	WG	0.053 lb	ai/a	Spike	C				
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	70.0 b	40.0	15.0 d	100.0 a
	Zidua.....pyoxasulfone	85	WG	0.08 lb	ai/a	Spike	C				
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	73.3 b	100.0	40.0 ab	80.0 a
	Anthem Flex Premix	4	SE	0.094 lb	ai/a	Spike	C				
	----pyoxasulfone	3.733		0.088							
	----carfentrazone	0.267		0.0063							
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	90.0 a	100.0	25.0 cd	75.0 a
	Axiom Premix	68	WG	0.17 lb	ai/a	Spike	C				
	----flufenacet	54		0.135							
	----metribuzin	14		0.035							
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C				
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	76.7 ab	100.0	36.7 abc	100.0 a
	Axiom Premix	68	WG	0.255 lb	ai/a	Spike	C				
	----flufenacet	54		0.202							
	----metribuzin	14		0.0525							
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C				
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	63.3 bc	30.0	30.0 bc	55.0 a
	Glory.....metribuzin	75	DF	0.047 lb	ai/a	Spike	C				
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C				

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Pest Code	HLOUM	LAMAM	SCRAN	VIORA							
Crop Type, Code	C -	C -	C -	C -							
Description	JagChkwd	Henbit	knawel	FldPansy							
Rating Type	Control	Control	Control	Control							
Rating Unit	%	%	%	%							
Rating Date	04/18/16	04/18/16	04/18/16	04/18/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 c	0.0 c	0.0 a	0.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B				
2	Valor SX.....flumioxazin	51	WG	0.064 lb	ai/a	7 DPP	A	25.0 bc	46.7 b	90.0 a	30.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	7 DPP	A				
3	Afforia Premix	50.8	DG	0.079 lb	ai/a	7 DPP	A	60.0 ab	75.0 a	100.0 a	36.7 a
	----flumioxazin	40.8		0.0634							
	----thifensulfuron	5		0.0078							
	----tribenuron	5		0.0078							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	7 DPP	A				
4	Sharpen.....saflufenacil	2.85	SC	0.067 lb	ai/a	PRE	B	30.0 bc	53.3 ab	48.3 a	26.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B				
	Methylated Seed Oil	100	L	1 %	v/v	PRE	B				
5	Sharpen.....saflufenacil	2.85	SC	0.089 lb	ai/a	PRE	B	65.0 ab	70.0 ab	62.5 a	40.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B				
	Methylated Seed Oil	100	L	1 %	v/v	PRE	B				
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	36.7 abc	65.0 ab	50.0 a	23.3 a
	Zidua.....pyoxasulfone	85	WG	0.053 lb	ai/a	Spike	C				
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	73.3 a	70.0 ab	85.0 a	13.3 a
	Zidua.....pyoxasulfone	85	WG	0.08 lb	ai/a	Spike	C				
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	56.7 ab	70.0 ab	70.0 a	33.3 a
	Anthem Flex Premix	4	SE	0.094 lb	ai/a	Spike	C				
	----pyoxasulfone	3.733		0.088							
	----carfentrazone	0.267		0.0063							
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	46.7 ab	71.7 ab	85.0 a	16.7 a
	Axiom Premix	68	WG	0.17 lb	ai/a	Spike	C				
	----flufenacet	54		0.135							
	----metribuzin	14		0.035							
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C				
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	63.3 ab	66.7 ab	40.0 a	30.0 a
	Axiom Premix	68	WG	0.255 lb	ai/a	Spike	C				
	----flufenacet	54		0.202							
	----metribuzin	14		0.0525							
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C				
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb	ae/a	PRE	B	26.7 bc	46.7 b	30.0 a	36.7 a
	Glory.....metribuzin	75	DF	0.047 lb	ai/a	Spike	C				
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C				

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Pest Code						C TRZAW
Crop Type, Code						
Description						W.Wheat Yield Bu/A 06/30/16
Rating Type						
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing Code
1	Untreated Check					45.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE B	
2	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	7 DPP A	51.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	7 DPP A	
3	Afforia Premix	50.8	DG	0.079 lb ai/a	7 DPP A	52.0 a
	----flumioxazin	40.8		0.0634		
	----thifensulfuron	5		0.0078		
	----tribenuron	5		0.0078		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	7 DPP A	
4	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/a	PRE B	53.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE B	
	Methylated Seed Oil	100	L	1 % v/v	PRE B	
5	Sharpen.....saflufenacil	2.85	SC	0.089 lb ai/a	PRE B	49.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE B	
	Methylated Seed Oil	100	L	1 % v/v	PRE B	
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE B	52.0 a
	Zidua.....pyroxasulfone	85	WG	0.053 lb ai/a	Spike C	
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE B	52.3 a
	Zidua.....pyroxasulfone	85	WG	0.08 lb ai/a	Spike C	
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE B	53.6 a
	Anthem Flex Premix	4	SE	0.094 lb ai/a	Spike C	
	----pyroxasulfone	3.733		0.088		
	----carfentrazone	0.267		0.0063		
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE B	48.6 a
	Axiom Premix	68	WG	0.17 lb ai/a	Spike C	
	----flufenacet	54		0.135		
	----metribuzin	14		0.035		
	Nonionic Surfactant	100	L	0.25 % v/v	Spike C	
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE B	50.2 a
	Axiom Premix	68	WG	0.255 lb ai/a	Spike C	
	----flufenacet	54		0.202		
	----metribuzin	14		0.0525		
	Nonionic Surfactant	100	L	0.25 % v/v	Spike C	
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE B	51.0 a
	Glory.....metribuzin	75	DF	0.047 lb ai/a	Spike C	
	Nonionic Surfactant	100	L	0.25 % v/v	Spike C	

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 5: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns: Yates=3,6; Average=7,8,10,11

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.



Pest Code	University of Delaware						C	TRZAW	C	TRZAW	HLOUM		
Crop Type, Code											C -		
Description							W.Wheat		W.Wheat		JagChkwd		
Rating Type							Stunting		Stunting		Control		
Rating Unit							%		%		%		
Rating Date							10/31/15		12/08/15		12/08/15		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code						
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	10.7	a	33.3	a	60.0	cd
	Glory.....metribuzin	75	DF	0.094	lb ai/a	Spike	C						
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C						
LSD	P=.05							3.32		10.99		21.75	
Standard Deviation								1.96		6.49		12.77	
CV								37.93		52.05		21.01	
Replicate F								0.022		2.784		0.232	
Replicate Prob(F)								0.9786		0.0836		0.7954	
Treatment F								14.067		6.257		10.547	
Treatment Prob(F)								0.0001		0.0001		0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 5: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns: Yates=3,6; Average=7,8,10,11

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code	LAMAM	SCRAN	VIORA	CERVU										
Crop Type, Code	C -	C -	C -	C -										
Description	Henbit	knawel	FldPansy	ME chkwd										
Rating Type	Control	Control	Control	Control										
Rating Unit	%	%	%	%										
Rating Date	12/08/15	12/08/15	12/08/15	04/18/16										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code							
12	Roundup WeatherMax..glyphosate Glory.....metribuzin Nonionic Surfactant	4.5	AS	0.77	lb ae/a	PRE	B	65.0	b	25.0	26.7	cd	71.7	a
		75	DF	0.094	lb ai/a	Spike	C							
		100	L	0.25	% v/v	Spike	C							
LSD	P=.05	13.65								12.41			84.60	
Standard Deviation		8.06								7.29			32.56	
CV		12.91								23.7			55.97	
Replicate F		4.278								1.197			0.418	
Replicate Prob(F)		0.0270								0.3227			0.6915	
Treatment F		28.928								9.357			3.633	
Treatment Prob(F)		0.0001								0.0001			0.1581	

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Due to missing data, larger LSD values (col. 5: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.  
Missing data estimates are included in columns: Yates=3,6; Average=7,8,10,11  
Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code	HLOUM						LAMAM	SCRAN	VIORA
Crop Type, Code	C -						C -	C -	C -
Description	JagChkwd						Henbit	knawel	FldPansy
Rating Type	Control						Control	Control	Control
Rating Unit	%						%	%	%
Rating Date	04/18/16						04/18/16	04/18/16	04/18/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	46.7	ab
	Glory.....metribuzin	75	DF	0.094	lb ai/a	Spike	C	70.0	ab
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C	65.0	a
								0.0	a
LSD	P=.05							40.36	26.95
	Standard Deviation							23.62	15.91
	CV							53.48	27.09
	Replicate F							0.418	1.506
	Replicate Prob(F)							0.6641	0.2439
	Treatment F							2.421	5.182
	Treatment Prob(F)							0.0437	0.0005
								0.666	0.975
								0.5542	0.3943
								3.475	1.023
								0.0899	0.4622

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 5: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns: Yates=3,6; Average=7,8,10,11

Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Pest Code						C TRZAW
Crop Type, Code						
Description						
Rating Type						
Rating Unit						W.Wheat
Rating Date						Yield
						Bu/A
						06/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing Code
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	PRE	B
	Glory.....metribuzin	75	DF	0.094 lb ai/a	Spike	C
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	C
LSD P=.05						48.3 a
Standard Deviation						7.10
CV						4.19
Replicate F						8.26
Replicate Prob(F)						0.082
Treatment F						0.9211
Treatment Prob(F)						0.955
						0.5111

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Due to missing data, larger LSD values (col. 5: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.  
Missing data estimates are included in columns: Yates=3,6; Average=7,8,10,11  
Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

Postemergence Weed Control for Winter Wheat  
 Trial ID: SG2-16      Location: Field #16      Trial Year: 2015  
 Protocol ID: SG2-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/13/15      Planting Rate: 150      LB/A  
 Depth: 0.75 in  
 Row Spacing: 7 in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDIUM medium  
 Soil Temperature: 77 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/21/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 13.5

**Pest Description**

Pest 1 Type: W    Code: LAMAM Lamium amplexicaule  
 Common Name: Henbit

Pest 2 Type: W    Code: STEME Stellaria media  
 Common Name: Common chickweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 14    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**

% Sand: 77    % OM: 1.6    Texture: SL sandy loam  
 % Silt: 12    pH: 6.4  
 % Clay: 11    CEC: 6.7    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B
Application Date	11/24/15	03/23/16
Appl. Stop Time	02:15 PM	08:00 AM
Interval to Prev. Appl.		120 DAYS
Application Method	SPRAY	SPRAY
Application Timing	3-lvs	Spring
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	52 F	52 F
% Relative Humidity Start, Stop	40	59
Wind Velocity+Dir. Start	4 mph W	3 mph SW
Wet Leaves (Y/N)	Y yes	N no
Soil Temperature	52 F	52 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	5	85

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	TRZAW BCER	TRZAW BCER
Stage Scale Used	DESC	DESC
Stage Majority, Percent	4-leaf 50	tillered 100
Stage Minimum, Percent	3-leaf 20	
Stage Maximum, Percent	1-tiller 30	
Height Average	5 in	9 in
Height Minimum, Maximum	4 6	8 10

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	LAMAM W	LAMAM W
Stage Majority, Percent	2-leaf 100	eaFlwr 70
Stage Minimum, Percent		veg 30
Stage Maximum, Percent		eaFlwr 70
Height Average	1 in	7 in
Height Minimum, Maximum		6 8
Density Average	5 m2	40 m2
Pest 2 Code, Type, Scale	STEME W	STEME W
Stage Majority, Percent	veg 100	eaFlwr 100
Diameter	2 in	7 in
Height Minimum, Maximum		5 9
Density Average	5 m2	40 m2

**Application Equipment**

	A	B
Appl. Equipment	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Boom Length	9 ft	9 ft
Boom Height	21 in	26 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L
Propellant	COMCO2	COMCO2

## Trial Comments

05/15/16: Quelex and Osprey were poor for control of cutleaf evening primrose.

06/14/16: Hairy vetch density is sporadic. Anything less than 97% is probably no commercially acceptable. Hairy vetch is based on flowering and seed production.

Postemergence Weed Control for Winter Wheat					C TRZAW	C TRZAW	C TRZAW	STEME
Trial ID: SG2-16      Location: Field #16      Trial Year: 2015								C -
Protocol ID: SG2-16      Investigator: Mark VanGessel								
Study Director:								
Sponsor Contact:								
Pest Code					W.Wheat	W.Wheat	W.Wheat	C.chkwd
Crop Type, Code					Chlorosis	Stunting	Stunting	Control
Description					%	%	%	%
Rating Type					12/12/15	12/12/15	04/14/16	05/15/16
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code	
1	Untreated Check							0.0 c    0.0 b    0.0 e    0.0 e
2	Harmony Extra SG Premix	50	SG	0.0234 lb ai/a		Spring B		4.7 bcd    100.0 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Nonionic Surfactant	100	L	0.25 % v/v		Spring B		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		Spring B		
3	Harmony Extra SG Premix	50	SG	0.028 lb ai/a		Spring B		4.0 b-e    100.0 a
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	Nonionic Surfactant	100	L	0.25 % v/v		Spring B		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		Spring B		
4	Harmony Extra SG Premix	50	SG	0.0234 lb ai/a		Spring B		5.7 bc    100.0 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Clarity.....dicamba	4	L	0.125 lb ai/a		Spring B		
	Nonionic Surfactant	100	L	0.25 % v/v		Spring B		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		Spring B		
5	Harmony Extra SG Premix	50	SG	0.0234 lb ai/a		Spring B		6.7 ab    100.0 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	2,4-D amine	3.8	L	0.356 lb ae/a		Spring B		
	Nonionic Surfactant	100	L	0.25 % v/v		Spring B		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		Spring B		
6	Harmony Extra SG Premix	50	SG	0.0234 lb ai/a		Spring B		5.0 bcd    100.0 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Starane Ultra...fluroxypyr	2.8	EC	0.24 lb ae/a		Spring B		
	Nonionic Surfactant	100	L	0.25 % v/v		Spring B		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		Spring B		
7	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/a		3-lvs A		9.7 a    7.3 a    2.3 cde    53.3 c
	Nonionic Surfactant	100	L	0.5 % v/v		3-lvs A		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		3-lvs A		
8	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/a		3-lvs A		10.0 a    8.0 a    1.0 de    100.0 a
	Glory.....metribuzin	75	DF	0.188 lb ai/a		3-lvs A		
	Nonionic Surfactant	100	L	0.5 % v/v		3-lvs A		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		3-lvs A		
9	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/a		Spring B		1.7 bc    7.3 a    10.3 a    96.0 ab
	Nonionic Surfactant	100	L	0.25 % v/v		Spring B		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		Spring B		
10	Huskie Premix	2.05	EC	0.176 lb ai/a		3-lvs A		2.7 bc    0.0 b    1.7 cde    30.0 d
	----pyrasulfotole	0.3		0.0258				
	----bromoxynil	1.75		0.15				
	Nonionic Surfactant	100	L	0.25 % v/v		3-lvs A		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		3-lvs A		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8; Average=7



Pest Code					VIORA	SCRAN	VICVI	VICVI			
Crop Type, Code					C -	C -	C -	C -			
Description					FldPansy	knawel	H.vetch	H.vetch			
Rating Type					Control	Control	Control	Control			
Rating Unit					%	%	%	%			
Rating Date					05/15/16	05/15/16	05/15/16	06/14/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 d	5.3 c	0.0 e	0.0 e
2	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	78.3 a	85.0 a	60.0 c	71.7 d
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B				
3	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B	88.3 a	83.3 a	85.0 b	91.0 abc
	----thifensulfuron	33		0.0185							
	----tribenuron	17		0.0095							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B				
4	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	85.0 a	90.0 a	100.0 a	100.0 a
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Clarity.....dicamba	4	L	0.125	lb ai/a	Spring	B				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B				
5	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	81.7 a	93.3 a	100.0 a	97.3 a
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	2,4-D amine	3.8	L	0.356	lb ae/a	Spring	B				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B				
6	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	80.0 a	93.3 a	100.0 a	100.0 a
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Starane Ultra...fluroxypyr	2.8	EC	0.24	lb ae/a	Spring	B				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B				
7	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	A	43.3 b	60.0 b	50.0 cd	88.3 abc
	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	A				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	3-lvs	A				
8	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	A	33.2 bc	100.0 a	100.0 a	81.5 cd
	Glory.....metribuzin	75	DF	0.188	lb ai/a	3-lvs	A				
	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	A				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	3-lvs	A				
9	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	B	95.0 a	95.0 a	100.0 a	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B				
10	Huskie Premix	2.05	EC	0.176	lb ai/a	3-lvs	A	3.2 d			84.6 bc
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	3-lvs	A				

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8; Average=7

Pest Code					C TRZAW			
Crop Type, Code								
Description								
Rating Type								
Rating Unit					W.Wheat			
Rating Date					Yield			
					Bu/A			
					06/30/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							53.8 a
2	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	59.6 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
3	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B	64.9 a
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
4	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	66.3 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Clarity.....dicamba	4	L	0.125	lb ai/a	Spring	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
5	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	65.3 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	2,4-D amine	3.8	L	0.356	lb ae/a	Spring	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
6	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	63.1 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Starane Ultra...fluroxypyr	2.8	EC	0.24	lb ae/a	Spring	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
7	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	A	63.0 a
	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	A	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	3-lvs	A	
8	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	A	60.3 a
	Glory.....metribuzin	75	DF	0.188	lb ai/a	3-lvs	A	
	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	A	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	3-lvs	A	
9	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	B	60.4 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
10	Huskie Premix	2.05	EC	0.176	lb ai/a	3-lvs	A	55.9 a
	----pyrasulfotole	0.3		0.0258				
	----bromoxynil	1.75		0.15				
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	3-lvs	A	

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8; Average=7

Pest Code						C	TRZAW	C	TRZAW	C	TRZAW	STEME			
Crop Type, Code												C -			
Description						W.Wheat	W.Wheat	W.Wheat	W.Wheat	C.chkwd					
Rating Type						Chlorosis	Stunting	Stunting	Stunting	Control					
Rating Unit						%	%	%	%	%					
Rating Date						12/12/15	12/12/15	04/14/16	05/15/16						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code								
11	Huskie Premix	2.05	EC	0.24	lb ai/a	3-lvs	A	1.0	bc	0.0	b	1.7	cde	26.7	d
	----pyrasulfotole	0.3		0.035											
	----bromoxynil	1.75		0.205											
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A								
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	3-lvs	A								
12	Huskie Premix	2.05	EC	0.176	lb ai/a	3-lvs	A	5.7	ab	5.7	a	0.0	e	100.0	a
	----pyrasulfotole	0.3		0.0258											
	----bromoxynil	1.75		0.15											
	Glory.....metribuzin	75	DF	0.188	lb ai/a	3-lvs	A								
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A								
13	Quelex	20	WG	0.0094	lb ai/a	Spring	B					8.0	ab	85.0	b
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B								
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B								
14	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B					10.7	a	100.0	a
	----thifensulfuron	33		0.0154											
	----tribenuron	17		0.00796											
	Glory.....metribuzin	75	DF	0.188	lb ai/a	Spring	B								
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B								
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B								
LSD P=.05						5.65		4.25		4.26		11.84			
Standard Deviation						3.17		2.39		2.54		7.05			
CV						72.44		59.02		57.64		9.05			
Replicate F						0.487		1.360		5.102		1.168			
Replicate Prob(F)						0.6261		0.2935		0.0135		0.3269			
Treatment F						5.069		7.797		5.882		73.662			
Treatment Prob(F)						0.0083		0.0014		0.0001		0.0001			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8; Average=7

Pest Code						VIORA	SCRAN	VICVI	VICVI						
Crop Type, Code						C -	C -	C -	C -						
Description						FldPansy	knawel	H.vetch	H.vetch						
Rating Type						Control	Control	Control	Control						
Rating Unit						%	%	%	%						
Rating Date						05/15/16	05/15/16	05/15/16	06/14/16						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code								
11	Huskie Premix	2.05	EC	0.24	lb ai/a	3-lvs	A	10.0	cd	93.3	a	40.0	d	93.3	abc
	----pyrasulfotole	0.3		0.035											
	----bromoxynil	1.75		0.205											
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A								
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	3-lvs	A								
12	Huskie Premix	2.05	EC	0.176	lb ai/a	3-lvs	A	40.0	b	100.0	a	86.7	ab	95.0	ab
	----pyrasulfotole	0.3		0.0258											
	----bromoxynil	1.75		0.15											
	Glory.....metribuzin	75	DF	0.188	lb ai/a	3-lvs	A								
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A								
13	Quelex	20	WG	0.0094	lb ai/a	Spring	B	80.0	a	86.7	a	100.0	a	97.3	a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B								
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B								
14	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	81.7	a	100.0	a	100.0	a	100.0	a
	----thifensulfuron	33		0.0154											
	----tribenuron	17		0.00796											
	Glory.....metribuzin	75	DF	0.188	lb ai/a	Spring	B								
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B								
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B								
LSD P=.05						29.55	21.45	14.94	12.03						
Standard Deviation						17.50	12.55	8.77	7.14						
CV						30.63	15.04	11.16	8.33						
Replicate F						4.759	5.267	1.158	0.225						
Replicate Prob(F)						0.0186	0.0151	0.3342	0.8002						
Treatment F						11.560	12.622	39.467	39.948						
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001						

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8; Average=7

Pest Code						C TRZAW		
Crop Type, Code								
Description								
Rating Type								
Rating Unit						W.Wheat		
Rating Date						Yield		
						Bu/A		
						06/30/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code	
11	Huskie Premix	2.05	EC	0.24	lb ai/a	3-lvs	A	64.1 a
	----pyrasulfotole	0.3		0.035				
	----bromoxynil	1.75		0.205				
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	3-lvs	A	
12	Huskie Premix	2.05	EC	0.176	lb ai/a	3-lvs	A	57.6 a
	----pyrasulfotole	0.3		0.0258				
	----bromoxynil	1.75		0.15				
	Glory.....metribuzin	75	DF	0.188	lb ai/a	3-lvs	A	
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A	
13	Quelex	20	WG	0.0094	lb ai/a	Spring	B	62.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
14	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	B	60.3 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Glory.....metribuzin	75	DF	0.188	lb ai/a	Spring	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
LSD P=.05								18.40
Standard Deviation								10.96
CV								17.91
Replicate F								3.685
Replicate Prob(F)								0.0390
Treatment F								0.333
Treatment Prob(F)								0.9791

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8; Average=7

University of Delaware

Weed Interference on Winter Wheat Or Winter Barley  
 Trial ID: SG3-16      Location: Field #16      Trial Year:  
 Protocol ID: SG3-15      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/14/15      Planting Rate: 150      LB/A  
 Depth: 0.75      in  
 Row Spacing: 7      in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDIUM medium  
 Soil Temperature: 70      F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/22/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7      FT  
 Harvested Length: 25      FT  
 % Standard Moisture: 13.5

**Pest Description**  
 Pest 1 Type: W      Code: LOLMG      Lolium multiflorum gaudini  
 Common Name: Annual ryegrass      Artificial Population: X  
 Establishment Date: 10/14/15  
 Establishment Method/Description: Hand-Seeded, dragged in  
 Pest 2 Type: W      Code: BRSSS      Brassica sp.  
 Common Name: Brassica sp.      Artificial Population: X  
 Attributes: Essex Rape  
 Establishment Date: 10/14/15  
 Establishment Method/Description: Hand-seeded, dragged in

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 12      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: FACTOR Factorial  
 Trial Initiation Comments:  
 Annual ryegrass and rape treatments were hand-broadcast after mixing with 1/2 cup of sand on 10-14-15, and then incorporated with a field drag prior to planting.

**Maintenance**

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/14/16	Harmony Extra SG	50	SG	0.7	OZ WT/A
2.	04/14/16	Nonionic Surfactant	100	L	0.25	% V/V
3.	04/14/16	30% UAN	100	L	2	% V/V

Comment: Harmony Extra was applied to treatments 1-4, 6-9, 11-12 to kill any rape that was not controlled with first application. Treatments 5 and 10 were not sprayed.

**Soil Description**  
 % Sand: 77      % OM: 1.6      Texture: SL sandy loam  
 % Silt: 12      pH: 6.4  
 % Clay: 11      CEC: 6.7      Fert. Level: G good  
 Soil Drainage: G good

<b>Application Description</b>					
	A	B	C	D	E
Application Date	11/24/15	03/01/16	03/17/16	03/16/16	03/30/16
Appl. Stop Time	02:30 PM	11:15 AM	09:45 AM	09:30 AM	09:00 AM
Interval to Prev. Appl.		98 DAYS	1 DAYS	15 DAYS	13 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	fall	laWintr	eaSprn	Spring	laSprn
Application Placement	BROADC	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	52 F	60 F	48 F	52 F	44 F
% Relative Humidity Start, Stop	40	33	100	90	34
Wind Velocity+Dir. Start	4 mph W	5 mph SE	0 mph N/A	1 mph SE	1 mph NE
Wet Leaves (Y/N)	Y yes	N no	Y yes	Y yes	Y yes
Soil Temperature	52 F	60 F	48 F	52 F	43 F
Soil Moisture	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover	5	0	100	35	5

<b>Crop Stage At Each Application</b>					
	A	B	C	D	E
Crop 1 Code, BBCH Scale	TRZAW BCER	TRZAW BCER	TRZAW BCER	TRZAW BCER	TRZAW BCER
Stage Scale Used	DESC	DESC	DESC	DESC	DESC
Stage Majority, Percent	4-leaf 50	tillered 100	tillered 100	tillered 100	tillered 100
Stage Minimum, Percent	3-leaf 20				
Stage Maximum, Percent	1-tilr 30				
Height Average	5 in	7.5 in	8 in	8 in	10 in
Height Minimum, Maximum	4 6	7 8	7 9	7 9	9 11

<b>Pest Stage At Each Application</b>					
	A	B	C	D	E
Pest 1 Code, Type, Scale	LOLMG W	LOLMG W	LOLMG W	LOLMG W	LOLMG W
Stage Majority, Percent	4-leaf 60	2-tilr 80	2-tilr 100	2-tilr 100	3-tilr 70
Stage Minimum, Percent	3-leaf 40	1-tilr 20			2-tilr 15
Stage Maximum, Percent	4-leaf 60	2-tilr 80			4-tilr 15
Height Average	2.5 in	4 in	8 in	8 in	11 in
Height Minimum, Maximum	2 3	3 5	7 10	7 10	10 12
Pest 2 Code, Type, Scale	BRSSS W	BRSSS W	BRSSS W	BRSSS W	BRSSS W
Stage Majority, Percent	4-leaf 55	4-leaf 45	6-leaf 60	6-leaf 60	9-leaf 60
Stage Minimum, Percent	3-leaf 45	3-leaf 40	5-leaf 20	5-leaf 20	8-leaf 20
Stage Maximum, Percent	4-leaf 55	5-leaf 15	8-leaf 20	8-leaf 20	10-lf 20
Height Average	3 in	3.5 in	5 in	5 in	7 in
Height Minimum, Maximum	2.5 3.5	3 4	4 6	4 6	6 8

**Application Equipment**

	A	B	C	D	E
Appl. Equipment	Backpack	Backpack	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi	31 psi	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002	11002
Nozzle Spacing	18 in	18 in	18 in	18 in	18 in
Boom Length	9 ft	9 ft	9 ft	9 ft	9 ft
Boom Height	21 in	24 in	26 in	26 in	28 in
Ground Speed	3 mph	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Propellant	COMCO2	COMCO2	COMCO2	COMCO2	COMCO2

**Trial Comments**

Surrogate weed density: Low= 5 lbs/A annual ryegrass + 7 lbs/A Essex rape seed  
 High= 15 lbs/A annual ryegrass + 15 lbs/A Essex rape seed

11/24/15: Because weed density is a factor, weed densities are not recorded in pest stage at application. Visual estimates of weed density are 10 to 30 per m<sup>2</sup> for Annual Ryegrass and 25 to 50 per m<sup>2</sup> for Rape.

03/30/16: The rape was in the early flower stage; seedheads were just visible in the top of most plants.

05/02/16: Stunting and chlorosis in wheat was observed in treatments 5 and 9. Treatment 4 was poor to fair for rape control and good for ryegrass; treatment 8 was excellent control of rape and ryegrass; treatment 9 was fair to poor control of rape, but good control of ryegrass.



Weed Interference on Winter Wheat Or Winter Barley  
 Trial ID: SG3-16      Location: Field #16      Trial Year:  
 Protocol ID: SG3-15      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Crop Type, Code					Wheat	Rape	Ryegrass	C TRZAW
Description					DryWght g/0.25m2	DryWght g/0.25m2	DryWght g/0.25m2	W.Wheat Yield Bu/A
Rating Type								
Rating Unit								
Rating Date					01/06/16	01/06/16	01/06/16	06/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
1	Weed Density (level lo) Annual Ryegrass @ 5 lbs Essex rape @ 7 lb Removal fall	100 D 100 D						45.3 ab
	Harmony Extra SG Premix	50 SG		0.028 lb ai/a fall				
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	_Harmony SG.....thifensulfuron	50 SG		0.0185 lb ai/a fall			A	
	_Express TS.....tribenuron	50 SG		0.0095 lb ai/a fall			A	
	Axial XL.....pinoxaden	0.42 L		0.054 lb ai/a fall			A	
	Nonionic Surfactant	100 L		0.25 % v/v fall			A	
2	Weed Density (level lo) Annual Ryegrass @ 5 lbs Essex rape @ 7 lb Removal late winter	100 D 100 D						43.5 abc
	Harmony Extra SG Premix	50 SG		0.028 lb ai/a laWintr				
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	_Harmony SG.....thifensulfuron	50 SG		0.0185 lb ai/a laWintr			B	
	_Express TS.....tribenuron	50 SG		0.0095 lb ai/a laWintr			B	
	Axial XL.....pinoxaden	0.42 L		0.054 lb ai/a laWintr			B	
	Nonionic Surfactant	100 L		0.25 % v/v laWintr			B	
3	Weed Density (level lo) Annual Ryegrass @ 5 lbs Essex rape @ 7 lb Removal ealy spring	100 D 100 D						53.6 a
	Harmony Extra SG Premix	50 SG		0.028 lb ai/a eaSprn				
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	_Harmony SG.....thifensulfuron	50 SG		0.0185 lb ai/a eaSprn			C	
	_Express TS.....tribenuron	50 SG		0.0095 lb ai/a eaSprn			C	
	Axial XL.....pinoxaden	0.42 L		0.054 lb ai/a eaSprn			C	
	Nonionic Surfactant	100 L		0.25 % v/v eaSprn			C	
4	Weed Density (level lo) Annual Ryegrass @ 5 lbs Essex rape @ 7 lb Removal late spring	100 D 100 D						38.1 bc
	Harmony Extra SG Premix	50 SG		0.028 lb ai/a laSprn				
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	_Harmony SG.....thifensulfuron	50 SG		0.0185 lb ai/a laSprn			E	
	_Express TS.....tribenuron	50 SG		0.0095 lb ai/a laSprn			E	
	Axial XL.....pinoxaden	0.42 L		0.054 lb ai/a laSprn			E	
	Nonionic Surfactant	100 L		0.25 % v/v laSprn			E	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						Wheat	Rape	Ryegrass	C TRZAW	
Description						DryWght g/0.25m2	DryWght g/0.25m2	DryWght g/0.25m2	W.Wheat Yield Bu/A	
Rating Type										
Rating Unit										
Rating Date						01/06/16	01/06/16	01/06/16	06/30/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code				
5	Weed Density (level lo) Annual Ryegrass @ 5 lbs Essex rape @ 7 lb No removal	100	D				27.433 a	6.2510 a	2.1410 a	22.8 de
6	Weed Density (level hi) Annual Ryegrass @ 15 lbs Essex rape @ 15 lbs Removal fall Harmony Extra SG Premix ----thifensulfuron ----tribenuron _Harmony SG.....thifensulfuron _Express TS.....tribenuron Axial XL.....pinoxaden Nonionic Surfactant	100	D							44.6 abc
7	Weed Density (level hi) Annual Ryegrass @ 15 lbs Essex rape @ 15 lbs Removal late winter Harmony Extra SG Premix ----thifensulfuron ----tribenuron _Harmony SG.....thifensulfuron _Express TS.....tribenuron Axial XL.....pinoxaden Nonionic Surfactant	100	D							41.6 abc
8	Weed Density (level hi) Annual Ryegrass @ 15 lbs Essex rape @ 15 lbs Removal ealy spring Harmony Extra SG Premix ----thifensulfuron ----tribenuron _Harmony SG.....thifensulfuron _Express TS.....tribenuron Axial XL.....pinoxaden Nonionic Surfactant	100	D							41.6 abc
9	Weed Density (level hi) Annual Ryegrass @ 15 lbs Essex rape @ 15 lbs Removal late spring Harmony Extra SG Premix ----thifensulfuron ----tribenuron _Harmony SG.....thifensulfuron _Express TS.....tribenuron Axial XL.....pinoxaden Nonionic Surfactant	100	D							29.7 cd
10	Weed Density (level hi) Annual Ryegrass @ 15 lbs Essex rape @ 15 lbs No removal	100	D				25.183 a	12.2717 a	2.9573 a	8.2 e

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						Wheat	Rape	Ryegrass	C TRZAW
Description						DryWght	DryWght	DryWght	W.Wheat
Rating Type						g/0.25m2	g/0.25m2	g/0.25m2	Yield
Rating Unit									Bu/A
Rating Date						01/06/16	01/06/16	01/06/16	06/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
11	Maintain Weed Free							42.560 a	49.4 ab
12	Weed Density (level hi) + N Removal ealy spring								39.4 abc
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	eaSprn			
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	_Harmony SG.....thifensulfuron	50	SG	0.0185	lb ai/a	eaSprn C			
	_Express TS.....tribenuron	50	SG	0.0095	lb ai/a	eaSprn C			
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	eaSprn C			
	Nonionic Surfactant	100	L	0.25	% v/v	eaSprn C			
	Nitrogen (50 lbs N spring)								
	30% Urea Ammonium Nitrate	3.25	L	48.8	lb ai/a	Spring D			
	LSD P=.05							16.4571	9.97983
	Standard Deviation							7.2596	2.84075
	CV							22.88	30.67
	Replicate F							1.598	2.297
	Replicate Prob(F)							0.3090	0.3033
	Treatment F							5.084	6.738
	Treatment Prob(F)							0.0797	0.1219
									0.054
									12.684
									0.9485
									0.0002
									5.989
									0.0002

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Anthem Flex in Winter Wheat  
 Trial ID: SG4-16      Location: Field #16      Trial Year: 2015  
 Protocol ID: SG4-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: FMC

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/14/15      Planting Rate: 150      LB/A  
 Depth: 0.75 in  
 Row Spacing: 7 in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDIUM medium  
 Soil Temperature: 70 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/22/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7 ft  
 Harvested Length: 25 ft  
 % Standard Moisture: 13.5

**Pest Description**

Pest 1 Type: W    Code: LAMAM Lamium amplexicaule  
 Common Name: Henbit  
 Pest 2 Type: W    Code: STEME Stellaria media  
 Common Name: Common chickweed  
 Pest 3 Type: W    Code: VIORA Viola bicolor  
 Common Name: Johnny-jump-up violet  
 Pest 4 Type: W    Code: CERVU Cerastium fontanum vulgare  
 Common Name: Mouse-ear chickweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 14    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOBL Randomized Complete Block (RCB)

**Soil Description**

% Sand: 77    % OM: 1.6    Texture: SL sandy loam  
 % Silt: 12    pH: 6.4  
 % Clay: 11    CEC: 6.7    Fert. Level: G good  
 Soil Drainage: G good

<b>Application Description</b>		
	A	B
Application Date	10/30/15	03/23/16
Appl. Stop Time	09:30 AM	08:40 AM
Interval to Prev. Appl.		145 DAYS
Application Method	SPRAY	SPRAY
Application Timing	1-lf	Spring
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	52 F	52 F
% Relative Humidity Start, Stop	62	59
Wind Velocity+Dir. Start	2 mph NW	3 mph SW
Wet Leaves (Y/N)	Y yes	N no
Soil Temperature	51 F	52 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	0	85

<b>Crop Stage At Each Application</b>		
	A	B
Crop 1 Code, BBCH Scale	TRZAW BCER	TRZAW BCER
Stage Scale Used	DESC	DESC
Stage Majority, Percent	2-leaf 100	tillered 100
Height Average	2 in	9 in
Height Minimum, Maximum	2 2.5	8 10

<b>Pest Stage At Each Application</b>		
	A	B
Pest 1 Code, Type, Scale	LAMAM W	LAMAM W
Stage Majority, Percent	cotyld 60	veg 60
Stage Minimum, Percent	cotyld 60	veg 60
Stage Maximum, Percent	2-lf 40	flowr 40
Height Average	0.5 in	6 in
Height Minimum, Maximum	0.3 0.5	4 8
Density Average	35 m2	12 m2
Pest 2 Code, Type, Scale	STEME W	STEME W
Stage Majority, Percent	cotyld 100	veg 55
Stage Minimum, Percent		veg 55
Stage Maximum, Percent		flowr 45
Diameter	0.3 in	5 in
Height Minimum, Maximum		4 6
Density Average	6 m2	6 m2
Pest 3 Code, Type, Scale	VIORA W	VIORA W
Stage Majority, Percent		flowr 100
Height Average		4 in
Height Minimum, Maximum		2 5
Density Average		8 m2
Pest 4 Code, Type, Scale	CERVU W	CERVU W
Stage Majority, Percent		veg 100
Height Average		5 in
Height Minimum, Maximum		4 6
Density Average		4 m2

**Application Equipment**

	A	B
Appl. Equipment	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Boom Length	9 ft	9 ft
Boom Height	18 in	26 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L
Propellant	COMCO2	COMCO2

**Trial Comments**

11/25/15: Greater than 90% control of henbit and chickweed with Anthem Flex alone. Henbit throughout. Chickweed good density in reps 1 & 2, low density in rep 3.

6/14/16: Only Treatments 11 and 14 provided acceptable control.

Anthem Flex in Winter Wheat							C	TRZAW	C	TRZAW	C	TRZAW	
Trial ID: SG4-16      Location: Field #16      Trial Year: 2015													
Protocol ID: SG4-16      Investigator: Mark VanGessel													
Study Director:													
Sponsor Contact: FMC													
Pest Code							C	TRZAW	C	TRZAW	C	TRZAW	
Crop Type, Code							W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat	
Description							Stunting	Chlorosis	LeafBurn	LeafBurn	LeafBurn	LeafBurn	
Rating Type							%	%	%	%	%	%	
Rating Unit							11/03/15	11/03/15	11/03/15	11/03/15	11/03/15	11/03/15	
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code						
1	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	7.0	de	0.0	e	0.0	e
	----pyroxasulfone	3.733		0.082									
	----carfentrazone	0.267		0.00584									
2	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	7.3	de	4.7	cd	8.0	c
	----pyroxasulfone	3.733		0.082									
	----carfentrazone	0.267		0.00584									
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	1-lf	A						
3	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	0.0	f	0.0	e	4.3	d
	----pyroxasulfone	3.733		0.082									
	----carfentrazone	0.267		0.00584									
	30% Urea Ammonium Nitrate	100	L	50	% v/v	1-lf	A						
4	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	7.0	de	0.0	e	0.0	e
	----pyroxasulfone	3.733		0.082									
	----carfentrazone	0.267		0.00584									
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	1-lf	A						
	----thifensulfuron	33		0.0154									
	----tribenuron	17		0.00796									
5	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	4.7	e	0.0	e	0.0	e
	----pyroxasulfone	3.733		0.082									
	----carfentrazone	0.267		0.00584									
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	1-lf	A						
	----thifensulfuron	33		0.0154									
	----tribenuron	17		0.00796									
	30% Urea Ammonium Nitrate	100	L	50	% v/v	1-lf	A						
6	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	8.0	d	4.0	d	1.7	de
	----pyroxasulfone	3.733		0.082									
	----carfentrazone	0.267		0.00584									
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A						
	Nonionic Surfactant	100	L	0.25	% v/v	1-lf	A						
7	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	11.3	c	10.7	a	15.7	b
	----pyroxasulfone	3.733		0.082									
	----carfentrazone	0.267		0.00584									
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A						
	Crop Oil Concentrate	100	L	1	% v/v	1-lf	A						
8	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	9.7	cd	9.7	ab	4.0	d
	----pyroxasulfone	3.733		0.082									
	----carfentrazone	0.267		0.00584									
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A						
	Dry Ammonium Sulfate	100	D	1.8	% w/v	1-lf	A						
	Nonionic Surfactant	100	L	0.25	% v/v	1-lf	A						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4, 11

Could not calculate LSD (% mean diff) for columns 12 because error mean square = 0.

Pest Code						C TRZAW	C TRZAW	CERVU	LAMAM		
Crop Type, Code						W.Wheat	W.Wheat	C -	C -		
Description						Stunting	Stunting	ME chkwd	Henbit		
Rating Type								Control	Control		
Rating Unit						%	%	%	%		
Rating Date						11/25/15	12/07/15	04/08/16	04/08/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code				
1	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	5.1 d	5.0 de	100.0 a	85.7 ab
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
2	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	13.0 c	6.3 d	100.0 a	100.0 a
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	1-lf	A				
3	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	5.7 d	6.3 d	100.0 a	76.7 b
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	30% Urea Ammonium Nitrate	100	L	50	% v/v	1-lf	A				
4	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	4.7 d	5.7 de	100.0 a	85.0 ab
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	1-lf	A				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
5	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	6.3 d	3.3 e	100.0 a	91.7 ab
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	1-lf	A				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	30% Urea Ammonium Nitrate	100	L	50	% v/v	1-lf	A				
6	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	16.3 bc	15.7 a	100.0 a	93.3 a
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A				
	Nonionic Surfactant	100	L	0.25	% v/v	1-lf	A				
7	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	18.0 ab	9.7 c	100.0 a	100.0 a
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A				
	Crop Oil Concentrate	100	L	1	% v/v	1-lf	A				
8	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	20.0 a	14.0 ab	100.0 a	93.3 a
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A				
	Dry Ammonium Sulfate	100	D	1.8	% w/v	1-lf	A				
	Nonionic Surfactant	100	L	0.25	% v/v	1-lf	A				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4, 11

Could not calculate LSD (% mean diff) for columns 12 because error mean square = 0.



Pest Code						STEME	VICVI	VIORA	VICVI		
Crop Type, Code						C -	C -	C -	C -		
Description						C.chkwd	H.Vetch	FldPansy	H.Vetch		
Rating Type						Control	Presence	Control	Control		
Rating Unit						%	0-1	%	%		
Rating Date						04/08/16	04/08/16	05/10/16	05/10/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code				
1	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	86.7 ab	0.3 a	0.0 c	1.7 c
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
2	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	100.0 a	0.3 a	66.7 ab	15.0 c
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	1-lf	A				
3	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	80.0 b	0.0 a	0.0 c	5.0 c
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	30% Urea Ammonium Nitrate	100	L	50	% v/v	1-lf	A				
4	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	100.0 a	0.7 a	33.3 bc	36.7 bc
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	1-lf	A				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
5	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	100.0 a	1.0 a	33.3 bc	6.7 c
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	1-lf	A				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	30% Urea Ammonium Nitrate	100	L	50	% v/v	1-lf	A				
6	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	99.3 a	0.7 a	0.0 c	0.0 c
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A				
	Nonionic Surfactant	100	L	0.25	% v/v	1-lf	A				
7	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	100.0 a	0.3 a	33.3 bc	38.3 bc
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A				
	Crop Oil Concentrate	100	L	1	% v/v	1-lf	A				
8	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	100.0 a	0.7 a	33.3 bc	38.3 bc
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A				
	Dry Ammonium Sulfate	100	D	1.8	% w/v	1-lf	A				
	Nonionic Surfactant	100	L	0.25	% v/v	1-lf	A				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4, 11

Could not calculate LSD (% mean diff) for columns 12 because error mean square = 0.

Pest Code Crop Type, Code Description Rating Type Rating Unit Rating Date							VICVI C - H.Vetch Control % 06/14/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
1	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
2	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	1-lf	A
3	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
	30% Urea Ammonium Nitrate	100	L	50	% v/v	1-lf	A
4	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	1-lf	A
	----thifensulfuron	33		0.0154			
	----tribenuron	17		0.00796			
5	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	1-lf	A
	----thifensulfuron	33		0.0154			
	----tribenuron	17		0.00796			
	30% Urea Ammonium Nitrate	100	L	50	% v/v	1-lf	A
6	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A
	Nonionic Surfactant	100	L	0.25	% v/v	1-lf	A
7	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A
	Crop Oil Concentrate	100	L	1	% v/v	1-lf	A
8	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A
	Dry Ammonium Sulfate	100	D	1.8	% w/v	1-lf	A
	Nonionic Surfactant	100	L	0.25	% v/v	1-lf	A

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4,11

Could not calculate LSD (% mean diff) for columns 12 because error mean square = 0.

Pest Code							C	C	C	
Crop Type, Code							TRZAW	TRZAW	TRZAW	
Description							W.Wheat	W.Wheat	W.Wheat	
Rating Type							Stunting	Chlorosis	LeafBurn	
Rating Unit							%	%	%	
Rating Date							11/03/15	11/03/15	11/03/15	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code			
9	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	15.0	8.0	14.0
	----pyrooxasulfone	3.733		0.082						
	----carfentrazone	0.267		0.00584						
	Authority MTZ Premix	45	DF	0.155	lb ai/a	1-lf	A			
	----sulfentrazone	18		0.062						
	----metribuzin	27		0.093						
10	Untreated Check							0.0	0.0	0.0
11	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A	14.7	6.3	0.0
	Nonionic Surfactant	100	L	0.5	% v/v	1-lf	A			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	1-lf	A			
12	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	19.0	4.7	20.0
	----pyrooxasulfone	3.733		0.082						
	----carfentrazone	0.267		0.00584						
	Huskie Premix	2.05	EC	0.176	lb ai/a	1-lf	A			
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	1-lf	A			
13	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B			
	----thifensulfuron	33		0.0185						
	----tribenuron	17		0.0095						
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B			
14	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B			
	----thifensulfuron	33		0.0185						
	----tribenuron	17		0.0095						
	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	B			
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B			
LSD P=.05							3.28	3.44	3.31	
Standard Deviation							1.94	2.03	1.95	
CV							22.41	50.8	34.64	
Replicate F							0.385	2.967	0.794	
Replicate Prob(F)							0.6847	0.0723	0.4648	
Treatment F							26.563	11.817	40.129	
Treatment Prob(F)							0.0001	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=4,11  
 Could not calculate LSD (% mean diff) for columns 12 because error mean square = 0.

Pest Code						C TRZAW	C TRZAW	CERVU	LAMAM
Crop Type, Code						W.Wheat	W.Wheat	C -	C -
Description						Stunting	Stunting	ME chkwd	Henbit
Rating Type								Control	Control
Rating Unit						%	%	%	%
Rating Date						11/25/15	12/07/15	04/08/16	04/08/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code		
9	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	14.0 c	11.3 bc
	----pyroxasulfone	3.733		0.082					
	----carfentrazone	0.267		0.00584					
	Authority MTZ Premix	45	DF	0.155	lb ai/a	1-lf	A		
	----sulfentrazone	18		0.062					
	----metribuzin	27		0.093					
10	Untreated Check							0.0 e	0.0 f
11	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A	18.0 ab	15.0 a
	Nonionic Surfactant	100	L	0.5	% v/v	1-lf	A		
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	1-lf	A		
12	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	8.0 d	9.7 c
	----pyroxasulfone	3.733		0.082					
	----carfentrazone	0.267		0.00584					
	Huskie Premix	2.05	EC	0.176	lb ai/a	1-lf	A		
	----pyrasulfotole	0.3		0.0258					
	----bromoxynil	1.75		0.15					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	1-lf	A		
13	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B		86.7 b
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B		
14	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B		81.7 c
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	B		
	----pyrasulfotole	0.3		0.0258					
	----bromoxynil	1.75		0.15					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B		
LSD	P=.05							3.44	2.90
	Standard Deviation							2.02	1.71
	CV							18.81	20.17
	Replicate F							0.582	0.794
	Replicate Prob(F)							0.5677	0.4646
	Treatment F							31.649	24.423
	Treatment Prob(F)							0.0001	0.0001
									2.167
									17.830
									0.1348
									0.0001
									1947.875
									21.869
									0.0001
									0.0001

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=4,11  
 Could not calculate LSD (% mean diff) for columns 12 because error mean square = 0.

Pest Code						STEME	VICVI	VIORA	VICVI		
Crop Type, Code						C -	C -	C -	C -		
Description						C.chkwd	H.Vetch	FldPansy	H.Vetch		
Rating Type						Control	Presence	Control	Control		
Rating Unit						%	0-1	%	%		
Rating Date						04/08/16	04/08/16	05/10/16	05/10/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
9	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	100.0 a	0.3 a	66.7 ab	66.7 ab
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Authority MTZ Premix	45	DF	0.155	lb ai/a	1-lf	A				
	----sulfentrazone	18		0.062							
	----metribuzin	27		0.093							
10	Untreated Check							0.0 c	0.3 a	0.0 c	0.0 c
11	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A	86.7 ab	0.3 a	0.0 c	100.0 a
	Nonionic Surfactant	100	L	0.5	% v/v	1-lf	A				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	1-lf	A				
12	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A	91.7 ab	0.3 a	0.0 c	43.3 bc
	----pyroxasulfone	3.733		0.082							
	----carfentrazone	0.267		0.00584							
	Huskie Premix	2.05	EC	0.176	lb ai/a	1-lf	A				
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	1-lf	A				
13	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B	86.7 ab	0.3 a	100.0 a	100.0 a
	----thifensulfuron	33		0.0185							
	----tribenuron	17		0.0095							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B				
14	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B	85.0 ab	0.0 a	100.0 a	100.0 a
	----thifensulfuron	33		0.0185							
	----tribenuron	17		0.0095							
	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	B				
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B				
LSD P=.05						16.38	0.87	64.24	50.50		
Standard Deviation						9.76	0.52	38.28	29.97		
CV						11.24	128.19	114.83	76.05		
Replicate F						4.690	0.619	0.650	4.407		
Replicate Prob(F)						0.0182	0.5462	0.5303	0.0234		
Treatment F						21.348	0.796	2.800	4.925		
Treatment Prob(F)						0.0001	0.6586	0.0123	0.0004		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=4,11

Could not calculate LSD (% mean diff) for columns 12 because error mean square = 0.

Pest Code							VICVI
Crop Type, Code							C -
Description							H.Vetch
Rating Type							Control
Rating Unit							%
Rating Date							06/14/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
9	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
	Authority MTZ Premix	45	DF	0.155	lb ai/a	1-lf	A
	----sulfentrazone	18		0.062			
	----metribuzin	27		0.093			
10	Untreated Check						0.0 b
11	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	1-lf	A
	Nonionic Surfactant	100	L	0.5	% v/v	1-lf	A
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	1-lf	A
12	Anthem Flex Premix	4	SE	0.0875	lb ai/a	1-lf	A
	----pyroxasulfone	3.733		0.082			
	----carfentrazone	0.267		0.00584			
	Huskie Premix	2.05	EC	0.176	lb ai/a	1-lf	A
	----pyrasulfotole	0.3		0.0258			
	----bromoxynil	1.75		0.15			
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	1-lf	A
13	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring B	0.0 b
	----thifensulfuron	33		0.0185			
	----tribenuron	17		0.0095			
	Nonionic Surfactant	100	L	0.25	% v/v	Spring B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring B	
14	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring B	97.0 a
	----thifensulfuron	33		0.0185			
	----tribenuron	17		0.0095			
	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring B	
	----pyrasulfotole	0.3		0.0258			
	----bromoxynil	1.75		0.15			
	Nonionic Surfactant	100	L	0.25	% v/v	Spring B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring B	
LSD P=.05							.
Standard Deviation							0.00
CV							0.0
Replicate F							0.000
Replicate Prob(F)							1.0000
Treatment F							0.000
Treatment Prob(F)							1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=4,11

Could not calculate LSD (% mean diff) for columns 12 because error mean square = 0.

Utility of Afforia for Winter Wheat in Delaware  
 Trial ID: SG5a-16      Location: Field #10      Trial Year: 2015  
 Protocol ID: SG5-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjb@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/14/15      Planting Rate: 150      LB/A  
 Depth: 0.75 in  
 Row Spacing: 7 in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 69 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/22/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 13.5

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 6      Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**

% Sand: 79    % OM: 2.2    Texture: SL sandy loam  
 % Silt: 10    pH: 5.6  
 % Clay: 11    CEC: 7.5    Fert. Level: G good  
 Soil Drainage: F fair

**Application Description**

	A	B
Application Date	10/08/15	10/15/15
Appl. Stop Time	02:00 PM	09:00 AM
Interval to Prev. Appl.		7 DAYS
Application Method	SPRAY	SPRAY
Application Timing	7EPP	PRE
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	75 F	53 F
% Relative Humidity Start, Stop	48	77
Wind Velocity+Dir. Start	2 mph SE	1 mph NW
Wet Leaves (Y/N)	N no	Y yes
Soil Temperature	75 F	53 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	60	5

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	TRZAW BCER	TRZAW BCER

**Application Equipment**

	A	B
Appl. Equipment	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Boom Length	9 ft	9 ft
Boom Height	18 in	18 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L
Propellant	COMCO2	COMCO2

**Trial Comments**

10/31/15: Very few weeds present at this point

11/25/15: Weed density is very low. Some severely injured plants in treatment 2 (stand loss as a result).

12/08/15: Henbit and Jagged chickweed present, but in low numbers.

03/16/16: treatments 5 and 6 poor for jagged chickweed  
flumioxazin good to fair for jagged chickweed depending on rate.

4/14/16: Weed density is quite low, thus some variable results. Treatment 6 is weak on jagged chickweed.



Utility of Afforia for Winter Wheat in Delaware							
Trial ID: SG5a-16		Location: Field #10		Trial Year: 2015			
Protocol ID: SG5-16		Investigator: Mark VanGessel			Study Director:		
Sponsor Contact:							
Pest Code	C	TRZAW	C	TRZAW	C	TRZAW	
Crop Type, Code							
Description	W.Wheat		W.Wheat		W.Wheat		
Rating Type	Stunting		Stunting		Stunting		
Rating Unit	%		%		%		
Rating Date	10/31/15		11/25/15		12/08/15		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code
1	Afforia Premix	50.8	DG	0.079	lb ai/a	7EPP	A
	----flumioxazin	40.8		0.0634			
	----thifensulfuron	5		0.0078			
	----tribenuron	5		0.0078			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A
	Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A
						0.0 b	9.7 b
2	Afforia Premix	50.8	DG	0.159	lb ai/a	7EPP	A
	----flumioxazin	40.8		0.128			
	----thifensulfuron	5		0.0156			
	----tribenuron	5		0.0156			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A
	Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A
						8.0 a	18.3 a
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A
	Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A
						8.0 a	12.3 b
4	Untreated Check						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B
	Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B
						0.0 b	0.0 d
5	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	PRE	B
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B
	Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B
						2.3 b	5.7 c
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PRE	B
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B
	Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B
						0.0 b	3.3 cd
LSD P=.05						3.45	3.38
Standard Deviation						1.89	1.86
CV						62.0	22.61
Replicate F						1.223	3.875
Replicate Prob(F)						0.3349	0.0568
Treatment F						12.944	38.071
Treatment Prob(F)						0.0004	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code	LAMAM	HLOUM	C TRZAW	LAMAM						
Crop Type, Code	C -	C -		C -						
Description	Henbit	JagChkwd	W.Wheat	Henbit						
Rating Type	Control	Control	stuning	control						
Rating Unit	%	%	%	%						
Rating Date	12/08/15	12/08/15	03/16/16	03/16/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code				
1 Afforia Premix	50.8	DG	0.079	lb ai/a	7EPP	A	100.0 a	100.0 a	11.3 ab	98.3 a
----flumioxazin	40.8		0.0634							
----thifensulfuron	5		0.0078							
----tribenuron	5		0.0078							
Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A				
Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A				
2 Afforia Premix	50.8	DG	0.159	lb ai/a	7EPP	A	100.0 a	100.0 a	13.0 a	100.0 a
----flumioxazin	40.8		0.128							
----thifensulfuron	5		0.0156							
----tribenuron	5		0.0156							
Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A				
Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A				
3 Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	100.0 a	100.0 a	6.7 bc	93.3 a
Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A				
Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A				
4 Untreated Check							0.0 b	0.0 b	0.0 d	0.0 d
Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B				
Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B				
5 Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	PRE	B	100.0 a	98.3 a	2.3 cd	68.3 c
Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B				
Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B				
6 Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PRE	B	100.0 a	100.0 a	7.3 bc	81.7 b
Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B				
Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B				
LSD P=.05							.	2.14	5.65	9.78
Standard Deviation							0.00	1.18	3.11	5.37
CV							0.0	1.42	45.85	7.3
Replicate F							0.000	1.000	2.802	3.077
Replicate Prob(F)							1.0000	0.4019	0.1081	0.0909
Treatment F							0.000	3577.000	7.797	149.702
Treatment Prob(F)							1.0000	0.0001	0.0031	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code							C	TRZAW	C	TRZAW	C	TRZAW
Crop Type, Code							W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat
Description							Injury	Stunting	Std	Reduct		
Rating Type							%	%	%	%	%	%
Rating Unit							04/14/16	04/14/16	04/14/16	04/14/16	04/14/16	04/14/16
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code					
1	Afforia Premix	50.8	DG	0.079	lb ai/a	7EPP	A	9.7 a	2.3 a	2.7 b		
	----flumioxazin	40.8		0.0634								
	----thifensulfuron	5		0.0078								
	----tribenuron	5		0.0078								
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A					
2	Afforia Premix	50.8	DG	0.159	lb ai/a	7EPP	A	9.7 a	5.7 a	5.0 a		
	----flumioxazin	40.8		0.128								
	----thifensulfuron	5		0.0156								
	----tribenuron	5		0.0156								
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A					
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	5.0 ab	1.7 a	1.7 bc		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A					
4	Untreated Check							0.0 c	0.0 a	0.0 c		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B					
5	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	PRE	B	3.3 bc	2.3 a	0.3 c		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B					
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PRE	B	8.0 ab	4.0 a	0.3 c		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B					
LSD P=.05							4.99	6.80	1.97			
Standard Deviation							2.74	3.74	1.08			
CV							46.14	140.15	64.81			
Replicate F							0.052	0.752	1.286			
Replicate Prob(F)							0.9499	0.4964	0.3185			
Treatment F							5.981	0.821	9.486			
Treatment Prob(F)							0.0082	0.5618	0.0015			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code						LAMAM	STEME	
Crop Type, Code						C -	C -	C TRZAW
Description						Henbit	C.Chkwd	W.Wheat
Rating Type						Control	Control	Yield
Rating Unit						%	%	Bu/A
Rating Date						04/14/16	04/14/16	06/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Afforia Premix	50.8	DG	0.079	lb ai/a	7EPP	A	77.8 ab
	----flumioxazin	40.8		0.0634				100.0 a
	----thifensulfuron	5		0.0078				53.4 a
	----tribenuron	5		0.0078				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A	
2	Afforia Premix	50.8	DG	0.159	lb ai/a	7EPP	A	76.7 ab
	----flumioxazin	40.8		0.128				88.3 a
	----thifensulfuron	5		0.0156				58.8 a
	----tribenuron	5		0.0156				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A	
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	93.3 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	96.7 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	7EPP	A	61.2 a
4	Untreated Check							0.0 c
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B	0.0 b
	Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B	63.8 a
5	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	PRE	B	63.3 b
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B	100.0 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B	62.7 a
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PRE	B	83.3 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	B	98.3 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	PRE	B	60.7 a
LSD P=.05						19.05	13.46	9.50
Standard Deviation						10.31	7.40	5.22
CV						15.68	9.18	8.69
Replicate F						0.883	0.482	0.010
Replicate Prob(F)						0.4466	0.6310	0.9904
Treatment F						31.958	86.416	1.512
Treatment Prob(F)						0.0001	0.0001	0.2699

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=11

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Utility of Afforia for Winter Wheat in Delaware  
 Trial ID: SG5b-16      Location: Middletown      Trial Year: 2015  
 Protocol ID: SG5-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/14/15      Planting Rate: 150      LB/A  
 Depth: 1      in  
 Row Spacing: 7      in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 69      F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/22/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7      FT  
 Harvested Length: 25      FT  
 % Standard Moisture: 13.5

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 6      Tillage Type: NOTILL    no-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)  
  
 Trial Initiation Comments:  
 Entire plot area was sprayed with glyphosate on 10-7-15.

**Application Description**

	A
Application Date	10/07/15
Appl. Stop Time	11:30 AM
Application Method	SPRAY
Application Timing	7 EPP
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	69 F
% Relative Humidity Start, Stop	61
Wind Velocity+Dir. Start	3 mph N
Wet Leaves (Y/N)	N no
Soil Temperature	69 F
Soil Moisture	NORMAL
% Cloud Cover	80

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	TRZAW BCER

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMCO2

**Trial Comments**

11/11/15: Rating is based on overall plot coverage; stunting is more severe in the tire tracks; henbit just beginning to emerge in UTC (cotyledon stage) and weed density is low. Wheat planted >1 in deep.

12/11/15: Injury rated as biomass reduction (Stand loss and stunting). Weed pressure is very low and not consistent enough to rate any species present.

04/08/16: Injury rated as biomass reduction (stand loss and stunting). Treatments were variable. Henbit pressure was light (very low density) but not observed in any plots other than untreated check. Sporadic common chickweed in untreated check, but none in treated plots.

04/29/16: Late boot stage of the wheat.

Utility of Afforia for Winter Wheat in Delaware						
Trial ID: SG5b-16		Location: Middletown		Trial Year: 2015		
Protocol ID: SG5-16		Investigator: Mark VanGessel			Study Director:	
Sponsor Contact:						
Crop Type, Code	C	TRZAW	C	TRZAW	C	TRZAW
Description		W.wheat		W.wheat		W.wheat
Rating Type		Injury		Stunting		Stunting
Rating Unit		%		%		%
Rating Date		10/29/15		11/11/15		11/20/15
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing Code
1	Afforia Premix	50.8	DG	0.079	lb ai/a	7EPP A
	----flumioxazin	40.8		0.0634		
	----thifensulfuron	5		0.0078		
	----tribenuron	5		0.0078		
	___Harmony SG...thifensulfuron	50	SG	0.0039	lb ai/a	A
	___Express TS.....tribenuron	50	SG	0.0039	lb ai/a	A
	___Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	A
2	Afforia Premix	50.8	DG	0.159	lb ai/a	7EPP A
	----flumioxazin	40.8		0.128		
	----thifensulfuron	5		0.0156		
	----tribenuron	5		0.0156		
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP A
4	Untreated Check					
5	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	7EPP A
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	7EPP A
LSD P=.05						
Standard Deviation						
CV						
Replicate F						
Replicate Prob(F)						
Treatment F						
Treatment Prob(F)						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Crop Type, Code						C	TRZAW	C	TRZAW	C	TRZAW
Description						W.wheat		W.wheat		W.wheat	
Rating Type						BiomRed		Stunting		StndLoss	
Rating Unit						%		%		%	
Rating Date						12/16/15		03/17/16		03/17/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Afforia Premix	50.8	DG	0.079	lb ai/a	7EPP	A	19.0 b	11.7 ab	7.3 b	
	----flumioxazin	40.8		0.0634							
	----thifensulfuron	5		0.0078							
	----tribenuron	5		0.0078							
	___Harmony SG...thifensulfuron	50	SG	0.0039	lb ai/a		A				
	___Express TS.....tribenuron	50	SG	0.0039	lb ai/a		A				
	___Valor SX.....flumioxazin	51	WG	0.064	lb ai/a		A				
2	Afforia Premix	50.8	DG	0.159	lb ai/a	7EPP	A	40.0 a	19.0 a	26.7 a	
	----flumioxazin	40.8		0.128							
	----thifensulfuron	5		0.0156							
	----tribenuron	5		0.0156							
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	13.0 b	12.3 ab	8.0 b	
4	Untreated Check							0.0 c	0.0 c	0.0 b	
5	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	7EPP	A	0.0 c	0.0 c	0.0 b	
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	7EPP	A	0.0 c	7.0 bc	0.0 b	
LSD P=.05						8.35		7.99		10.33	
Standard Deviation						4.59		4.39		5.68	
CV						38.25		52.72		81.11	
Replicate F						1.930		3.946		0.977	
Replicate Prob(F)						0.1955		0.0545		0.4096	
Treatment F						36.057		8.753		9.957	
Treatment Prob(F)						0.0001		0.0020		0.0012	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.



Crop Type, Code						C	TRZAW	C	TRZAW	C	TRZAW
Description						W.wheat		W.wheat		W.wheat	
Rating Type						BiomRed		BiomRed		Stunting	
Rating Unit						%		%		%	
Rating Date						03/17/16		04/08/16		04/29/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Afforia Premix	50.8	DG	0.079	lb ai/a	7EPP	A	18.3 b	11.3 b	14.0 b	
	----flumioxazin	40.8		0.0634							
	----thifensulfuron	5		0.0078							
	----tribenuron	5		0.0078							
	___Harmony SG...thifensulfuron	50	SG	0.0039	lb ai/a		A				
	___Express TS.....tribenuron	50	SG	0.0039	lb ai/a		A				
	___Valor SX.....flumioxazin	51	WG	0.064	lb ai/a		A				
2	Afforia Premix	50.8	DG	0.159	lb ai/a	7EPP	A	38.3 a	35.7 a	31.7 a	
	----flumioxazin	40.8		0.128							
	----thifensulfuron	5		0.0156							
	----tribenuron	5		0.0156							
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	16.3 b	9.7 b	12.3 b	
4	Untreated Check							0.0 c	0.0 b	0.0 c	
5	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	7EPP	A	0.0 c	0.0 b	0.0 c	
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	7EPP	A	7.0 c	0.0 b	0.0 c	
LSD P=.05								8.94	12.99	5.98	
Standard Deviation								4.92	7.14	3.29	
CV								36.87	75.61	34.0	
Replicate F								2.572	1.060	2.654	
Replicate Prob(F)								0.1255	0.3823	0.1189	
Treatment F								26.185	11.283	43.901	
Treatment Prob(F)								0.0001	0.0007	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Crop Type, Code						C TRZAW		
Description						W.wheat		
Rating Type						Yield		
Rating Unit						Bu/A		
Rating Date						07/02/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Afforia Premix	50.8	DG	0.079	lb ai/a	7EPP	A	46.6 ab
	----flumioxazin	40.8		0.0634				
	----thifensulfuron	5		0.0078				
	----tribenuron	5		0.0078				
	___Harmony SG...thifensulfuron	50	SG	0.0039	lb ai/a		A	
	___Express TS.....tribenuron	50	SG	0.0039	lb ai/a		A	
	___Valor SX.....flumioxazin	51	WG	0.064	lb ai/a		A	
2	Afforia Premix	50.8	DG	0.159	lb ai/a	7EPP	A	44.6 b
	----flumioxazin	40.8		0.128				
	----thifensulfuron	5		0.0156				
	----tribenuron	5		0.0156				
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	51.7 a
4	Untreated Check							51.9 a
5	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	7EPP	A	52.0 a
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	7EPP	A	51.9 a
LSD P=.05								5.57
Standard Deviation								3.06
CV								6.15
Replicate F								1.148
Replicate Prob(F)								0.3558
Treatment F								3.514
Treatment Prob(F)								0.0430

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Quelex Efficacy in Winter Wheat  
 Trial ID: SG7-16      Location: Field #10      Trial Year: 2015  
 Protocol ID: SG7-16      Investigator: Mark VanGessel  
                                  Study Director: Barb  
                                  Sponsor Contact: Dow

**General Trial Information**

Study Director: Barb  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

**Contacts**

Study Director: Barb

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C	TRZAW Triticum aestivum (winter) Winter wheat	BBCH Scale: BCER
	Variety: Shirley	
Planting Date: 10/14/15	Planting Rate: 150	LB/A
Depth: 0.75 in		
Row Spacing: 7 in	Planting Method: PLANTD planted	
	Planting Equipment: SR      Drilling Machine	
Soil Temperature: 69 F	Seed Bed: MEDTRA medium/trashy	
Emergence Date: 10/22/15	Soil Moisture: NORMAL normal, adequate	
	Harvest Equipment: Plot combine	
	Harvested Width: 7 FT	
% Standard Moisture: 13.5	Harvested Length: 25 FT	

**Pest Description**

Pest 1 Type: W    Code: LAMAM Lamium amplexicaule  
 Common Name: Henbit

Pest 2 Type: W    Code: VIORA Viola bicolor  
 Common Name: Johnny-jump-up violet

Pest 3 Type: W    Code: CERVU Cerastium fontanum vulgare  
 Common Name: Mouse-ear chickweed

Pest 4 Type: W    Code: HLOUM Holosteum umbellatum  
 Common Name: Jagged chickweed

Pest 5 Type: W    Code: OEOLA Oenothera laciniata  
 Common Name: Cutleaf eveningprimrose

Pest 6 Type: W    Code: POAAN Poa annua  
 Common Name: Annual bluegrass

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 10    Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**

% Sand: 79    % OM: 2.2    Texture: SL sandy loam  
 % Silt: 10    pH: 5.6  
 % Clay: 11    CEC: 7.5    Fert. Level: G good  
 Soil Drainage: F fair

**Application Description**

	A
Application Date	03/23/16
Appl. Stop Time	10:00 AM
Application Method	SPRAY
Application Timing	Spring
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	58 F
% Relative Humidity Start, Stop	47
Wind Velocity+Dir. Start	4 mph SW
Wet Leaves (Y/N)	N no
Soil Temperature	58 F
Soil Moisture	NORMAL
% Cloud Cover	80

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	TRZAW BCER
Stage Scale Used	DESC
Stage Majority, Percent	tillered 100
Height Average	9 in
Height Minimum, Maximum	8 11

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	LAMAM W
Stage Majority, Percent	eaFlwr 100
Height Average	5 in
Height Minimum, Maximum	4 6
Density Average	8 m2
Pest 2 Code, Type, Scale	VIORA W
Stage Majority, Percent	flower 100
Height Average	4 in
Height Minimum, Maximum	2 5
Density Average	6 m2
Pest 3 Code, Type, Scale	CERVU W
Stage Majority, Percent	eaFlwr 100
Height Average	6 in
Height Minimum, Maximum	3 8
Density Average	4 m2
Pest 4 Code, Type, Scale	HLOUM W
Stage Majority, Percent	seed 100
Height Average	5 in
Density Average	12 m2
Pest 5 Code, Type, Scale	OEOLA W
Stage Majority, Percent	roset 100
Diameter	4 in
Height Minimum, Maximum	3 5
Density Average	6 m2
Pest 6 Code, Type, Scale	POAAN W
Stage Majority, Percent	veg 65
Stage Minimum, Percent	eaFlwr 35
Stage Maximum, Percent	eaFlwr 35
Height Average	4 in
Density Average	8 n2

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	26 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	2 L
Propellant	COMCO2

Quelex Efficacy in Winter Wheat Trial ID: SG7-16      Location: Field #10      Trial Year: 2015 Protocol ID: SG7-16      Investigator: Mark VanGessel Study Director: Barb Sponsor Contact: Dow
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Trial Comments
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Quelex Efficacy in Winter Wheat											
Trial ID: SG7-16		Location: Field #10		Trial Year: 2015							
Protocol ID: SG7-16		Investigator: Mark VanGessel									
		Study Director: Barb									
		Sponsor Contact: Dow									
Pest Code	C	TRZAW	CERVU	LAMAM	VIORA						
Crop Type, Code			C -	C -	C -						
Description	W. Wheat	ME chkwd	Henbit	FldPansy							
Rating Type	Stunting	Control	Control	Control							
Rating Unit	%	%	%	%							
Rating Date	04/08/16	04/08/16	04/08/16	04/08/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code				
1	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	0.0 a	90.0 ab	99.0 a	36.7 cd
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
2	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	0.0 a	85.0 b	99.0 a	51.7 abc
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	30% Urea Ammonium Nitrate	100	L	100	% v/v	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
3	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	0.0 a	90.0 ab	98.0 a	50.0 bc
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	2,4-D ester	3.8	L	0.312	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
4	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	0.0 a	88.3 ab	99.0 a	35.0 cd
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	2,4-D ester	3.8	L	0.312	lb ae/a	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
5	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A	0.0 a	86.7 b	96.7 a	100.0 a
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
6	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A	0.0 a	80.0 b	98.3 a	93.3 ab
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	2,4-D ester	3.8	L	0.312	lb ae/a	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
7	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	A	1.0 a	83.3 b	97.3 a	83.3 abc
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
8	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	A	1.0 a	83.3 b	69.7 a	99.0 a
	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A				
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
9	Untreated Check							0.0 a	0.0 c	0.0 b	0.0 d

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7,8; Average=9

Pest Code	POAAN	STEME	VIORA	VICVI							
Crop Type, Code	C -	C -	C -	C -							
Description	A.blugrs	Cchkwd	FldPansy	H.Vetch							
Rating Type	Control	Control	Control	Control							
Rating Unit	%	%	%	%							
Rating Date	04/08/16	05/10/16	05/10/16	05/10/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	33.3 a	93.3 a	66.7 a	95.0 a
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
2	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	33.3 a	93.3 a	86.7 a	90.0 a
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	30% Urea Ammonium Nitrate	100	L	100	% v/v	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
3	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	0.0 a	98.9 a	95.0 a	98.3 a
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	2,4-D ester	3.8	L	0.312	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
4	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	33.3 a	93.3 a	97.6 a	100.0 a
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	2,4-D ester	3.8	L	0.312	lb ae/a	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
5	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A	33.3 a	100.0 a	100.0 a	100.0 a
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
6	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A	0.0 a	100.0 a	100.0 a	100.0 a
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	2,4-D ester	3.8	L	0.312	lb ae/a	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
7	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	A	16.7 a	100.0 a	100.0 a	100.0 a
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
8	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	A	66.7 a	100.0 a	100.0 a	100.0 a
	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A				
	----florasulam	10		0.0047							
	----halauxifen	10		0.0047							
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
9	Untreated Check							0.0 a	0.0 b	0.0 b	0.0 b

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7,8; Average=9



Pest Code Crop Type, Code					POAAN C - C	TRZAW		
Description Rating Type Rating Unit Rating Date					A.blugrs Control %	W.Wheat Yield Bu/A		
					05/10/16	06/30/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code		
1	Quelex Premix	20	WG	0.0094 lb ai/a	Spring	A	18.3 bc	45.4 a
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	Crop Oil Concentrate	100	L	1 % v/v	Spring	A		
2	Quelex Premix	20	WG	0.0094 lb ai/a	Spring	A	13.3 bc	56.6 a
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	30% Urea Ammonium Nitrate	100	L	100 % v/v	Spring	A		
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
3	Quelex Premix	20	WG	0.0094 lb ai/a	Spring	A	50.0 ab	50.7 a
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	2,4-D ester	3.8	L	0.312 lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1 % v/v	Spring	A		
4	Quelex Premix	20	WG	0.0094 lb ai/a	Spring	A	10.0 bc	58.0 a
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	2,4-D ester	3.8	L	0.312 lb ae/a	Spring	A		
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
5	Harmony Extra SG Premix	50	SG	0.0234 lb ai/a	Spring	A	0.0 c	60.3 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
6	Harmony Extra SG Premix	50	SG	0.0234 lb ai/a	Spring	A	10.0 bc	55.1 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	2,4-D ester	3.8	L	0.312 lb ae/a	Spring	A		
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
7	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/a	Spring	A	26.7 bc	47.4 a
	Dry Ammonium Sulfate	100	D	0.9 % w/v	Spring	A		
	Crop Oil Concentrate	100	L	1 % v/v	Spring	A		
8	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/a	Spring	A	86.7 a	48.4 a
	Quelex Premix	20	WG	0.0094 lb ai/a	Spring	A		
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	Dry Ammonium Sulfate	100	D	0.9 % w/v	Spring	A		
	Crop Oil Concentrate	100	L	1 % v/v	Spring	A		
9	Untreated Check						0.0 c	53.5 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7,8; Average=9

Pest Code					C TRZAW	CERVU C -	LAMAM C -	VIORA C -
Crop Type, Code								
Description					W.Wheat	ME chkwd	Henbit	FldPansy
Rating Type					Stunting	Control	Control	Control
Rating Unit					%	%	%	%
Rating Date					04/08/16	04/08/16	04/08/16	04/08/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
10	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	1.0 a
	----florasulam	10		0.0047				98.3 a
	----halauxifen	10		0.0047				66.7 a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	Spring	A	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
	LSD P=.05							1.63
	Standard Deviation							0.95
	CV							316.23
	Replicate F							1.000
	Replicate Prob(F)							0.3874
	Treatment F							0.778
	Treatment Prob(F)							0.6390
								0.514
								0.6068
								53.846
								5.503
								0.0011
								2.350
								5.939
								0.1239
								0.0105
								4.630
								0.0028

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7,8; Average=9

Pest Code					POAAN	STEME	VIORA	VICVI
Crop Type, Code					C -	C -	C -	C -
Description					A.blugrs	Cchkwd	FldPansy	H.Vetch
Rating Type					Control	Control	Control	Control
Rating Unit					%	%	%	%
Rating Date					04/08/16	05/10/16	05/10/16	05/10/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
10	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	33.3 a
	----florasulam	10		0.0047				100.0 a
	----halauxifen	10		0.0047				95.0 a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	Spring	A	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
	LSD P=.05							68.90
	Standard Deviation							40.17
	CV							160.67
	Replicate F							3.525
	Replicate Prob(F)							0.0511
	Treatment F							0.832
	Treatment Prob(F)							0.5964
								11.16
								6.48
								7.37
								36.12
								20.97
								24.94
								10.60
								6.12
								6.93
								1.121
								0.674
								2.236
								0.3489
								0.5228
								0.1392
								68.856
								6.682
								77.915
								0.0004
								0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7,8; Average=9

Pest Code						POAAN		
Crop Type, Code						C - C	TRZAW	
Description						A.blugrs	W.Wheat	
Rating Type						Control	Yield	
Rating Unit						%	Bu/A	
Rating Date						05/10/16	06/30/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
10	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	Spring	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
	LSD P=.05						46.59	11.78
	Standard Deviation						26.77	6.87
	CV						107.81	13.11
	Replicate F						1.766	0.562
	Replicate Prob(F)						0.2048	0.5798
	Treatment F						2.967	1.612
	Treatment Prob(F)						0.0304	0.1856

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7,8; Average=9

Comparison of Fall and Spring Herbicide Approaches Emphasis on Optimum Timing for Herbicide Applications  
 Trial ID: SG8-16      Location: Field #16      Trial Year: 2015  
 Protocol ID: SG8-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Bayer

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/13/15      Planting Rate: 150      LB/A  
 Depth: 0.75    in  
 Row Spacing: 7      in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDIUM medium  
 Soil Temperature: 77      F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/21/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7      FT  
 Harvested Length: 25    FT  
 % Standard Moisture: 13.5

**Pest Description**

Pest 1 Type: W    Code: SCRAN Scleranthus annuus  
 Common Name: Annual knawel  
 Pest 2 Type: W    Code: LAMAM Lamium amplexicaule  
 Common Name: Henbit  
 Pest 3 Type: W    Code: STEME Stellaria media  
 Common Name: Common chickweed  
 Pest 4 Type: W    Code: VIORA Viola bicolor  
 Common Name: Johnny-jump-up violet

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 14    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOBL Randomized Complete Block (RCB)

**Soil Description**

% Sand: 77    % OM: 1.6    Texture: SL sandy loam  
 % Silt: 12      pH: 6.4  
 % Clay: 11    CEC: 6.7    Fert. Level: G good  
 Soil Drainage: G good

<b>Application Description</b>				
	A	B	C	D
Application Date	10/23/15	11/24/15	03/23/16	03/30/16
Appl. Stop Time	02:40 PM	02:30 PM	08:20 AM	09:00 AM
Interval to Prev. Appl.		32 DAYS	120 DAYS	7 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	Spike	Fall	Spring	LSpring
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	64 F	52 F	52 F	44 F
% Relative Humidity Start, Stop	45	40	59	34
Wind Velocity+Dir. Start	3 mph NE	4 mph W	3 mph SW	1 mph NE
Wet Leaves (Y/N)	N no	Y yes	N no	Y yes
Soil Temperature	64 F	52 F	52 F	43 F
Soil Moisture	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover	0	5	85	5

<b>Crop Stage At Each Application</b>				
	A	B	C	D
Crop 1 Code, BBCH Scale	TRZAW BCER	TRZAW BCER	TRZAW BCER	TRZAW BCER
Stage Scale Used	DESC	DESC	DESC	DESC
Stage Majority, Percent	1-leaf 100	4-leaf 50	tillered 100	tillered 100
Stage Minimum, Percent		3-leaf 20		
Stage Maximum, Percent		1-tilr 30		
Height Average	1.5 in	5 in	9 in	10 in
Height Minimum, Maximum	1.2 1.7	4 6	8 10	9 11

<b>Pest Stage At Each Application</b>				
	A	B	C	D
Pest 1 Code, Type, Scale	SCRAN W	SCRAN W	SCRAN W	SCRAN W
Stage Majority, Percent	cotyld 100	veg 100	veg 100	flowr 100
Height Average	0.2 in	2 in	5 in	5 in
Density Average	50 m2	50 m2	15 m2	15 m2
Pest 2 Code, Type, Scale	LAMAM W	LAMAM W	LAMAM W	LAMAM W
Stage Majority, Percent	cotyld 100	2-leaf 100	veg 60	flowr 100
Stage Minimum, Percent			veg 60	
Stage Maximum, Percent			flowr 40	
Height Average	0.2 in	1 in	5 in	5 in
Density Average	50 m2	5 m2	5 m2	5 m2
Pest 3 Code, Type, Scale	STEME W	STEME W	STEME W	STEME W
Stage Majority, Percent	cotyld 100	veg 100	veg 55	flowr 100
Stage Minimum, Percent			veg 55	
Stage Maximum, Percent			flowr 45	
Height Average	0.2 in	2 in	5 in	7 in
Density Average	50 m2	5 m2	5 m2	5 m2
Pest 4 Code, Type, Scale	VIORA W	VIORA W	VIORA W	VIORA W
Stage Majority, Percent		veg 100	flowr 100	flowr 100
Height Average		0.7 in	4 in	5 in
Height Minimum, Maximum			2 5	4 5
Density Average		20 m2	20 m2	20 m2

<b>Application Equipment</b>				
	A	B	C	D
Appl. Equipment	Backpack	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	18 in	18 in	18 in	18 in
Boom Length	9 ft	9 ft	9 ft	9 ft
Boom Height	18 in	22 in	26 in	28 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Propellant	COMCO2	COMCO2	COMCO2	COMCO2

#### Trial Comments

10/31/15: Weeds at cotyledon to 1-true leaf; high density of weeds.

11/25/15: Knawel is heaviest in first 3 ranges.

4/13/16: Henbit and chickweed were the only two species consistent in the plots. Knawel not present in rep 3. Treatments 6 and 10 weak on redstem filaree.

5/19/16: Treatments 5 (Huskie) and Treatment 10 (Osprey) weak on redstem filaree and carolina geranium. All trials in field 16 fair control of stripe rust. Plots 314, 307, 214, and 201 to much stand loss to yield.

6/14/16: Huskie did not control dock. Hairy Vetch based on flowers, pods, and plants.

## Comparison of Fall and Spring Herbicide Approaches Emphasis on Optimum Timing for Herbicide Applications

Trial ID: SG8-16      Location: Field #16      Trial Year: 2015  
 Protocol ID: SG8-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Bayer

Pest Code					C	TRZAW	C	TRZAW	LAMAM	SCRAN	
Crop Type, Code									C -	C -	
Description					W.Wheat	W.Wheat	W.Wheat	W.Wheat	Henbit	knawel	
Rating Type					Stunting	Stunting	Stunting	Stunting	Control	Control	
Rating Unit					%	%	%	%	%	%	
Rating Date					10/31/15	11/25/15	11/25/15	11/25/15	11/25/15	11/25/15	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 c	0.0 c	0.0 b	0.0 d
2	Axiom Premix	68	WG	0.17 lb ai/a	Spike		A	10.0 a	7.3 b	95.0 a	60.0 b
	----flufenacet	54		0.135							
	----metribuzin	14		0.035							
3	Axiom Premix	68	WG	0.255 lb ai/a	Spike		A	5.7 b	13.0 a	96.7 a	74.7 a
	----flufenacet	54		0.202							
	----metribuzin	14		0.0525							
4	Axiom Premix	68	WG	0.17 lb ai/a	Spike		A	4.0 b	6.3 b	92.3 a	50.9 c
	----flufenacet	54		0.135							
	----metribuzin	14		0.035							
	Huskie Premix	2.05	EC	0.176 lb ai/a	Fall		B				
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Nonionic Surfactant	100	L	0.5 % v/v	Fall		B				
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall		B				
5	Huskie Premix	2.05	EC	0.176 lb ai/a	Fall		B				
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Nonionic Surfactant	100	L	0.5 % v/v	Fall		B				
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall		B				
6	Huskie Premix	2.05	EC	0.208 lb ai/a	Fall		B				
	----pyrasulfotole	0.3		0.0304							
	----bromoxynil	1.75		0.178							
	Nonionic Surfactant	100	L	0.5 % v/v	Fall		B				
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall		B				
7	Huskie Premix	2.05	EC	0.24 lb ai/a	Fall		B				
	----pyrasulfotole	0.3		0.035							
	----bromoxynil	1.75		0.205							
	Nonionic Surfactant	100	L	0.5 % v/v	Fall		B				
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall		B				
8	Huskie Premix	2.05	EC	0.176 lb ai/a	Fall		B				
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Glory.....metribuzin	75	DF	0.047 lb ai/a	Fall		B				
	Nonionic Surfactant	100	L	0.5 % v/v	Fall		B				
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall		B				
9	Huskie Premix	2.05	EC	0.176 lb ai/a	Fall		B				
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Glory.....metribuzin	75	DF	0.094 lb ai/a	Fall		B				
	Nonionic Surfactant	100	L	0.5 % v/v	Fall		B				
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall		B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4,9,17,19; Average=8,12,13,14,15,16,18



Pest Code						STEME	C TRZAW	C TRZAW	C TRZAW		
Crop Type, Code						C -					
Description						C.chkwd	W.Wheat	W.Wheat	W.Wheat		
Rating Type						Control	Yellowing	Stunting	Stunting		
Rating Unit						%	%	%	%		
Rating Date						11/25/15	12/07/15	12/07/15	04/13/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 c	0.0 b	0.0 d	0.0 c
2	Axiom Premix	68 WG		0.17 lb ai/a		Spike	A	33.3 b	0.0 b	9.0 b	5.0 bc
	----flufenacet	54		0.135							
	----metribuzin	14		0.035							
3	Axiom Premix	68 WG		0.255 lb ai/a		Spike	A	50.0 a	0.0 b	15.7 a	6.0 bc
	----flufenacet	54		0.202							
	----metribuzin	14		0.0525							
4	Axiom Premix	68 WG		0.17 lb ai/a		Spike	A	30.0 b	1.3 b	10.7 b	2.5 bc
	----flufenacet	54		0.135							
	----metribuzin	14		0.035							
	Huskie Premix	2.05 EC		0.176 lb ai/a		Fall	B				
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Nonionic Surfactant	100 L		0.5 % v/v		Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		Fall	B				
5	Huskie Premix	2.05 EC		0.176 lb ai/a		Fall	B		0.0 b	0.0 d	1.7 c
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Nonionic Surfactant	100 L		0.5 % v/v		Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		Fall	B				
6	Huskie Premix	2.05 EC		0.208 lb ai/a		Fall	B		0.0 b	1.7 cd	4.0 bc
	----pyrasulfotole	0.3		0.0304							
	----bromoxynil	1.75		0.178							
	Nonionic Surfactant	100 L		0.5 % v/v		Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		Fall	B				
7	Huskie Premix	2.05 EC		0.24 lb ai/a		Fall	B		0.0 b	8.7 b	1.7 c
	----pyrasulfotole	0.3		0.035							
	----bromoxynil	1.75		0.205							
	Nonionic Surfactant	100 L		0.5 % v/v		Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		Fall	B				
8	Huskie Premix	2.05 EC		0.176 lb ai/a		Fall	B		0.7 b	4.0 c	3.3 bc
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Glory.....metribuzin	75 DF		0.047 lb ai/a		Fall	B				
	Nonionic Surfactant	100 L		0.5 % v/v		Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		Fall	B				
9	Huskie Premix	2.05 EC		0.176 lb ai/a		Fall	B		0.7 b	8.0 b	4.0 bc
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Glory.....metribuzin	75 DF		0.094 lb ai/a		Fall	B				
	Nonionic Surfactant	100 L		0.5 % v/v		Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		Fall	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=4,9,17,19; Average=8,12,13,14,15,16,18

Pest Code						SCRAN	STEME	LAMAM	VICVI	
Crop Type, Code						C -	C -	C -	C -	
Description						knawel	C.chkwd	Henbit	H.Vetch	
Rating Type						Control	Control	Control	Control	
Rating Unit						%	%	%	%	
Rating Date						04/13/16	04/13/16	04/13/16	04/13/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code				
1	Untreated Check						0.0 d	0.0 h	0.0 d	0.0 c
2	Axiom Premix	68 WG		0.17 lb ai/a	Spike	A	10.0 d	23.3 gh	36.7 bc	0.0 c
	----flufenacet	54		0.135						
	----metribuzin	14		0.035						
3	Axiom Premix	68 WG		0.255 lb ai/a	Spike	A	43.4 c	48.3 efg	70.0 a	0.0 c
	----flufenacet	54		0.202						
	----metribuzin	14		0.0525						
4	Axiom Premix	68 WG		0.17 lb ai/a	Spike	A	91.0 a	90.0 ab	100.0 a	100.0 a
	----flufenacet	54		0.135						
	----metribuzin	14		0.035						
	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B				
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
5	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B	63.6 bc	70.0 b-e	95.0 a	100.0 a
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
6	Huskie Premix	2.05 EC		0.208 lb ai/a	Fall	B	83.3 ab	73.3 a-e	91.0 a	100.0 a
	----pyrasulfotole	0.3		0.0304						
	----bromoxynil	1.75		0.178						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
7	Huskie Premix	2.05 EC		0.24 lb ai/a	Fall	B	78.8 ab	50.0 d-g	100.0 a	100.0 a
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
8	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B	88.9 ab	78.3 a-d	69.7 ab	85.0 b
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Glory.....metribuzin	75 DF		0.047 lb ai/a	Fall	B				
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
9	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B	94.0 a	84.3 abc	100.0 a	100.0 a
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Glory.....metribuzin	75 DF		0.094 lb ai/a	Fall	B				
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=4,9,17,19; Average=8,12,13,14,15,16,18

Pest Code						VIORA	STEME	OEOLA	VICVI	
Crop Type, Code						C -	C -	C -	C -	
Description						FldPansy	C.chkwd	CEprmrse	H.Vetch	
Rating Type						Control	Control	Control	Control	
Rating Unit						%	%	%	%	
Rating Date						04/13/16	05/19/16	05/19/16	05/19/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code				
1	Untreated Check						0.0 c	0.0 e	0.0 e	0.0 c
2	Axiom Premix	68 WG		0.17 lb ai/a	Spike	A	0.0 c	40.0 cd	85.0 abc	0.0 c
	----flufenacet	54		0.135						
	----metribuzin	14		0.035						
3	Axiom Premix	68 WG		0.255 lb ai/a	Spike	A	0.0 c	46.7 cd	100.0 a	0.0 c
	----flufenacet	54		0.202						
	----metribuzin	14		0.0525						
4	Axiom Premix	68 WG		0.17 lb ai/a	Spike	A	30.0 bc	77.5 ab	100.0 a	100.0 a
	----flufenacet	54		0.135						
	----metribuzin	14		0.035						
	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B				
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
5	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B	20.0 bc	60.0 bc	40.0 d	75.0 ab
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
6	Huskie Premix	2.05 EC		0.208 lb ai/a	Fall	B	23.3 bc	30.0 d	57.5 bcd	
	----pyrasulfotole	0.3		0.0304						
	----bromoxynil	1.75		0.178						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
7	Huskie Premix	2.05 EC		0.24 lb ai/a	Fall	B	13.3 bc	30.0 d	50.0 cd	
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
8	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B	20.0 bc	100.0 a		
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Glory.....metribuzin	75 DF		0.047 lb ai/a	Fall	B				
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
9	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B	33.3 bc	100.0 a	100.0 a	75.0 ab
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Glory.....metribuzin	75 DF		0.094 lb ai/a	Fall	B				
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4,9,17,19; Average=8,12,13,14,15,16,18

Pest Code						VIORA	SCRAN	VICVI	C TRZAW	
Crop Type, Code						C -	C -	C -	C	
Description						FldPansy	knawel	H.Vetch	W.Wheat	
Rating Type						Control	Control	Control	Yield	
Rating Unit						%	%	%	Bu/A	
Rating Date						05/19/16	05/19/16	06/14/16	06/30/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code				
1	Untreated Check						0.0 c	0.0 d	0.0 d	69.0 c
2	Axiom Premix	68 WG		0.17 lb ai/a	Spike	A	20.0 bc	36.7 c	17.8 cd	72.9 bc
	----flufenacet	54		0.135						
	----metribuzin	14		0.035						
3	Axiom Premix	68 WG		0.255 lb ai/a	Spike	A	36.7 b	45.0 c	36.7 c	76.3 ab
	----flufenacet	54		0.202						
	----metribuzin	14		0.0525						
4	Axiom Premix	68 WG		0.17 lb ai/a	Spike	A	43.3 b	75.0 b	73.5 b	80.1 a
	----flufenacet	54		0.135						
	----metribuzin	14		0.035						
	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B				
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
5	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B	26.7 bc	45.0 c	91.0 ab	80.6 a
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
6	Huskie Premix	2.05 EC		0.208 lb ai/a	Fall	B	20.0 bc	67.5 b	98.6 a	76.0 ab
	----pyrasulfotole	0.3		0.0304						
	----bromoxynil	1.75		0.178						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
7	Huskie Premix	2.05 EC		0.24 lb ai/a	Fall	B	26.7 bc	57.5 bc	98.6 a	75.8 ab
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
8	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B	43.3 b	100.0 a	88.7 ab	81.5 a
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Glory.....metribuzin	75 DF		0.047 lb ai/a	Fall	B				
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				
9	Huskie Premix	2.05 EC		0.176 lb ai/a	Fall	B	38.7 b	100.0 a	95.0 a	78.7 ab
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Glory.....metribuzin	75 DF		0.094 lb ai/a	Fall	B				
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=4,9,17,19; Average=8,12,13,14,15,16,18

Pest Code						C	TRZAW	C	TRZAW	LAMAM	SCRAN	
Crop Type, Code										C -	C -	
Description						W.Wheat	W.Wheat	W.Wheat	W.Wheat	Henbit	knawel	
Rating Type						Stunting	Stunting	Stunting	Stunting	Control	Control	
Rating Unit						%	%	%	%	%	%	
Rating Date						10/31/15	11/25/15	11/25/15	11/25/15	11/25/15	11/25/15	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code					
10	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B					
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B					
11	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B					
	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	B					
	----pyrasulfotole	0.3		0.0258								
	----bromoxynil	1.75		0.15								
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B					
12	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C					
	----thifensulfuron	33		0.0154								
	----tribenuron	17		0.00796								
	Glory.....metribuzin	75	DF	0.14	lb ai/a	Spring	C					
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C					
13	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	B					
	----thifensulfuron	33		0.0154								
	----tribenuron	17		0.00796								
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B					
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C					
	----thifensulfuron	33		0.0154								
	----tribenuron	17		0.00796								
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C					
14	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C					
	----thifensulfuron	33		0.0154								
	----tribenuron	17		0.00796								
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C					
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	LSpring	D					
	----thifensulfuron	33		0.0154								
	----tribenuron	17		0.00796								
	Nonionic Surfactant	100	L	0.5	% v/v	LSpring	D					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	LSpring	D					
LSD	P=.05						3.51	2.40	8.37	8.79		
Standard Deviation							1.76	1.20	4.19	3.38		
CV							35.71	18.03	5.9	7.29		
Replicate F							1.649	4.385	6.380	0.923		
Replicate Prob(F)							0.2688	0.0670	0.0327	0.4872		
Treatment F							16.676	58.923	383.405	276.179		
Treatment Prob(F)							0.0026	0.0001	0.0001	0.0004		

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 Missing data estimates are included in columns: Yates=4,9,17,19; Average=8,12,13,14,15,16,18

Pest Code						STEME					
Crop Type, Code						C -	C TRZAW	C TRZAW	C TRZAW		
Description						C.chkwd	W.Wheat	W.Wheat	W.Wheat		
Rating Type						Control	Yellowing	Stunting	Stunting		
Rating Unit						%	%	%	%		
Rating Date						11/25/15	12/07/15	12/07/15	04/13/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
10	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B		5.7 a	9.7 b	1.0 c
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B				
11	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B		6.3 a	8.0 b	4.7 bc
	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	B				
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B				
12	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C				9.0 b
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Glory.....metribuzin	75	DF	0.14	lb ai/a	Spring	C				
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C				
13	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	B		5.7 a	10.0 b	5.0 bc
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B				
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C				
14	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C				16.3 a
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C				
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	LSpring	D				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.5	% v/v	LSpring	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	LSpring	D				
LSD P=.05						9.99	1.43	3.78	6.73		
Standard Deviation						5.00	0.85	2.23	3.96		
CV						17.65	49.98	31.39	86.49		
Replicate F						2.333	0.155	1.578	0.693		
Replicate Prob(F)						0.1780	0.8574	0.2289	0.5109		
Treatment F						52.000	27.588	13.616	3.192		
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0088		

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Pest Code						SCRAN	STEME	LAMAM	VICVI		
Crop Type, Code						C -	C -	C -	C -		
Description						knawel	C.chkwd	Henbit	H.Vetch		
Rating Type						Control	Control	Control	Control		
Rating Unit						%	%	%	%		
Rating Date						04/13/16	04/13/16	04/13/16	04/13/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
10	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B	64.1 bc	40.0 fg	23.3 cd	100.0 a
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B				
11	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B	90.7 a	59.3 c-f	86.7 a	100.0 a
	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	B				
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B				
12	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	90.7 a	100.0 a	100.0 a	100.0 a
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Glory.....metribuzin	75	DF	0.14	lb ai/a	Spring	C				
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C				
13	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	B	94.3 a	100.0 a	91.0 a	87.5 b
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B				
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C				
14	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	90.0 a	90.3 ab	95.0 a	88.0 ab
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C				
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	LSpring	D				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		0.00796							
	Nonionic Surfactant	100	L	0.5	% v/v	LSpring	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	LSpring	D				
LSD P=.05						25.91	29.30	33.16	12.18		
Standard Deviation						14.89	17.46	19.76	7.00		
CV						21.21	26.94	26.14	9.24		
Replicate F						6.984	1.512	0.476	0.283		
Replicate Prob(F)						0.0072	0.2392	0.6265	0.7578		
Treatment F						13.278	8.696	8.134	105.013		
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001		

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Pest Code						VIORA	STEME	OEOLA	VICVI
Crop Type, Code						C -	C -	C -	C -
Description						FldPansy	C.chkwd	CEprmrse	H.Vetch
Rating Type						Control	Control	Control	Control
Rating Unit						%	%	%	%
Rating Date						04/13/16	05/19/16	05/19/16	05/19/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
10	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B	46.7 ab	43.3 cd
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B		
11	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B	50.0 ab	30.0 d
	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	B		
	----pyrasulfotole	0.3		0.0258					
	----bromoxynil	1.75		0.15					
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B		
12	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	79.0 a	100.0 a
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Glory.....metribuzin	75	DF	0.14	lb ai/a	Spring	C		
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C		
13	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	B	90.0 a	100.0 a
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B		
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C		
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C		
14	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	90.0 a	96.7 a
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C		
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	LSpring	D		
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Nonionic Surfactant	100	L	0.5	% v/v	LSpring	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	LSpring	D		
LSD P=.05						44.63	23.67	37.63	33.47
Standard Deviation						26.02	13.80	19.49	18.12
CV						73.48	22.62	26.51	29.31
Replicate F						2.449	0.484	0.026	0.526
Replicate Prob(F)						0.1146	0.6243	0.9747	0.6080
Treatment F						4.468	18.407	8.761	16.553
Treatment Prob(F)						0.0020	0.0001	0.0041	0.0001

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Pest Code						VIORA	SCRAN	VICVI	
Crop Type, Code						C -	C -	C -	C TRZAW
Description						FldPansy	knawel	H.Vetch	W.Wheat
Rating Type						Control	Control	Control	Yield
Rating Unit						%	%	%	Bu/A
Rating Date						05/19/16	05/19/16	06/14/16	06/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
10	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B	33.3 b	40.0 c
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B		
11	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B	36.7 b	67.5 b
	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	B		
	----pyrasulfotole	0.3		0.0258					
	----bromoxynil	1.75		0.15					
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B		
12	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	88.3 a	100.0 a
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Glory.....metribuzin	75	DF	0.14	lb ai/a	Spring	C		
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C		
13	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	B	95.0 a	100.0 a
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	B		
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C		
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C		
14	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	93.3 a	96.7 a
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C		
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	LSpring	D		
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Nonionic Surfactant	100	L	0.5	% v/v	LSpring	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	LSpring	D		
LSD P=.05						27.13	21.16	19.51	6.46
Standard Deviation						16.13	12.08	11.38	3.85
CV						37.52	18.17	14.69	5.0
Replicate F						1.253	2.662	2.293	22.034
Replicate Prob(F)						0.3030	0.1048	0.1297	0.0001
Treatment F						9.686	19.749	26.108	2.633
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0172

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 Missing data estimates are included in columns: Yates=4,9,17,19; Average=8,12,13,14,15,16,18

Winter Wheat Response to PGR Herbicides  
 Trial ID: SG12-16      Location: Field #16      Trial Year: 2015  
 Protocol ID: SG12-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/13/15      Planting Rate: 150      LB/A  
 Depth: 0.75 in  
 Row Spacing: 7 in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDIUM medium  
 Soil Temperature: 77 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/21/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7 ft  
 Harvested Length: 25 ft  
 % Standard Moisture: 13.5

**Pest Description**  
 Pest 1 Type: W    Code: LAMAM Lamium amplexicaule  
 Common Name: Henbit  
  
 Pest 2 Type: W    Code: STEME Stellaria media  
 Common Name: Common chickweed

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 18    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Maintenance**

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	03/30/16	Harmony Extra SG	50	SG	0.9	OZ WT/A
2.	03/30/16	Nonionic Surfactant	100	L	0.25	% V/V
3.	03/30/16	30% UAN	100	L	2	% V/V

Comment: Total POST applied 3-30-16 to maintain weed free.

**Soil Description**  
 % Sand: 77    % OM: 1.6    Texture: SL sandy loam  
 % Silt: 12    pH: 6.4  
 % Clay: 11    CEC: 6.7    Fert. Level: G good  
 Soil Drainage: G good

<b>Application Description</b>				
	A	B	C	D
Application Date	11/04/15	11/24/15	03/23/16	04/14/16
Appl. Stop Time	11:00 AM	02:45 PM	08:30 AM	09:00 AM
Interval to Prev. Appl.		20 DAYS	120 DAYS	22 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	2-leaf	Tiller	Spring	LaSprn
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	72 F	52 F	52 F	47 F
% Relative Humidity Start, Stop	44	40	59	74
Wind Velocity+Dir. Start	3 mph SE	4 mph W	3 mph SW	2 mph N
Wet Leaves (Y/N)	N no	Y yes	N no	Y yes
Soil Temperature	71 F	52 F	52 F	46 F
Soil Moisture	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover	0	5	85	15

<b>Crop Stage At Each Application</b>				
	A	B	C	D
Crop 1 Code, BBCH Scale	TRZAW BCER	TRZAW BCER	TRZAW BCER	TRZAW BCER
Stage Scale Used	DESC	DESC	DESC	DESC
Stage Majority, Percent	2-leaf 80	4-leaf 50	tillered 100	jointing 100
Stage Minimum, Percent	2-leaf 80	3-leaf 20		
Stage Maximum, Percent	3-leaf 20	1-tilr 30		
Height Average	4 in	5 in	9 in	12 in
Height Minimum, Maximum		4 6	8 10	11 14

<b>Pest Stage At Each Application</b>				
	A	B	C	D
Pest 1 Code, Type, Scale	LAMAM W	LAMAM W	LAMAM W	LAMAM W
Stage Majority, Percent	2-leaf 100	2-leaf 100	eaFlwr 100	
Height Average	0.5 in	1 in	6 in	
Height Minimum, Maximum			4 8	
Density Average	40 m2	40 m2	15 m2	
Pest 2 Code, Type, Scale	STEME W	STEME W	STEME W	STEME W
Stage Majority, Percent	2-leaf 60	veg 100	eaFlwr 100	
Stage Minimum, Percent	2-leaf 60			
Stage Maximum, Percent	4-leaf 40			
Height Average	0.4 in	2 in	5 in	
Height Minimum, Maximum	0.3 0.5	1.5 2.5	4 6	
Density Average	2 m2	4 m2	4 m2	

**Application Equipment**

	A	B	C	D
Appl. Equipment	Backpack	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	18 in	18 in	18 in	18 in
Boom Length	9 ft	9 ft	9 ft	9 ft
Boom Height	20 in	22 in	26 in	30 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L	2 L	2 L
Propellant	COMCO2	COMCO2	COMCO2	COMCO2

**Trial Comments**

05/19/16 Due to uneven soil pH and triazine carryover, the wheat stand is very poor and lots of thin stands and dead spots. So ratings are quite variable.

Winter Wheat Response to PGR Herbicides											
Trial ID: SG12-16		Location: Field #16			Trial Year: 2015						
Protocol ID: SG12-16		Investigator: Mark VanGessel			Study Director:						
Sponsor Contact:											
Crop Type, Code					C	TRZAW	C	TRZAW	C	TRZAW	
Description					W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat	
Rating Type					Stunting	Stunting	Stunting	Stunting	Crk heads	Crk heads	
Rating Unit					%	%	%	%			
Rating Date					11/25/15	12/07/15	05/19/16	05/19/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	2,4-D amine 2-leaf wheat	3.8 L		0.475 lb ae/a		2-leaf	A	10.7 b	5.0 b	2.3 ef	1.3 cd
2	2,4-D amine Tillering	3.8 L		0.475 lb ae/a		Tiller	B		6.3 b	20.0 a	20.0 a
3	2,4-D amine Spring	3.8 L		0.475 lb ae/a		Spring	C			4.7 de	0.7 cde
4	2,4-D amine Late Spring	3.8 L		0.475 lb ae/a		LaSprn	D			0.0 f	0.5 cde
5	2,4-D amine 2-leaf wheat	3.8 L		0.238 lb ae/a		2-leaf	A	10.3 b	5.7 b	3.5 def	0.5 cde
6	2,4-D amine Tillering	3.8 L		0.238 lb ae/a		Tiller	B		5.0 b	12.3 b	3.0 b
7	2,4-D amine Spring	3.8 L		0.238 lb ae/a		Spring	C			7.0 cd	1.0 cde
8	2,4-D amine Late Spring	3.8 L		0.238 lb ae/a		LaSprn	D			0.0 f	0.0 e
9	Clarity.....dicamba Nonionic Surfactant 2-leaf wheat	4 L 100 L		0.125 lb ai/a 0.25 % v/v		2-leaf 2-leaf	A A	20.0 a	11.7 a		
10	Clarity.....dicamba Nonionic Surfactant Tillering	4 L 100 L		0.125 lb ai/a 0.25 % v/v		Tiller Tiller	B B		4.0 bc	0.0 f	0.3 de
11	Clarity.....dicamba Nonionic Surfactant Spring	4 L 100 L		0.125 lb ai/a 0.25 % v/v		Spring Spring	C C			0.0 f	0.5 cde
12	Clarity.....dicamba Nonionic Surfactant Late Spring	4 L 100 L		0.125 lb ai/a 0.25 % v/v		LaSprn LaSprn	D D			8.5 c	1.5 c
13	Starane Ultra...fluroxypyr 2-leaf wheat	2.8 EC		0.14 lb ae/a		2-leaf	A	7.0 b	3.5 bc	2.3 ef	0.3 de
14	Starane Ultra...fluroxypyr Tillering	2.8 EC		0.14 lb ae/a		Tiller	B		1.7 cd	0.0 f	1.0 cde
15	Starane Ultra...fluroxypyr Spring	2.8 EC		0.14 lb ae/a		Spring	C			0.0 f	0.5 cde
16	Starane Ultra...fluroxypyr Late Spring	2.8 EC		0.14 lb ae/a		LaSprn	D			0.0 f	0.0 e
17	Untreated Check							0.0 c	0.0 d	0.0 f	0.0 e

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2; Average=3,4,5

Crop Type, Code						C TRZAW		
Description						W.Wheat		
Rating Type						Inj Overall		
Rating Unit								
Rating Date						05/19/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code	
1	2,4-D amine 2-leaf wheat	3.8	L	0.475	lb ae/a	2-leaf	A	2.7 cde
2	2,4-D amine Tillering	3.8	L	0.475	lb ae/a	Tiller	B	23.5 a
3	2,4-D amine Spring	3.8	L	0.475	lb ae/a	Spring	C	4.7 cde
4	2,4-D amine Late Spring	3.8	L	0.475	lb ae/a	LaSprn	D	0.0 e
5	2,4-D amine 2-leaf wheat	3.8	L	0.238	lb ae/a	2-leaf	A	3.5 cde
6	2,4-D amine Tillering	3.8	L	0.238	lb ae/a	Tiller	B	10.7 b
7	2,4-D amine Spring	3.8	L	0.238	lb ae/a	Spring	C	5.7 bcd
8	2,4-D amine Late Spring	3.8	L	0.238	lb ae/a	LaSprn	D	0.0 e
9	Clarity.....dicamba Nonionic Surfactant 2-leaf wheat	4 100	L L	0.125 0.25	lb ai/a % v/v	2-leaf 2-leaf	A A	
10	Clarity.....dicamba Nonionic Surfactant Tillering	4 100	L L	0.125 0.25	lb ai/a % v/v	Tiller Tiller	B B	0.3 e
11	Clarity.....dicamba Nonionic Surfactant Spring	4 100	L L	0.125 0.25	lb ai/a % v/v	Spring Spring	C C	0.5 e
12	Clarity.....dicamba Nonionic Surfactant Late Spring	4 100	L L	0.125 0.25	lb ai/a % v/v	LaSprn LaSprn	D D	7.0 bc
13	Starane Ultra...fluroxypyr 2-leaf wheat	2.8	EC	0.14	lb ae/a	2-leaf	A	1.0 de
14	Starane Ultra...fluroxypyr Tillering	2.8	EC	0.14	lb ae/a	Tiller	B	1.0 de
15	Starane Ultra...fluroxypyr Spring	2.8	EC	0.14	lb ae/a	Spring	C	0.0 e
16	Starane Ultra...fluroxypyr Late Spring	2.8	EC	0.14	lb ae/a	LaSprn	D	0.0 e
17	Untreated Check							0.0 e

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=1,2; Average=3,4,5

Crop Type, Code						C	TRZAW	C	TRZAW	C	TRZAW	C	TRZAW
Description						W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat	W.Wheat
Rating Type						Stunting	Stunting	Stunting	Stunting	Stunting	Stunting	Crk heads	Crk heads
Rating Unit						%	%	%	%	%	%		
Rating Date						11/25/15	12/07/15	05/19/16	05/19/16	05/19/16	05/19/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code							
18	Untreated Check						0.0 c	0.0 d	0.0 f	0.0 e			
	LSD P=.05						4.50	3.22	3.74	1.16			
	Standard Deviation						2.43	1.85	2.21	0.69			
	CV						30.43	43.23	61.99	37.49			
	Replicate F						1.350	4.918	2.768	0.322			
	Replicate Prob(F)						0.3071	0.0228	0.0837	0.7281			
	Treatment F						28.913	10.316	19.223	142.743			
	Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2; Average=3,4,5

Crop Type, Code	C TRZAW				
Description	W.Wheat				
Rating Type	Inj Overall				
Rating Unit					
Rating Date	05/19/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing
18	Untreated Check				
					0.0 e
LSD P=.05	5.05				
Standard Deviation	2.99				
CV	83.93				
Replicate F	0.427				
Replicate Prob(F)	0.6576				
Treatment F	12.090				
Treatment Prob(F)	0.0001				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=1,2; Average=3,4,5





Annual Ryegrass Control in Winter Wheat  
 Trial ID: SG13-16      Location: Field #10      Trial Year: 2015  
 Protocol ID: SG13-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/14/15      Planting Rate: 150      LB/A  
 Depth: 0.75    in  
 Row Spacing: 7      in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 69    F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/22/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7      FT  
 Harvested Length: 25    FT  
 % Standard Moisture: 13.5

**Pest Description**

Pest 1 Type: W      Code: LOLMG    Lolium multiflorum gaudini  
 Common Name: Annual ryegrass      Artificial Population: X  
 Establishment Date: 10/14/15  
 Establishment Rate: 20      lb/A  
 Establishment Method/Description: Broadcast prior to planting

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 10    Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Trial Initiation Comments:**

Annual Ryegrass was overseeded at 20 lb/A on 10-14-15 immediately prior to planting.

**Soil Description**

% Sand: 79    % OM: 2.2    Texture: SL sandy loam  
 % Silt: 10    pH: 5.6  
 % Clay: 11    CEC: 7.5    Fert. Level: G good  
 Soil Drainage: F fair

**Application Description**

	A	B	C	D
Application Date	10/09/15	10/23/15	11/24/15	03/23/16
Appl. Stop Time	09:00 AM	03:00 PM	03:10 PM	09:00 AM
Interval to Prev. Appl.		14 DAYS	32 DAYS	120 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	7 DPP	Spike	3 lvs	Spring
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	66 F	64 F	52 F	52 F
% Relative Humidity Start, Stop	84	45	40	59
Wind Velocity+Dir. Start	3 mph SW	3 mph NE	4 mph W	3 mph SW
Wet Leaves (Y/N)	Y yes	N no	Y yes	N no
Soil Temperature	66 F	64 F	52 F	52 F
Soil Moisture	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover	10	0	5	85

**Crop Stage At Each Application**

	A	B	C	D
Crop 1 Code, BBCH Scale	TRZAW BCER	TRZAW BCER	TRZAW BCER	TRZAW BCER
Stage Scale Used		DESC	DESC	DESC
Stage Majority, Percent		spike 100	4-leaf 85	tillered 100
Stage Minimum, Percent			4-leaf 85	
Stage Maximum, Percent			1-tilr 15	
Height Average		0.8 in	5 in	9 in
Height Minimum, Maximum		0.7 1	4 6	8 10

**Pest Stage At Each Application**

	A	B	C	D
Pest 1 Code, Type, Scale	LOLMG W	LOLMG W	LOLMG W	LOLMG W
Stage Majority, Percent		spike 100	4-leaf 65	2-tilr 80
Stage Minimum, Percent			3-leaf 35	2-tilr 80
Stage Maximum, Percent			4-leaf 65	3-tilr 20
Height Average		0.5 in	2 in	10 in
Height Minimum, Maximum				9 11
Density Average		400 m2	70 m2	70 m2

**Application Equipment**

	A	B	C	D
Appl. Equipment	Backpack	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	18 in	18 in	18 in	18 in
Boom Length	9 ft	9 ft	9 ft	9 ft
Boom Height	18 in	18 in	22 in	26 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L	2 L	2 L
Propellant	COMCO2	COMCO2	COMCO2	COMCO2

## Annual Ryegrass Control in Winter Wheat

Trial ID: SG13-16      Location: Field #10      Trial Year: 2015  
Protocol ID: SG13-16      Investigator: Mark VanGessel  
Study Director:  
Sponsor Contact:

## Trial Comments

10/31/15: Annual ryegrass at 1-leaf stage.

12/08/15: Treatment 10 poor/no control of henbit, filaree, primrose.

03/16/16: Henbit control was good with Valor; fair to poor with Axiom and Osprey+Harmony Extra; all other treatments were poor to none

Jagged chickweed control was good with Zidua and Valor; fair to good with Osprey+Harmony Extra and Powerflex in the fall; all other treatments were poor to none.

04/14/16: Stunting (12 to 15%) with treatment 8 and 7 to 10% with treatment 7, but stunting probably due to weed competition rather than herbicide injury.

Annual Ryegrass Control in Winter Wheat				
Trial ID: SG13-16		Location: Field #10		Trial Year: 2015
Protocol ID: SG13-16		Investigator: Mark VanGessel		
Study Director:				
Sponsor Contact:				

Pest Code					C	LOLMU	C	LOLMU
Crop Type, Code					TRZAW	C -	TRZAW	C -
Description					W.Wheat	Itl.Ryeg	W.Wheat	Itl.Ryeg
Rating Type					Stunting	Control	Stunting	Control
Rating Unit					%	%	%	%
Rating Date					10/31/15	10/31/15	11/25/15	11/25/15
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	3 lvs	C	0.0 c
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	Nonionic Surfactant	100	L	0.25	% v/v	3 lvs	C	
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	3 lvs	C	
	Nonionic Surfactant	100	L	0.5	% v/v	3 lvs	C	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	3 lvs	C	
3	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	3 lvs	C	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	3 lvs	C	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3 lvs	C	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	3 lvs	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Nonionic Surfactant	100	L	0.5	% v/v	3 lvs	C	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	3 lvs	C	
5	Axiom Premix	68	WG	0.17	lb ai/a	Spike	B	1.7 bc
	----flufenacet	54		0.135				
	----metribuzin	14		0.035				
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
6	Axiom Premix	68	WG	0.255	lb ai/a	Spike	B	5.7 b
	----flufenacet	54		0.202				
	----metribuzin	14		0.0525				
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
7	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
8	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D	
9	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7 DPP	A	10.3 a
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Crop Type, Code					C TRZAW	LOLMU C -	C TRZAW	LOLMU C -
Description Rating Type Rating Unit Rating Date					W.Wheat Stunting %	Itl.Ryeg Control %	W.Wheat Stunting %	Itl.Ryeg Control %
					12/08/15	12/08/15	03/16/16	03/16/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	3 lvs	C	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	Nonionic Surfactant	100	L	0.25	% v/v	3 lvs	C	
								0.0 d 0.0 e 0.0 a 0.0 e
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	3 lvs	C	
	Nonionic Surfactant	100	L	0.5	% v/v	3 lvs	C	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	3 lvs	C	
								2.3 d 3.3 e 3.3 a 85.7 b
3	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	3 lvs	C	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	3 lvs	C	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
								4.7 cd 25.0 d 12.3 a 99.0 a
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3 lvs	C	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	3 lvs	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Nonionic Surfactant	100	L	0.5	% v/v	3 lvs	C	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	3 lvs	C	
								9.0 bc 6.7 e 9.0 a 80.3
5	Axiom Premix	68	WG	0.17	lb ai/a	Spike	B	
	----flufenacet	54		0.135				
	----metribuzin	14		0.035				
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
								10.0 b 50.0 c 2.3 a 33.3 d
6	Axiom Premix	68	WG	0.255	lb ai/a	Spike	B	
	----flufenacet	54		0.202				
	----metribuzin	14		0.0525				
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
								26.7 a 81.3 b 9.0 a 60.0 c
7	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
8	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D	
9	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7 DPP	A	
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
								8.7 bc 94.0 a 4.0 a 91.0 ab

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Crop Type, Code					LOLMU C -	LOLMU C -	C TRZAW	C TRZAW
Description Rating Type Rating Unit Rating Date					Itl.Ryeg Control %	Itl.Ryeg Control %	W.Wheat Stunting %	W.Wheat Yield Bu/A
					04/08/16	05/24/16	05/24/16	06/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 f
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	3 lvs	C	0.0 g
	----thifensulfuron	33		0.0185				0.0 b
	----tribenuron	17		0.0095				21.7 d
	Nonionic Surfactant	100	L	0.25	% v/v	3 lvs	C	
2	PowerFlex HL.....pyroxsulam	13.1	WG	0.0164	lb ai/a	3 lvs	C	73.3 e
	Nonionic Surfactant	100	L	0.5	% v/v	3 lvs	C	86.0 e
	Dry Ammonium Sulfate	100	D	0.9	% w/v	3 lvs	C	0.0 b
3	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	3 lvs	C	95.0 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	3 lvs	C	96.0 bc
	----thifensulfuron	33		0.0185				0.0 b
	----tribenuron	17		0.0095				50.4 abc
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3 lvs	C	73.3 e
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	3 lvs	C	86.0 e
	----thifensulfuron	33		0.0154				1.7 b
	----tribenuron	17		0.00796				55.0 a
	Nonionic Surfactant	100	L	0.5	% v/v	3 lvs	C	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	3 lvs	C	
5	Axiom Premix	68	WG	0.17	lb ai/a	Spike	B	85.0 bc
	----flufenacet	54		0.135				100.0 a
	----metribuzin	14		0.035				0.0 b
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	52.7 abc
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
6	Axiom Premix	68	WG	0.255	lb ai/a	Spike	B	88.3 b
	----flufenacet	54		0.202				98.7 ab
	----metribuzin	14		0.0525				2.3 b
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	46.5 bc
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
7	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	83.3 c
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	95.7 c
	----thifensulfuron	33		0.0185				11.3 a
	----tribenuron	17		0.0095				45.9 c
8	PowerFlex HL.....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	78.3 d
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D	90.0 d
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D	10.0 a
9	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7 DPP	A	95.0 a
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	D	99.7 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	D	2.3 b
	----thifensulfuron	33		0.0185				56.6 a
	----tribenuron	17		0.0095				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	University of Delaware					LOLMU	LOLMU	
Crop Type, Code	C	TRZAW	C	-	C	TRZAW	C	-
Description	W.Wheat		Itl.Ryeg		W.Wheat		Itl.Ryeg	
Rating Type	Stunting		Control		Stunting		Control	
Rating Unit	%		%		%		%	
Rating Date	10/31/15		10/31/15		11/25/15		11/25/15	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
10	Zidua.....pyroxasulfone	85	WG	0.08 lb ai/a	Spike	B		4.0 bc
	Harmony Extra SG Premix	50	SG	0.028 lb ai/a	3 lvs	C		33.3 c
	----thifensulfuron	33		0.0185				5.0 bc
	----tribenuron	17		0.0095				82.7 b
	Nonionic Surfactant	100	L	0.25 % v/v	3 lvs	C		
LSD	P=.05							4.49
	Standard Deviation							2.38
	CV							55.01
	Replicate F							1.455
	Replicate Prob(F)							0.2892
	Treatment F							8.416
	Treatment Prob(F)							0.0058
								0.085
								0.9198
								38.141
								0.0001
								0.308
								0.7432
								19.069
								280.956
								0.0004
								0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



						C TRZAW		LOLMU C -		
Pest Code										
Crop Type, Code										
Description						W.Wheat		W.Wheat		
Rating Type						Stunting		Stunting		
Rating Unit						%		%		
Rating Date						12/08/15		03/16/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
10	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	Spike	B	4.7 cd	88.3 ab	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	3 lvs	C		4.7 a	
	----thifensulfuron	33		0.0185					85.0 b	
	----tribenuron	17		0.0095						
	Nonionic Surfactant	100	L	0.25	% v/v	3 lvs	C			
LSD P=.05						5.10		9.95		10.67
Standard Deviation						2.91		5.68		6.09
CV						35.28		13.04		109.16
Replicate F						1.107		2.636		0.035
Replicate Prob(F)						0.3579		0.1068		0.9659
Treatment F						23.868		149.072		1.373
Treatment Prob(F)						0.0001		0.0001		0.2898

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						LOLMU	LOLMU	C TRZAW	C TRZAW		
Crop Type, Code						C -	C -				
Description						Itl.Ryeg	Itl.Ryeg	W.Wheat	W.Wheat		
Rating Type						Control	Control	Stunting	Yield		
Rating Unit						%	%	%	Bu/A		
Rating Date						04/08/16	05/24/16	05/24/16	06/30/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
10	Zidua.....pyroxasulfone	85	WG	0.08 lb ai/a	Spike	B		70.0 e	81.0 f	0.0 b	54.2 ab
	Harmony Extra SG Premix	50	SG	0.028 lb ai/a	3 lvs	C					
	----thifensulfuron	33		0.0185							
	----tribenuron	17		0.0095							
	Nonionic Surfactant	100	L	0.25 % v/v	3 lvs	C					
LSD P=.05						3.76	2.93	3.71	7.79		
Standard Deviation						2.19	1.71	2.17	4.54		
CV						2.96	2.05	78.27	9.33		
Replicate F						4.846	1.266	0.028	0.963		
Replicate Prob(F)						0.0207	0.3059	0.9720	0.4004		
Treatment F						471.250	924.042	11.770	14.736		
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

**Henbit Control in Winter Wheat**

Trial ID: SG19-16      Location: Field #4      Trial Year: 2015  
 Protocol ID: SG19-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

C Non-crop

**Pest Description**

Pest 1 Type: W    Code: LAMAM *Lamium amplexicaule*  
 Common Name: Henbit

Pest 2 Type: W    Code: OEOLA *Oenothera laciniata*  
 Common Name: Cutleaf eveningprimrose

Pest 3 Type: W    Code: CERVU *Cerastium fontanum vulgare*  
 Common Name: Mouse-ear chickweed

Pest 4 Type: W    Code: HLOUM *Holosteum umbellatum*  
 Common Name: Jagged chickweed

Pest 5 Type: W    Code: ERICA *Conyza canadensis*  
 Common Name: Canada horseweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 7    Tillage Type: NOTILL    no-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)

**Soil Description**

% Sand: 79    % OM: 1.6    Texture: LS loamy sand  
 % Silt: 13    pH: 6.7  
 % Clay: 8    CEC: 5.8    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	11/16/15
Appl. Stop Time	04:00 PM
Application Method	SPRAY
Application Timing	POST
Application Placement	BRDCST
Applied By	VanGessel
Air Temperature Start, Stop	67 F
% Relative Humidity Start, Stop	30
Wind Velocity+Dir. Start	2 MPH W
Wet Leaves (Y/N)	N no
Soil Temperature	67 F
Soil Moisture	NORMAL
% Cloud Cover	0

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	LAMAM W
Stage Majority, Percent	6-leaf 60
Stage Minimum, Percent	6-leaf 60
Stage Maximum, Percent	8-leaf 40
Diameter	1.5 IN
Density Average	200 m2
Pest 2 Code, Type, Scale	OEOLA W
Stage Majority, Percent	rosett 100
Diameter	2 IN
Density Average	20 m2
Pest 3 Code, Type, Scale	CERVU W
Stage Majority, Percent	6-leaf 60
Stage Minimum, Percent	6-leaf 60
Stage Maximum, Percent	8-leaf 40
Diameter	1.5 IN
Density Average	20 m2
Pest 4 Code, Type, Scale	HLOUM W
Stage Majority, Percent	veg 100
Height Average	1 IN
Density Average	10 m2
Pest 5 Code, Type, Scale	ERICA W
Stage Majority, Percent	12-lf 60
Stage Minimum, Percent	10-lf 20
Stage Maximum, Percent	15-lf 20
Diameter	2 IN
Density Average	15 m2

<b>Application Equipment</b>	
	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	30 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	20 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	2 L
Propellant	COMCO2

**Trial Comments**

03/16/16: Jagged chickweed was good with Powerflex, Quelex, Huskie, and Harmony Extra+Starane Ultra  
Field pansy was excellent with Powerflex; only other treatments to provide suppression were Harmony Extra, Harmony Extra+Starane Ultra, or Quelex, but control was not commercially acceptable.

Henbit Control in Winter Wheat			
Trial ID: SG19-16	Location: Field #4	Trial Year: 2015	
Protocol ID: SG19-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Pest Code					CERVU	HLOUM	LAMAM	OEOLA
Description					ME chkwd	JagChkwd	Henbit	CEpmrse
Rating Type					Control	Control	Control	Control
Rating Unit					%	%	%	%
Rating Date					12/15/15	12/15/15	12/15/15	12/15/15
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 c
2	Harmony Extra SG Premix	50 SG		0.028 lb ai/a		POST A		65.0 b
	----thifensulfuron	33		0.0185				65.0 c
	----tribenuron	17		0.0095				73.3 cd
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		POST A		36.7 d
	Nonionic Surfactant	100 L		0.25 % v/v		POST A		
3	PowerFlex HL....pyroxsulam	13.1 WG		0.0164 lb ai/a		POST A		71.7 b
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		POST A		70.0 bc
	Nonionic Surfactant	100 L		0.25 % v/v		POST A		88.3 abc
4	Starane Ultra...fluroxypyr	2.8 EC		0.14 lb ae/a		POST A		73.3 b
	Harmony Extra SG Premix	50 SG		0.028 lb ai/a		POST A		68.3 bc
	----thifensulfuron	33		0.0185				80.0 bcd
	----tribenuron	17		0.0095				76.7 b
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		POST A		
	Nonionic Surfactant	100 L		0.25 % v/v		POST A		
5	Huskie Premix	2.05 EC		0.176 lb ai/a		POST A		58.3 b
	----pyrasulfotole	0.3		0.0258				78.3 b
	----bromoxynil	1.75		0.15				70.0 d
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		POST A		46.7 c
6	Glory.....metribuzin	75 DF		0.188 lb ai/a		POST A		96.0 a
	Nonionic Surfactant	100 L		0.25 % v/v		POST A		100.0 a
7	Quelex Premix	20 WG		0.0094 lb ai/a		POST A		66.7 b
	----florasulam	10		0.0047				70.0 bc
	----halauxifen	10		0.0047				94.0 ab
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		POST A		33.3 d
	Nonionic Surfactant	100 L		0.25 % v/v		POST A		
LSD P=.05					15.76	10.30	15.56	8.75
Standard Deviation					8.86	5.79	8.74	4.92
CV					14.39	8.97	12.15	10.44
Replicate F					2.426	0.462	2.601	3.984
Replicate Prob(F)					0.1303	0.6411	0.1152	0.0471
Treatment F					33.541	84.805	43.686	130.098
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=6

Pest Code Description	VERHE IvySpdwl	VIORA FldPansy	CERVU ME chkwd	LAMAM Henbit
Rating Type Rating Unit Rating Date	Control % 12/15/15	Control % 12/15/15	Control % 03/16/16	Control % 03/16/16
Trt Treatment No. Name	Form Form Conc Type Rate	Rate Unit	Appl Appl Timing Code	
1 Untreated Check				0.0 f    0.0 e    0.0 d    0.0 c
2 Harmony Extra SG Premix	50 SG	0.028 lb ai/a	POST A	46.7 de    86.7 a    98.3 a    33.3 b
----thifensulfuron	33	0.0185		
----tribenuron	17	0.0095		
30% Urea Ammonium Nitrate	100 L	2.5 % v/v	POST A	
Nonionic Surfactant	100 L	0.25 % v/v	POST A	
3 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/a	POST A	74.3 b    58.9 b    95.0 a    43.3 b
30% Urea Ammonium Nitrate	100 L	2.5 % v/v	POST A	
Nonionic Surfactant	100 L	0.25 % v/v	POST A	
4 Starane Ultra...fluroxypyr	2.8 EC	0.14 lb ae/a	POST A	68.3 bc    90.0 a    95.0 a    100.0 a
Harmony Extra SG Premix	50 SG	0.028 lb ai/a	POST A	
----thifensulfuron	33	0.0185		
----tribenuron	17	0.0095		
30% Urea Ammonium Nitrate	100 L	2.5 % v/v	POST A	
Nonionic Surfactant	100 L	0.25 % v/v	POST A	
5 Huskie Premix	2.05 EC	0.176 lb ai/a	POST A	40.0 e    23.3 d    40.0 c    98.3 a
----pyrasulfotole	0.3	0.0258		
----bromoxynil	1.75	0.15		
30% Urea Ammonium Nitrate	100 L	2.5 % v/v	POST A	
6 Glory.....metribuzin	75 DF	0.188 lb ai/a	POST A	91.0 a    40.0 cd    98.3 a    100.0 a
Nonionic Surfactant	100 L	0.25 % v/v	POST A	
7 Quelex Premix	20 WG	0.0094 lb ai/a	POST A	56.7 cd    43.3 bc    85.7 b    100.0 a
----florasulam	10	0.0047		
----halauxifen	10	0.0047		
30% Urea Ammonium Nitrate	100 L	2.5 % v/v	POST A	
Nonionic Surfactant	100 L	0.25 % v/v	POST A	
LSD P=.05	13.23	18.19	9.16	10.27
Standard Deviation	7.44	10.12	5.15	5.77
CV	13.81	20.7	7.04	8.51
Replicate F	1.312	3.971	11.446	2.250
Replicate Prob(F)	0.3052	0.0503	0.0017	0.1480
Treatment F	46.666	31.089	166.350	156.393
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=6

Pest Code						OEOLA		
Description						CE pmrse		
Rating Type						Control		
Rating Unit						%		
Rating Date						03/16/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 e
2	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	POST	A	76.7 c
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	POST	A	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
3	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	POST	A	99.0 a
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	POST	A	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
4	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	POST	A	100.0 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	POST	A	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	POST	A	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
5	Huskie Premix	2.05	EC	0.176	lb ai/a	POST	A	66.7 d
	----pyrasulfotole	0.3		0.0258				
	----bromoxynil	1.75		0.15				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	POST	A	
6	Glory.....metribuzin	75	DF	0.188	lb ai/a	POST	A	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
7	Quelex Premix	20	WG	0.0094	lb ai/a	POST	A	86.0 b
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	POST	A	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A	
LSD P=.05								4.60
Standard Deviation								2.59
CV								3.43
Replicate F								1.116
Replicate Prob(F)								0.3593
Treatment F								570.481
Treatment Prob(F)								0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6



Ivyleaf Speedwell Control in Small Grains  
 Trial ID: SG20-16      Location: Kent Co.      Trial Year: 2015  
 Protocol ID: SG20-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C SECCE Secale cereale      Rye    BBCH Scale: BCER  
 Variety: unknown  
 Attributes: Planted as cover crop

**Pest Description**

Pest 1 Type: W    Code: LAMAM Lamium amplexicaule  
 Common Name: Henbit

Pest 2 Type: W    Code: VERHE Veronica hederifolia  
 Common Name: Ivy-leaved speedwell

Pest 3 Type: W    Code: POAAN Poa annua  
 Common Name: Annual bluegrass

Pest 4 Type: W    Code: STEME Stellaria media  
 Common Name: Common chickweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 11    Tillage Type: MINTIL    minimum-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)

**Trial Initiation Comments:**

Study area was turbo-tilled to incorporate rye at seeding.

**Application Description**

	A
Application Date	11/16/15
Appl. Stop Time	01:00 PM
Application Method	SPRAY
Application Timing	POST
Application Placement	BRDCST
Applied By	VanGessel
Air Temperature Start, Stop	67 F
% Relative Humidity Start, Stop	31
Wind Velocity+Dir. Start	2 MPH W
Wet Leaves (Y/N)	N no
Soil Temperature	67 F
Soil Moisture	GOOD
% Cloud Cover	0

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	SECCE BCER
Stage Scale Used	DESC
Stage Majority, Percent	2-3 lf
Height Average	3.5 IN
Height Minimum, Maximum	3 4

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	LAMAM W
Stage Majority, Percent	veg 100
Height Average	3 IN
Pest 2 Code, Type, Scale	VERHE W
Stage Majority, Percent	2-leaf 60
Stage Minimum, Percent	2-leaf 60
Stage Maximum, Percent	3-leaf 40
Height Average	1 IN
Height Minimum, Maximum	1 2
Pest 3 Code, Type, Scale	POAAN W
Stage Majority, Percent	veg 100
Height Average	1.5 IN
Pest 4 Code, Type, Scale	STEME W
Stage Majority, Percent	veg 100
Diameter	1 IN

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	30 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	20 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	2 L
Propellant	COMCO2

**Trial Comments**

11/20/16: No severe injury observed with any treatment based on overall observation.

12/16/15: Metribuzin caused rye stunting ~15-20%.

3/17/16: Osprey treatments in an adjacent trial (SG21C) were poor for control of ivyleaf speedwell

6/20/16 Soybeans at the 4th trifoliate stage; Finesse treated plots had 60 to 70% stunting. No other injury was observed.

Ivyleaf Speedwell Control in Small Grains Trial ID: SG20-16      Location: Kent Co.      Trial Year: 2015 Protocol ID: SG20-16      Investigator: Mark VanGessel Study Director: Sponsor Contact:
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Pest Code	VERHE	LAMAM	C SECCE	VERHE								
Crop Type, Code	C -	C -	C	C -								
Description	IvySpdwl	Henbit	Rye	IvySpdwl								
Rating Type	Control	Control	Injury	Control								
Rating Unit	%	%	%	%								
Rating Date	12/04/15	12/04/15	12/04/15	12/16/15								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code					
1	Metribuzin.....metribuzin Nonionic Surfactant	75 100	DF L	0.14 0.25	lb ai/a % v/v	2-3 2-3	lvs lvs	A A	82.7 a	95.0 a	17.3 c	82.7 a
2	Huskie Premix ----pyrasulfotole ----bromoxynil Dry Ammonium Sulfate	2.05 0.3 1.75 100	EC  D	0.24 0.035 0.205 0.6	lb ai/a   % w/v	2-3   2-3	lvs   lvs	A   A	43.3 d	82.5 b	0.0 e	33.3 c
3	Huskie Premix ----pyrasulfotole ----bromoxynil Metribuzin.....metribuzin Nonionic Surfactant	2.05 0.3 1.75 75 100	EC  D	0.24 0.035 0.205 0.14 0.25	lb ai/a   lb ai/a % v/v	2-3   2-3 2-3	lvs   lvs lvs	A   A A	64.8 c	95.0 a	36.7 a	80.0 a
4	Finesse Premix ----chlorsulfuron ----metsulfuron Nonionic Surfactant 30% Urea Ammonium Nitrate	75 62.5 12.5 100 100	DF  L L	0.0188 0.0157 0.00313 0.25 1.25	lb ai/a   % v/v % v/v	2-3   2-3 2-3	lvs   lvs lvs	A   A A	83.3 a	93.3 a	9.0 d	68.3 a
5	PowerFlex HL....pyroxsulam Nonionic Surfactant 30% Urea Ammonium Nitrate	13.1 100 100	WG L L	0.0164 0.25 2.5	lb ai/a % v/v % v/v	2-3 2-3 2-3	lvs lvs lvs	A A A	66.7 bc	95.0 a	0.0 e	76.7 a
6	Osprey.....mesosulfuron Nonionic Surfactant 30% Urea Ammonium Nitrate	4.5 100 100	WG L L	0.0134 0.5 2.5	lb ai/a % v/v % v/v	2-3 2-3 2-3	lvs lvs lvs	A A A	33.3 e	82.5 b	16.7 c	36.7 c
7	Harmony Extra SG Premix ----thifensulfuron ----tribenuron Nonionic Surfactant 30% Urea Ammonium Nitrate	50 33 17 100 100	SG  L L	0.0234 0.0154 0.00796 0.25 2.5	lb ai/a   % v/v % v/v	2-3   2-3 2-3	lvs   lvs lvs	A   A A	46.7 d	72.5 c	3.3 de	53.3 b
8	Quelex Premix ----florasulam ----halauxifen 30% Urea Ammonium Nitrate Nonionic Surfactant	20 10 10 100 100	WG  L L	0.0094 0.0047 0.0047 2.5 0.25	lb ai/a   % v/v % v/v	2-3   2-3 2-3	lvs   lvs lvs	A   A A	75.0 ab	95.0 a	0.0 e	53.3 b
9	Osprey.....mesosulfuron Clarity.....dicamba Nonionic Surfactant 30% Urea Ammonium Nitrate	4.5 4 100 100	WG L L L	0.0134 0.125 0.5 2.5	lb ai/a lb ai/a % v/v % v/v	2-3 2-3 2-3 2-3	lvs lvs lvs lvs	A A A A	76.7 a	85.0 b	31.7 ab	73.3 a
10	Osprey.....mesosulfuron 2,4-D amine Nonionic Surfactant 30% Urea Ammonium Nitrate	4.5 3.8 100 100	WG L L L	0.0134 0.238 0.5 2.5	lb ai/a lb ai/a % v/v % v/v	2-3 2-3 2-3 2-3	lvs lvs lvs lvs	A A A A	80.0 a	85.0 b	25.0 b	71.7 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1; Average=2,5

Pest Code						VERHE		
Crop Type, Code						C -		
Description						IvySpdwl		
Rating Type						Control		
Rating Unit								
Rating Date						03/17/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	2-3 lvs A		100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	2-3 lvs A		
2	Huskie Premix	2.05	EC	0.24	lb ai/a	2-3 lvs A		26.7 c
	----pyrasulfotole	0.3		0.035				
	----bromoxynil	1.75		0.205				
	Dry Ammonium Sulfate	100	D	0.6	% w/v	2-3 lvs A		
3	Huskie Premix	2.05	EC	0.24	lb ai/a	2-3 lvs A		100.0 a
	----pyrasulfotole	0.3		0.035				
	----bromoxynil	1.75		0.205				
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	2-3 lvs A		
	Nonionic Surfactant	100	L	0.25	% v/v	2-3 lvs A		
4	Finesse Premix	75	DF	0.0188	lb ai/a	2-3 lvs A		100.0 a
	----chlorsulfuron	62.5		0.0157				
	----metsulfuron	12.5		0.00313				
	Nonionic Surfactant	100	L	0.25	% v/v	2-3 lvs A		
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	2-3 lvs A		
5	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	2-3 lvs A		100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	2-3 lvs A		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	2-3 lvs A		
6	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	2-3 lvs A		40.0 bc
	Nonionic Surfactant	100	L	0.5	% v/v	2-3 lvs A		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	2-3 lvs A		
7	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	2-3 lvs A		33.3 c
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	2-3 lvs A		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	2-3 lvs A		
8	Quelex Premix	20	WG	0.0094	lb ai/a	2-3 lvs A		43.3 bc
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	2-3 lvs A		
	Nonionic Surfactant	100	L	0.25	% v/v	2-3 lvs A		
9	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	2-3 lvs A		53.3 b
	Clarity.....dicamba	4	L	0.125	lb ai/a	2-3 lvs A		
	Nonionic Surfactant	100	L	0.5	% v/v	2-3 lvs A		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	2-3 lvs A		
10	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	2-3 lvs A		58.3 b
	2,4-D amine	3.8	L	0.238	lb ai/a	2-3 lvs A		
	Nonionic Surfactant	100	L	0.5	% v/v	2-3 lvs A		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	2-3 lvs A		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1; Average=2,5

Pest Code	VERHE	LAMAM	C SECCE	VERHE							
Crop Type, Code	C -	C -	C	C -							
Description	IvySpdwl	Henbit	Rye	IvySpdwl							
Rating Type	Control	Control	Injury	Control							
Rating Unit	%	%	%	%							
Rating Date	12/04/15	12/04/15	12/04/15	12/16/15							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
11	Untreated			0.0	f	0.0	d	0.0	e	0.0	d
LSD	P=.05	8.58	5.12	6.92	14.57						
Standard Deviation	5.02	2.94	4.06	8.55							
CV	8.47	3.68	31.98	14.95							
Replicate F	0.071	1.399	0.167	0.020							
Replicate Prob(F)	0.9315	0.2772	0.8472	0.9799							
Treatment F	80.728	263.108	34.004	26.386							
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1; Average=2,5

Pest Code						VERHE
Crop Type, Code						C -
Description						IvySpdwl
Rating Type						Control
Rating Unit						
Rating Date						03/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Appl Timing Code
11	Untreated					0.0 d
LSD	P=.05					19.19
Standard Deviation	CV					11.18
						18.78
Replicate F						0.127
Replicate Prob(F)						0.8814
Treatment F						30.088
Treatment Prob(F)						0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=1; Average=2,5

Annual Bluegrass Control in Winter Wheat  
 Trial ID: SG21-16      Location: Middletown      Trial Year: 2015  
 Protocol ID: SG21-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Planting Date: 10/14/15      Planting Rate: 150      LB/A  
 Depth: 1      in  
 Row Spacing: 7      in      Planting Method: PLANTD planted  
 Planting Equipment: SR      Drilling Machine  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 69      F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/22/15  
 Harvest Equipment: Plot combine  
 Harvested Width: 7      FT  
 Harvested Length: 25      FT  
 % Standard Moisture: 13.5

**Pest Description**

Pest 1 Type: W    Code: POAAN Poa annua  
 Common Name: Annual bluegrass

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 12    Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: FACTOR Factorial

**Application Description**

	A	B	C	D
Application Date	10/07/15	10/23/15	11/11/15	03/17/16
Appl. Stop Time	11:30 AM	10:45 AM	09:40 AM	10:30 AM
Interval to Prev. Appl.		16 DAYS	19 DAYS	127 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	PrePlant	Spike	3-lvs	Spring
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	VanGessl	VanGessl	VanGessl	VanGessl
Air Temperature Start, Stop	69 F	60 F	59 F	51 F
% Relative Humidity Start, Stop	61	58	69	96
Wind Velocity+Dir. Start	3 mph N	8 mph N	8 mph NW	3 mph SW
Wet Leaves (Y/N)	N no	N no	N no	Y yes
Soil Temperature	69 F	60 F	59 F	51 F
Soil Moisture	NORMAL	DRY	WET	NORMAL
% Cloud Cover	80	0	100	100

**Crop Stage At Each Application**

	A	B	C	D
Crop 1 Code, BBCH Scale	TRZAW BCER	TRZAW BCER	TRZAW BCER	TRZAW BCER
Stage Scale Used		DESC	DESC	DESC
Stage Majority, Percent		spike 100	3-leaf 80	tillered 100
Stage Minimum, Percent			3-leaf 80	
Stage Maximum, Percent			4-leaf 20	
Height Average		0.5 in	3 in	10 in

**Pest Stage At Each Application**

	A	B	C	D
Pest 1 Code, Type, Scale	POAAN W	POAAN W	POAAN W	POAAN W
Stage Majority, Percent		veg 100	veg 100	flower 100
Height Average		1.5 in	2.5 in	3 in
Height Minimum, Maximum		1 1.7	1 3	1 4
Density Average		30 m2	2 clmp/m2	2 clmp/m2
Coverage			15 %	15 %

**Application Equipment**

	A	B	C	D
Appl. Equipment	Backpack	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	18 in	18 in	18 in	18 in
Boom Length	9 ft	9 ft	9 ft	9 ft
Boom Height	18 in	18 in	20 in	26 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L	2 L	2 L
Propellant	COMCO2	COMCO2	COMCO2	COMCO2

**Trial Comments**

03/28/16: Noticable chlorosis with spring treatments ("D" application) and wheat was 12-15% stunting.

04/08/16: Stunting for Treatment 11 was 15, 20, and 20 for Reps 1, 2, and 3, respectively and for Treatment 12 was 10, 17, and 15. Stunting was not observed in any other treatment.

Maverick provided poor to no control of henbit.

04/29/16: Annual bluegrass density is quite variable and so data is variable as well.



Annual Bluegrass Control in Winter Wheat			
Trial ID: SG21-16	Location: Middletown	Trial Year: 2015	
Protocol ID: SG21-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Pest Code Crop Type, Code	POAAN C -	POAAN C -	LOLMU C -	C TRZAW							
Description	A.blugrs	A.blugrs	AnnGrass	W.Wheat							
Rating Type	Control	Control	Control	Injury							
Rating Unit	%	%	%	%							
Rating Date	10/23/15	10/29/15	10/30/15	10/30/15							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check No Burndown							0.0 b	0.0 c	0.0 c	0.0 a
2	Untreated Check Glyphosate Dry Ammonium Sulfate	3 L 100 D		0.75 lb 1.02 %	ae/a w/v	PrePlant A PrePlant A		66.7 a	66.7 b	100.0 a	0.0 a
3	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate No Burndown	13.1 WG 100 L 100 D		0.0164 lb 0.5 % 0.9 %	ai/a v/v w/v	3-lvs 3-lvs 3-lvs	C C C	0.0 b	0.0 c	0.0 c	0.0 a
4	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	13.1 WG 100 L 100 D 3 L 100 D		0.0164 lb 0.5 % 0.9 % 0.75 lb 1.02 %	ai/a v/v w/v ae/a w/v	3-lvs 3-lvs 3-lvs PrePlant A PrePlant A	C C C C C	100.0 a	100.0 a	100.0 a	0.0 a
5	Maverick.....sulfosulfuron Nonionic Surfactant No Burndown	75 WG 100 L		0.0314 lb 0.5 %	ai/a v/v	3-lvs 3-lvs	C C	0.0	0.0 c	0.0 c	0.0 a
6	Maverick.....sulfosulfuron Nonionic Surfactant Glyphosate Dry Ammonium Sulfate	75 WG 100 L 3 L 100 D		0.0314 lb 0.5 % 0.75 lb 1.02 %	ai/a v/v ae/a w/v	3-lvs 3-lvs PrePlant A PrePlant A	C C C C	100.0 a	100.0 a	100.0 a	0.0 a
7	Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate No Burndown	4.5 WG 100 L 100 D		0.0134 lb 0.5 % 0.9 %	ai/a v/v w/v	3-lvs 3-lvs 3-lvs	C C C	0.0 b	0.0 c	0.0 c	0.0 a
8	Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	4.5 WG 100 L 100 D 3 L 100 D		0.0134 lb 0.5 % 0.9 % 0.75 lb 1.02 %	ai/a v/v w/v ae/a w/v	3-lvs 3-lvs 3-lvs PrePlant A PrePlant A	C C C C C	70.0 a	100.0 a	99.9 a	0.0 a
9	Zidua.....pyroxasulfone Sharpen.....saflufenacil Methylated Seed Oil No Burndown	85 WG 2.85 SC 100 L		0.0664 lb 0.089 lb 0.94 %	ai/a ai/a v/v	Spike PrePlant A PrePlant A	B	0.0 b	95.0 ab	95.5 ab	0.0 a
10	Zidua.....pyroxasulfone Sharpen.....saflufenacil Methylated Seed Oil Glyphosate Dry Ammonium Sulfate	85 WG 2.85 SC 100 L 3 L 100 D		0.0664 lb 0.089 lb 0.94 % 0.75 lb 1.02 %	ai/a ai/a v/v ae/a w/v	Spike PrePlant A PrePlant A PrePlant A PrePlant A	B	100.0 a	100.0 a	75.0 b	0.0 a

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=3,10,11,12  
 Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Crop Type, Code						C TRZAW	C TRZAW	C TRZAW	POANN C -	
Description Rating Type Rating Unit Rating Date						W.Wheat Chlorosis %	W.Wheat Stunting %	W.Wheat Stunting %	A.blugrs Control %	
						11/20/15	11/20/15	12/16/15	12/16/15	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code				
1	Untreated Check No Burndown						0.0 a	2.3 a	0.0 a	0.0 d
2	Untreated Check Glyphosate Dry Ammonium Sulfate	3 L 100 D		0.75 lb ae/a 1.02 % w/v	PrePlant A PrePlant A		0.0 a	2.3 a	0.0 a	65.0 abc
3	PowerFlex HL.....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate No Burndown	13.1 WG 100 L 100 D		0.0164 lb ai/a 0.5 % v/v 0.9 % w/v	3-lvs 3-lvs 3-lvs	C C C	0.0 a	2.3 a	8.0 a	46.7 bc
4	PowerFlex HL.....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	13.1 WG 100 L 100 D 3 L 100 D		0.0164 lb ai/a 0.5 % v/v 0.9 % w/v 0.75 lb ae/a 1.02 % w/v	3-lvs 3-lvs 3-lvs PrePlant A PrePlant A	C C C C C	2.3 a	0.0 a	2.3 a	90.0 a
5	Maverick.....sulfosulfuron Nonionic Surfactant No Burndown	75 WG 100 L		0.0314 lb ai/a 0.5 % v/v	3-lvs 3-lvs	C C	3.3 a	6.7 a	5.7 a	38.3 cd
6	Maverick.....sulfosulfuron Nonionic Surfactant Glyphosate Dry Ammonium Sulfate	75 WG 100 L 3 L 100 D		0.0314 lb ai/a 0.5 % v/v 0.75 lb ae/a 1.02 % w/v	3-lvs 3-lvs PrePlant A PrePlant A	C C C C	0.0 a	5.7 a	6.3 a	76.7 abc
7	Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate No Burndown	4.5 WG 100 L 100 D		0.0134 lb ai/a 0.5 % v/v 0.9 % w/v	3-lvs 3-lvs 3-lvs	C C C	3.3 a	11.3 a	9.7 a	46.7 bc
8	Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	4.5 WG 100 L 100 D 3 L 100 D		0.0134 lb ai/a 0.5 % v/v 0.9 % w/v 0.75 lb ae/a 1.02 % w/v	3-lvs 3-lvs 3-lvs PrePlant A PrePlant A	C C C C C	1.7 a	2.3 a	9.0 a	81.7 ab
9	Zidua.....pyroxasulfone Sharpen.....saflufenacil Methylated Seed Oil No Burndown	85 WG 2.85 SC 100 L		0.0664 lb ai/a 0.089 lb ai/a 0.94 % v/v	Spike PrePlant A PrePlant A	B A A	2.3 a	4.0 a	5.7 a	86.7 a
10	Zidua.....pyroxasulfone Sharpen.....saflufenacil Methylated Seed Oil Glyphosate Dry Ammonium Sulfate	85 WG 2.85 SC 100 L 3 L 100 D		0.0664 lb ai/a 0.089 lb ai/a 0.94 % v/v 0.75 lb ae/a 1.02 % w/v	Spike PrePlant A PrePlant A PrePlant A PrePlant A	B A A A A	0.0 a	2.3 a	9.0 a	100.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
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 Missing data estimates are included in columns:Yates=3,10,11,12  
 Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Crop Type, Code						POANN C -	POAAN C -	POAAN C -	POAAN C -	
Description Rating Type Rating Unit Rating Date						A.blugrs Count #/sq ft 12/16/15	A.blugrs Control % 03/17/16	A.blugrs Control % 04/18/16	A.blugrs Control % 04/29/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code				
1	Untreated Check No Burndown						2.12 a	0.0 c	0.0 f	0.0 e
2	Untreated Check Glyphosate Dry Ammonium Sulfate	3 L 100 D		0.75 lb ae/a 1.02 % w/v	PrePlant A PrePlant A		1.11 a	85.0 a	46.7 d	55.0 d
3	PowerFlex HL.....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate No Burndown	13.1 WG 100 L 100 D		0.0164 lb ai/a 0.5 % v/v 0.9 % w/v	3-lvs 3-lvs 3-lvs	C C C	1.78 a	0.0 c	26.7 e	43.3 d
4	PowerFlex HL.....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	13.1 WG 100 L 100 D 3 L 100 D		0.0164 lb ai/a 0.5 % v/v 0.9 % w/v 0.75 lb ae/a 1.02 % w/v	3-lvs 3-lvs 3-lvs PrePlant A PrePlant A	C C C C C	0.01 a	100.0 a	96.7 ab	85.0 ab
5	Maverick.....sulfosulfuron Nonionic Surfactant No Burndown	75 WG 100 L		0.0314 lb ai/a 0.5 % v/v	3-lvs 3-lvs	C C	2.22 a	53.3 b	46.7 d	73.3 bc
6	Maverick.....sulfosulfuron Nonionic Surfactant Glyphosate Dry Ammonium Sulfate	75 WG 100 L 3 L 100 D		0.0314 lb ai/a 0.5 % v/v 0.75 lb ae/a 1.02 % w/v	3-lvs 3-lvs PrePlant A PrePlant A	C C C C	0.79 a	95.0 a	78.3 bc	87.6 ab
7	Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate No Burndown	4.5 WG 100 L 100 D		0.0134 lb ai/a 0.5 % v/v 0.9 % w/v	3-lvs 3-lvs 3-lvs	C C C	4.00 a	95.0 a	46.2 d	53.6 d
8	Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	4.5 WG 100 L 100 D 3 L 100 D		0.0134 lb ai/a 0.5 % v/v 0.9 % w/v 0.75 lb ae/a 1.02 % w/v	3-lvs 3-lvs 3-lvs PrePlant A PrePlant A	C C C C C	0.41 a	100.0 a	100.0 a	95.0 a
9	Zidua.....pyroxasulfone Sharpen.....saflufenacil Methylated Seed Oil No Burndown	85 WG 2.85 SC 100 L		0.0664 lb ai/a 0.089 lb ai/a 0.94 % v/v	Spike PrePlant A PrePlant A	B A A	0.33 a	66.7 b	93.3 ab	85.0 ab
10	Zidua.....pyroxasulfone Sharpen.....saflufenacil Methylated Seed Oil Glyphosate Dry Ammonium Sulfate	85 WG 2.85 SC 100 L 3 L 100 D		0.0664 lb ai/a 0.089 lb ai/a 0.94 % v/v 0.75 lb ae/a 1.02 % w/v	Spike PrePlant A PrePlant A PrePlant A PrePlant A	B A A A A	0.00 a	100.0 a	99.0 a	100.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=3,10,11,12

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code						C TRZAW
Crop Type, Code						
Description						
Rating Type						
Rating Unit						W.Wheat
Rating Date						Yield
						Bu/A
						07/02/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code
1	Untreated Check No Burndown					43.2 a
2	Untreated Check Glyphosate Dry Ammonium Sulfate	3 L 100 D		0.75 lb ae/a 1.02 % w/v	PrePlant A PrePlant A	41.3 a
3	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate No Burndown	13.1 WG 100 L 100 D		0.0164 lb ai/a 0.5 % v/v 0.9 % w/v	3-lvs 3-lvs 3-lvs	C C C
4	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	13.1 WG 100 L 100 D 3 L 100 D		0.0164 lb ai/a 0.5 % v/v 0.9 % w/v 0.75 lb ae/a 1.02 % w/v	3-lvs 3-lvs 3-lvs PrePlant A PrePlant A	C C C C C
5	Maverick.....sulfosulfuron Nonionic Surfactant No Burndown	75 WG 100 L		0.0314 lb ai/a 0.5 % v/v	3-lvs 3-lvs	C C
6	Maverick.....sulfosulfuron Nonionic Surfactant Glyphosate Dry Ammonium Sulfate	75 WG 100 L 3 L 100 D		0.0314 lb ai/a 0.5 % v/v 0.75 lb ae/a 1.02 % w/v	3-lvs 3-lvs PrePlant A PrePlant A	C C C C
7	Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate No Burndown	4.5 WG 100 L 100 D		0.0134 lb ai/a 0.5 % v/v 0.9 % w/v	3-lvs 3-lvs 3-lvs	C C C
8	Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	4.5 WG 100 L 100 D 3 L 100 D		0.0134 lb ai/a 0.5 % v/v 0.9 % w/v 0.75 lb ae/a 1.02 % w/v	3-lvs 3-lvs 3-lvs PrePlant A PrePlant A	C C C C C
9	Zidua.....pyroxasulfone Sharpen.....saflufenacil Methylated Seed Oil No Burndown	85 WG 2.85 SC 100 L		0.0664 lb ai/a 0.089 lb ai/a 0.94 % v/v	Spike PrePlant A PrePlant A	B A A
10	Zidua.....pyroxasulfone Sharpen.....saflufenacil Methylated Seed Oil Glyphosate Dry Ammonium Sulfate	85 WG 2.85 SC 100 L 3 L 100 D		0.0664 lb ai/a 0.089 lb ai/a 0.94 % v/v 0.75 lb ae/a 1.02 % w/v	Spike PrePlant A PrePlant A PrePlant A PrePlant A	B A A A A

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,10,11,12

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Crop Type, Code	POAAN C -	POAAN C -	LOLMU C -	C TRZAW						
Description Rating Type Rating Unit Rating Date	A.blugrs Control %	A.blugrs Control %	AnnGrass Control %	W.Wheat Injury %						
	10/23/15	10/29/15	10/30/15	10/30/15						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code					
11 PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate No Burndown	13.1 100 100	WG L D	0.0164 0.5 0.9	lb ai/a % v/v % w/v	Spring Spring Spring	D D D	0.0 b	0.0 c	0.0 c	0.0 a
12 PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	13.1 100 100 3 100	WG L D L D	0.0164 0.5 0.9 0.75 1.02	lb ai/a % v/v % w/v lb ae/a % w/v	Spring Spring Spring PrePlant PrePlant	D D D A A	100.0 a	99.0 a	100.0 a	0.0 a
LSD P=.05	40.87	28.56	20.63 - 24.73							
Standard Deviation	23.99	16.87	15.91t						0.00	
CV	49.18	30.64	32.61t						0.0	
Replicate F	0.479	0.813	0.669						0.000	
Replicate Prob(F)	0.6264	0.4564	0.5229						1.0000	
Treatment F	12.068	25.780	22.820						0.000	
Treatment Prob(F)	0.0001	0.0001	0.0001						1.0000	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=3,10,11,12

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code Crop Type, Code	University of Delaware					C TRZAW	C TRZAW	C TRZAW	POANN C -
Description Rating Type Rating Unit Rating Date						W.Wheat Chlorosis %	W.Wheat Stunting %	W.Wheat Stunting %	A.blugrs Control %
					11/20/15	11/20/15	12/16/15	12/16/15	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
11	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate No Burndown	13.1 100 100	WG L D	0.0164 0.5 0.9	lb ai/a % v/v % w/v	Spring Spring Spring	D D D	0.0 a	4.0 a
12	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	13.1 100 100 3 100	WG L D L D	0.0164 0.5 0.9 0.75 1.02	lb ai/a % v/v % w/v lb ae/a % w/v	Spring Spring Spring PrePlant PrePlant	D D D A A	0.0 a	4.0 a
LSD P=.05					5.24	6.09	7.05	38.99	
Standard Deviation					3.09	3.60	4.11	22.73	
CV					285.64	91.19	73.83	35.98	
Replicate F					0.244	3.043	2.287	0.147	
Replicate Prob(F)					0.7858	0.0681	0.1303	0.8645	
Treatment F					0.621	1.972	2.355	5.361	
Treatment Prob(F)					0.7919	0.0845	0.0583	0.0012	

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,10,11,12

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code	University of Delaware						POANN	POAAN	POAAN	POAAN
Crop Type, Code							C -	C -	C -	C -
Description							A.blugrs	A.blugrs	A.blugrs	A.blugrs
Rating Type							Count	Control	Control	Control
Rating Unit							#/sq ft	%	%	%
Rating Date							12/16/15	03/17/16	04/18/16	04/29/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
11	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate No Burndown	13.1	WG	0.0164	lb ai/a	Spring	D	3.22 a		60.0 cd
		100	L	0.5	% v/v	Spring	D			50.0 d
		100	D	0.9	% w/v	Spring	D			
12	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	13.1	WG	0.0164	lb ai/a	Spring	D	0.44 a		66.7 c
		100	L	0.5	% v/v	Spring	D			56.7 cd
		100	D	0.9	% w/v	Spring	D			
		3	L	0.75	lb ae/a	PrePlant	A			
		100	D	1.02	% w/v	PrePlant	A			
LSD P=.05							2.803	15.38	18.97	18.07
Standard Deviation							1.655	8.89	11.17	10.61
CV							120.83	12.79	17.63	16.23
Replicate F							1.155	0.127	0.644	0.770
Replicate Prob(F)							0.3333	0.8819	0.5352	0.4764
Treatment F							1.871	60.206	24.218	21.138
Treatment Prob(F)							0.1017	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=3,10,11,12

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

Pest Code						C	TRZAW
Crop Type, Code							
Description						W.Wheat	
Rating Type						Yield	
Rating Unit						Bu/A	
Rating Date						07/02/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code
11	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate No Burndown	13.1	WG	0.0164	lb ai/a	Spring	D
		100	L	0.5	% v/v	Spring	D
		100	D	0.9	% w/v	Spring	D
12	PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate Glyphosate Dry Ammonium Sulfate	13.1	WG	0.0164	lb ai/a	Spring	D
		100	L	0.5	% v/v	Spring	D
		100	D	0.9	% w/v	Spring	D
		3	L	0.75	lb ae/a	PrePlant A	A
		100	D	1.02	% w/v	PrePlant A	A
LSD P=.05						7.47	
Standard Deviation						4.41	
CV						9.44	
Replicate F						31.994	
Replicate Prob(F)						0.0001	
Treatment F						1.103	
Treatment Prob(F)						0.4037	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Missing data estimates are included in columns: Yates=3,10,11,12

Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.



Annual Bluegrass Control in Winter Wheat				
Trial ID: SG21-16		Location: Middletown		Trial Year: 2015
Protocol ID: SG21-16		Investigator: Mark VanGessel		
Study Director:				
Sponsor Contact:				

Pest Code	POAAN	POAAN	LOLMU	C TRZAW
Crop Type, Code	C -	C -	C -	
Description	A.blugrs	A.blugrs	AnnGrass	W.Wheat
Rating Type	Control	Control	Control	Injury
Rating Unit	%	%	%	%
Rating Date	10/23/15	10/29/15	10/30/15	10/30/15
Trt Treatment	Form	Form	Rate	Appl
No. Name	Conc	Type	Unit	Timing
TABLE OF R MEANS				
Replicate 1	50.0	57.9	60.3	0.0
Replicate 2	42.5	57.3	60.3	0.0
Replicate 3	41.7	50.0	49.1	0.0
TABLE OF A (Herbicide) MEANS				
1 Untreated Check	33.3 a	33.3 b	50.0 a	0.0 a
2 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/a	3-lvs	C
2 Nonionic Surfactant	100 L	0.5 % v/v	3-lvs	C
2 Dry Ammonium Sulfate	100 D	0.9 % w/v	3-lvs	C
3 Maverick.....sulfosulfuron	75 WG	0.0314 lb ai/a	3-lvs	C
3 Nonionic Surfactant	100 L	0.5 % v/v	3-lvs	C
4 Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/a	3-lvs	C
4 Nonionic Surfactant	100 L	0.5 % v/v	3-lvs	C
4 Dry Ammonium Sulfate	100 D	0.9 % w/v	3-lvs	C
5 Zidua.....pyroxasulfone	85 WG	0.0664 lb ai/a	Spike	B
5 Sharpen.....saflufenacil	2.85 SC	0.089 lb ai/a	PrePlant	A
5 Methylated Seed Oil	100 L	0.94 % v/v	PrePlant	A
6 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/a	Spring	D
6 Nonionic Surfactant	100 L	0.5 % v/v	Spring	D
6 Dry Ammonium Sulfate	100 D	0.9 % w/v	Spring	D
LSD P=.05	27.45	20.20	28.73 - 31.31	.
Standard Deviation	22.92	16.87	15.91t	0.00
CV	51.26	30.64	32.61t	0.00
TABLE OF B (Burndown Treatment) MEANS				
1 No Burndown	0.0 b	15.8 b	5.0 b	0.0 a
2 Glyphosate	3 L	0.75 lb ae/a	PrePlant	A
2 Dry Ammonium Sulfate	100 D	1.02 % w/v	PrePlant	A
LSD P=.05	15.85	11.66	7.09 - 11.50	.
Standard Deviation	22.92	16.87	15.91t	0.00
CV	51.26	30.64	32.61t	0.00
TABLE OF A (Herbicide) B (Burndown Treatment) MEANS				
1 Untreated Check	0.0 a	0.0 c	0.0 c	0.0 a
1 No Burndown				
2 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/a	3-lvs	C
2 Nonionic Surfactant	100 L	0.5 % v/v	3-lvs	C
2 Dry Ammonium Sulfate	100 D	0.9 % w/v	3-lvs	C
1 No Burndown				
3 Maverick.....sulfosulfuron	75 WG	0.0314 lb ai/a	3-lvs	C
3 Nonionic Surfactant	100 L	0.5 % v/v	3-lvs	C
1 No Burndown				

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
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Pest Code						C	TRZAW	C	TRZAW	C	TRZAW	POANN
Crop Type, Code												C -
Description						W.Wheat	W.Wheat	W.Wheat	W.Wheat	A.blugrs		
Rating Type						Chlorosis	Stunting	Stunting	Stunting	Control		
Rating Unit						%	%	%	%	%		
Rating Date						11/20/15	11/20/15	12/16/15	12/16/15			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code					
TABLE OF R MEANS												
Replicate 1						1.3	2.0	3.3	60.5			
Replicate 2						1.4	5.6	6.6	63.0			
Replicate 3						0.6	4.3	6.8	66.0			
TABLE OF A (Herbicide) MEANS												
1 Untreated Check						0.0 a	2.3 a	0.0 b	32.5 c			
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	3-lvs	C	1.2 a	1.2 a	5.2 a	68.3 ab	
2	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C					
2	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C					
3	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a	3-lvs	C	1.7 a	6.2 a	6.0 a	57.5 bc	
3	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C					
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	C	2.5 a	6.8 a	9.3 a	64.2 b	
4	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C					
4	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C					
5	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	B	1.2 a	3.2 a	7.3 a	93.3 a	
5	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PrePlant	A					
5	Methylated Seed Oil	100	L	0.94	% v/v	PrePlant	A					
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	0.0 a	4.0 a	.	.	
6	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D					
6	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D					
LSD P=.05						3.71	4.31	4.99	27.57			
Standard Deviation						3.09	3.60	4.11	22.73			
CV						285.64	91.19	73.83	35.98			
TABLE OF B (Burndown Treatment) MEANS												
1 No Burndown						1.5 a	5.1 a	5.8 a	43.7 b			
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A	0.7 a	2.8 a	5.3 a	82.7 a	
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A					
LSD P=.05						2.14	2.49	2.88	15.92			
Standard Deviation						3.09	3.60	4.11	22.73			
CV						285.64	91.19	73.83	35.98			
TABLE OF A (Herbicide) B (Burndown Treatment) MEANS												
1 Untreated Check						0.0 a	2.3 a	0.0 a	0.0 a			
1 No Burndown												
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	3-lvs	C	0.0 a	2.3 a	8.0 a	46.7 a	
2	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C					
2	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C					
1 No Burndown												
3	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a	3-lvs	C	3.3 a	6.7 a	5.7 a	38.3 a	
3	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C					
1 No Burndown												

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Pest Code						POANN	POAAN	POAAN	POAAN
Crop Type, Code						C -	C -	C -	C -
Description						A.blugrs	A.blugrs	A.blugrs	A.blugrs
Rating Type						Count	Control	Control	Control
Rating Unit						#/sq ft	%	%	%
Rating Date						12/16/15	03/17/16	04/18/16	04/29/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
TABLE OF R MEANS									
Replicate 1						1.69	70.5	60.6	67.9
Replicate 2						1.64	68.5	63.8	65.7
Replicate 3						0.78	69.5	65.7	62.6
TABLE OF A (Herbicide) MEANS									
1 Untreated Check						1.62 a	42.5 c	23.3 c	27.5 e
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/a	3-lvs	C	0.89 a	50.0 c	61.7 b
2	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C			
2	Dry Ammonium Sulfate	100	D	0.9 % w/v	3-lvs	C			
3	Maverick.....sulfosulfuron	75	WG	0.0314 lb ai/a	3-lvs	C	1.51 a	74.2 b	62.5 b
3	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C			
4	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/a	3-lvs	C	2.20 a	97.5 a	73.1 b
4	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C			
4	Dry Ammonium Sulfate	100	D	0.9 % w/v	3-lvs	C			
5	Zidua.....pyroxasulfone	85	WG	0.0664 lb ai/a	Spike	B	0.17 a	83.3 b	96.2 a
5	Sharpen.....saflufenacil	2.85	SC	0.089 lb ai/a	PrePlant	A			
5	Methylated Seed Oil	100	L	0.94 % v/v	PrePlant	A			
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/a	Spring	D	1.83 a	.	63.3 b
6	Nonionic Surfactant	100	L	0.5 % v/v	Spring	D			
6	Dry Ammonium Sulfate	100	D	0.9 % w/v	Spring	D			
LSD P=.05						1.982	10.88	13.41	12.78
Standard Deviation						1.655	8.89	11.17	10.61
CV						120.826	12.79	17.63	16.23
TABLE OF B (Burndown Treatment) MEANS									
1 No Burndown						2.28 a	43.0 b	45.5 b	50.9 b
2	Glyphosate	3	L	0.75 lb ae/a	PrePlant	A	0.46 b	96.0 a	81.2 a
2	Dry Ammonium Sulfate	100	D	1.02 % w/v	PrePlant	A			
LSD P=.05						1.144	6.28	7.74	7.38
Standard Deviation						1.655	8.89	11.17	10.61
CV						120.826	12.79	17.63	16.23
TABLE OF A (Herbicide) B (Burndown Treatment) MEANS									
1 Untreated Check						2.12 a	0.0 c	0.0 f	0.0 e
1 No Burndown									
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/a	3-lvs	C	1.78 a	0.0 c	26.7 e
2	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C			
2	Dry Ammonium Sulfate	100	D	0.9 % w/v	3-lvs	C			
1 No Burndown									
3	Maverick.....sulfosulfuron	75	WG	0.0314 lb ai/a	3-lvs	C	2.22 a	53.3 b	46.7 d
3	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C			
1 No Burndown									

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Pest Code						C TRZAW
Crop Type, Code						
Description						
Rating Type						
Rating Unit						W.Wheat
Rating Date						Yield
						Bu/A
						07/02/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code
TABLE OF R MEANS						
Replicate 1						38.7
Replicate 2						48.6
Replicate 3						52.8
TABLE OF A (Herbicide) MEANS						
1 Untreated Check						42.2 a
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/a	3-lvs	C
2	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C
2	Dry Ammonium Sulfate	100	D	0.9 % w/v	3-lvs	C
						47.1 a
3	Maverick.....sulfosulfuron	75	WG	0.0314 lb ai/a	3-lvs	C
3	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C
						46.7 a
4	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/a	3-lvs	C
4	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C
4	Dry Ammonium Sulfate	100	D	0.9 % w/v	3-lvs	C
						49.4 a
5	Zidua.....pyroxasulfone	85	WG	0.0664 lb ai/a	Spike	B
5	Sharpen.....saflufenacil	2.85	SC	0.089 lb ai/a	PrePlant A	A
5	Methylated Seed Oil	100	L	0.94 % v/v	PrePlant A	A
						48.8 a
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/a	Spring	D
6	Nonionic Surfactant	100	L	0.5 % v/v	Spring	D
6	Dry Ammonium Sulfate	100	D	0.9 % w/v	Spring	D
LSD P=.05						5.28
Standard Deviation						4.41
CV						9.44
TABLE OF B (Burndown Treatment) MEANS						
1 No Burndown						46.5 a
2	Glyphosate	3	L	0.75 lb ae/a	PrePlant A	A
2	Dry Ammonium Sulfate	100	D	1.02 % w/v	PrePlant A	A
						46.9 a
LSD P=.05						3.05
Standard Deviation						4.41
CV						9.44
TABLE OF A (Herbicide) B (Burndown Treatment) MEANS						
1 Untreated Check						43.2 a
1 No Burndown						
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/a	3-lvs	C
2	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C
2	Dry Ammonium Sulfate	100	D	0.9 % w/v	3-lvs	C
						44.9 a
3	Maverick.....sulfosulfuron	75	WG	0.0314 lb ai/a	3-lvs	C
3	Nonionic Surfactant	100	L	0.5 % v/v	3-lvs	C
						47.2 a
1 No Burndown						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL. t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Pest Code Crop Type, Code						POAAN C -	POAAN C -	LOLMU C -	C TRZAW
Description Rating Type Rating Unit Rating Date						A.blugrs Control %	A.blugrs Control %	AnnGrass Control %	W.Wheat Injury %
						10/23/15	10/29/15	10/30/15	10/30/15
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	C	0.0 a	0.0 c
4	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C		
4	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C		
1	No Burndown								0.0 a
5	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	B	0.0 a	95.0 ab
5	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PrePlant	A		95.5 ab
5	Methylated Seed Oil	100	L	0.94	% v/v	PrePlant	A		
1	No Burndown								0.0 a
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	0.0 a	0.0 c
6	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D		
6	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D		
1	No Burndown								0.0 a
1	Untreated Check							66.7 a	66.7 b
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		100.0 a
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		0.0 a
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	3-lvs	C	100.0 a	100.0 a
2	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C		
2	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		
3	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a	3-lvs	C	100.0 a	100.0 a
3	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	C	70.0 a	100.0 a
4	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C		
4	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		99.9 a
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		0.0 a
5	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	B	100.0 a	100.0 a
5	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PrePlant	A		75.0 b
5	Methylated Seed Oil	100	L	0.94	% v/v	PrePlant	A		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	100.0 a	99.0 a
6	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D		
6	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		100.0 a
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		0.0 a
LSD P=.05						38.82	28.56	20.63 - 24.73	.
Standard Deviation						22.92	16.87	15.91t	0.00
CV						51.26	30.64	32.61t	0.00

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Pest Code						C	C	C	POANN
Crop Type, Code						TRZAW	TRZAW	TRZAW	C -
Description						W.Wheat	W.Wheat	W.Wheat	A.blugrs
Rating Type						Chlorosis	Stunting	Stunting	Control
Rating Unit						%	%	%	%
Rating Date						11/20/15	11/20/15	12/16/15	12/16/15
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	C	3.3 a	11.3 a
4	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C		
4	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C		
1	No Burndown								46.7 a
5	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	B	2.3 a	4.0 a
5	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PrePlant	A		5.7 a
5	Methylated Seed Oil	100	L	0.94	% v/v	PrePlant	A		
1	No Burndown								86.7 a
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	0.0 a	4.0 a
6	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D		
6	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D		
1	No Burndown								
1	Untreated Check							0.0 a	2.3 a
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		0.0 a
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		65.0 a
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	3-lvs	C	2.3 a	0.0 a
2	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C		
2	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		2.3 a
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		90.0 a
3	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a	3-lvs	C	0.0 a	5.7 a
3	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		6.3 a
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		76.7 a
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	C	1.7 a	2.3 a
4	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C		
4	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		9.0 a
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		81.7 a
5	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	B	0.0 a	2.3 a
5	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PrePlant	A		9.0 a
5	Methylated Seed Oil	100	L	0.94	% v/v	PrePlant	A		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		100.0 a
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	0.0 a	4.0 a
6	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D		
6	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D		
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A		
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A		
LSD P=.05						5.24	6.09	7.05	38.99
Standard Deviation						3.09	3.60	4.11	22.73
CV						285.64	91.19	73.83	35.98

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Pest Code						POANN	POAAN	POAAN	POAAN		
Crop Type, Code						C -	C -	C -	C -		
Description						A.blugrs	A.blugrs	A.blugrs	A.blugrs		
Rating Type						Count	Control	Control	Control		
Rating Unit						#/sq ft	%	%	%		
Rating Date						12/16/15	03/17/16	04/18/16	04/29/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	C	4.00 a	95.0 a	46.2 d	53.6 d
	4 Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C				
	4 Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C				
	1 No Burndown										
5	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	B	0.33 a	66.7 b	93.3 ab	85.0 ab
	5 Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PrePlant	A				
	5 Methylated Seed Oil	100	L	0.94	% v/v	PrePlant	A				
	1 No Burndown										
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	3.22 a	.	60.0 cd	50.0 d
	6 Nonionic Surfactant	100	L	0.5	% v/v	Spring	D				
	6 Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D				
	1 No Burndown										
1	Untreated Check							1.11 a	85.0 a	46.7 d	55.0 d
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant	A				
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A				
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	3-lvs	C	0.01 a	100.0 a	96.7 ab	85.0 ab
	2 Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C				
	2 Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C				
	2 Glyphosate	3	L	0.75	lb ae/a	PrePlant	A				
	2 Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A				
3	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a	3-lvs	C	0.79 a	95.0 a	78.3 bc	87.6 ab
	3 Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C				
	2 Glyphosate	3	L	0.75	lb ae/a	PrePlant	A				
	2 Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A				
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	C	0.41 a	100.0 a	100.0 a	95.0 a
	4 Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C				
	4 Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C				
	2 Glyphosate	3	L	0.75	lb ae/a	PrePlant	A				
	2 Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A				
5	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	B	0.00 a	100.0 a	99.0 a	100.0 a
	5 Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PrePlant	A				
	5 Methylated Seed Oil	100	L	0.94	% v/v	PrePlant	A				
	2 Glyphosate	3	L	0.75	lb ae/a	PrePlant	A				
	2 Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A				
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	0.44 a	.	66.7 c	56.7 cd
	6 Nonionic Surfactant	100	L	0.5	% v/v	Spring	D				
	6 Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D				
	2 Glyphosate	3	L	0.75	lb ae/a	PrePlant	A				
	2 Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant	A				
LSD P=.05						2.803	15.38	18.97	18.07		
Standard Deviation						1.655	8.89	11.17	10.61		
CV						120.826	12.79	17.63	16.23		

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Pest Code						C TRZAW		
Crop Type, Code								
Description								
Rating Type								
Rating Unit						W.Wheat		
Rating Date						Yield		
						Bu/A		
						07/02/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	C	47.8 a
4	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C	
4	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C	
1	No Burndown							
5	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	B	48.5 a
5	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PrePlant A	A	
5	Methylated Seed Oil	100	L	0.94	% v/v	PrePlant A	A	
1	No Burndown							
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	47.3 a
6	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D	
6	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D	
1	No Burndown							
1	Untreated Check							41.3 a
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant A	A	
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant A	A	
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	3-lvs	C	47.0 a
2	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C	
2	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C	
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant A	A	
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant A	A	
3	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a	3-lvs	C	47.0 a
3	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C	
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant A	A	
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant A	A	
4	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	C	45.5 a
4	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	C	
4	Dry Ammonium Sulfate	100	D	0.9	% w/v	3-lvs	C	
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant A	A	
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant A	A	
5	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	B	50.3 a
5	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	PrePlant A	A	
5	Methylated Seed Oil	100	L	0.94	% v/v	PrePlant A	A	
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant A	A	
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant A	A	
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	D	50.4 a
6	Nonionic Surfactant	100	L	0.5	% v/v	Spring	D	
6	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	D	
2	Glyphosate	3	L	0.75	lb ae/a	PrePlant A	A	
2	Dry Ammonium Sulfate	100	D	1.02	% w/v	PrePlant A	A	
LSD P=.05						7.47		
Standard Deviation						4.41		
CV						9.44		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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FACTORIAL/POOLED ERROR AOV For POAAN C A.blugrs Control % 10/23/15						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	88097.222222				
R	2	505.555556	252.777778	0.481	0.6245	
A	5	2013.888889	402.777778	0.766	0.5838	27.4
B	1	72002.777778	72002.777778	137.016	0.0001	15.8
AB	5	2013.888889	402.777778	0.766	0.5838	38.8
ERROR	22	11561.111111	525.505051			

FACTORIAL/POOLED ERROR AOV For POAAN C A.blugrs Control % 10/29/15						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	87413.888889				
R	2	462.722222	231.361111	0.813	0.4564	
A	5	14285.555556	2857.111111	10.041	0.0001	20.2
B	1	55381.777778	55381.777778	194.634	0.0001	11.7
AB	5	11023.888889	2204.777778	7.748	0.0002	28.6
ERROR	22	6259.944444	284.542929			

FACTORIAL/POOLED ERROR AOV For LOLMU C AnnGrass Control % 10/30/15 Missing values in column 3 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	34	69199.693924				
R	2	338.615315	169.307657	0.669	0.5229	
A	5	2902.920876	580.584175	2.293	0.0822	28.7 - 31.3
B	1	46251.089102	46251.089102	182.702	0.0001	7.1 - 11.5
AB	5	14390.901126	2878.180225	11.369	0.0001	20.6 - 24.7
ERROR	21	5316.167505	253.150834			

FACTORIAL/POOLED ERROR AOV For C TRZAW W.Wheat Injury % 10/30/15						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	0.000000				
R	2	0.000000	0.000000	0.000	1.0000	
A	5	0.000000	0.000000	0.000	1.0000	.
B	1	0.000000	0.000000	0.000	1.0000	.
AB	5	0.000000	0.000000	0.000	1.0000	.
ERROR	22	0.000000	0.000000			

FACTORIAL/POOLED ERROR AOV For C TRZAW W.Wheat Chlorosis % 11/20/15						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	280.750000				
R	2	4.666667	2.333333	0.244	0.7858	
A	5	28.250000	5.650000	0.590	0.7076	3.7
B	1	6.250000	6.250000	0.653	0.4278	2.1
AB	5	30.916667	6.183333	0.646	0.6676	5.2
ERROR	22	210.666667	9.575758			

FACTORIAL/POOLED ERROR AOV For C TRZAW W.Wheat Stunting % 11/20/15						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	643.888889				
R	2	78.722222	39.361111	3.043	0.0681	
A	5	145.222222	29.044444	2.245	0.0857	4.3
B	1	49.000000	49.000000	3.788	0.0645	2.5
AB	5	86.333333	17.266667	1.335	0.2866	6.1
ERROR	22	284.611111	12.936869			

FACTORIAL/POOLED ERROR AOV For C TRZAW W.Wheat Stunting % 12/16/15 Analysis will skip factor level A6 for column 7 - all A6 treatments are missing						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	739.366667				
R	2	77.266667	38.633333	2.287	0.1303	
A	4	291.866667	72.966667	4.319	0.0127	5.0
B	1	1.633333	1.633333	0.097	0.7594	2.9
AB	4	64.533333	16.133333	0.955	0.4556	7.1
ERROR	18	304.066667	16.892593			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL. t=Mean descriptions are reported in transformed data units, and are not de-transformed.

University of Delaware

FACTORIAL/POOLED ERROR AOV For POANN C A.blugrs Control % 12/16/15 Analysis will skip factor level A6 for column 8 - all A6 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	34374.166667				
R	2	151.666667	75.833333	0.147	0.8645	
A	4	11461.666667	2865.416667	5.547	0.0043	27.6
B	1	11407.500000	11407.500000	22.083	0.0002	15.9
AB	4	2055.000000	513.750000	0.995	0.4358	39.0
ERROR	18	9298.333333	516.574074			

FACTORIAL/POOLED ERROR AOV For POANN C A.blugrs Count #/sq ft 12/16/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	122.991011				
R	2	6.330571	3.165285	1.155	0.3333	
A	5	15.969483	3.193897	1.166	0.3571	1.98
B	1	29.793403	29.793403	10.875	0.0033	1.14
AB	5	10.624236	2.124847	0.776	0.5777	2.80
ERROR	22	60.273318	2.739696			

FACTORIAL/POOLED ERROR AOV For POAAN C A.blugrs Control % 03/17/16 Analysis will skip factor level A6 for column 10 - all A6 treatments are missing; Missing values in column 10 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	27	44067.508928				
R	2	20.000000	10.000000	0.127	0.8819	
A	4	12638.299855	3159.574964	40.016	0.0001	10.9
B	1	21067.527038	21067.527038	266.818	0.0001	6.3
AB	4	9078.348701	2269.587175	28.744	0.0001	15.4
ERROR	16	1263.333334	78.958333			

FACTORIAL/POOLED ERROR AOV For POAAN C A.blugrs Control % 04/18/16 Missing values in column 11 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	34	36021.561983				
R	2	160.728650	80.364325	0.644	0.5352	
A	5	16660.253444	3332.050689	26.704	0.0001	13.4
B	1	11500.937557	11500.937557	92.172	0.0001	7.7
AB	5	5079.324151	1015.864830	8.141	0.0002	19.0
ERROR	21	2620.318182	124.777056			

FACTORIAL/POOLED ERROR AOV For POAAN C A.blugrs Control 04/29/16 Missing values in column 12 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	33	28597.392722				
R	2	173.267491	86.633745	0.770	0.4764	
A	5	15748.122050	3149.624410	27.981	0.0001	12.8
B	1	7573.143374	7573.143374	67.280	0.0001	7.4
AB	5	2851.617572	570.323514	5.067	0.0037	18.1
ERROR	20	2251.242236	112.562112			

FACTORIAL/POOLED ERROR AOV For C TRZAW W.Wheat Yield Bu/A 07/02/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1907.558199				
R	2	1244.030088	622.015044	31.994	0.0001	
A	5	195.538029	39.107606	2.012	0.1166	5.3
B	1	1.634346	1.634346	0.084	0.7746	3.0
AB	5	38.642592	7.728518	0.398	0.8452	7.5
ERROR	22	427.713144	19.441507			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL. t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Annual Bluegrass Control in Winter Wheat with EPOST Herbicides  
 Trial ID: SG21a-16      Location: Greenwood      Trial Year: 2015  
 Protocol ID: SG21a-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C HORVW Hordeum vulgare (winter) Winter barley      BBCH Scale: BCER  
 Variety: FS 950  
 Planting Date: 10/09/15  
 Depth: 0.75 in  
  
 Row Spacing: 7 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDIUM medium  
 Soil Temperature: 80 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/17/15

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD field  
 Treated Plot Length: 150 FT  
 Treated Plot Area: 1500 FT2    Treatments: 3    Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOBL Randomized Complete Block (RCB)

**Moisture and Weather Conditions**  
 Overall Moisture Conditions: NORMAL normal

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	HORVW BCER
Stage Scale Used	DESC
Stage Majority, Percent	spike 100
Height Average	2 in
Height Minimum, Maximum	1.5 2.5

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	2 L
Propellant	COMCO2

**Trial Comments**

10/27/15: Metribuzin caused some leaf burn (less than 2%). Too early to determine if there is any stunting from treatments. Weed seedlings are emerging, mostly henbit, some common chickweed and ivyleaf speedwell. No annual bluegrass observed.

12/09/15: Injury was not observable, if there was less than 10%. Trt 3 and 1 = <60% control of field pansy.

03/18/16: Zidua and Zidua+Glory were weak on field pansy. Maybe some stunting with Zidua and less stand than with Axiom. Stand loss is less than 10% but seems to have less ground cover from barley in plots with Zidua. Due to tire tracks and unevenness of the stand, it is hard to evaluate.

Annual Bluegrass Control in Winter Wheat with EPOST Herbicides		
Trial ID: SG21a-16	Location: Greenwood	Trial Year: 2015
Protocol ID: SG21a-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact:	

Pest Code Description	LAMAM Henbit	STEME C.chkwd	VERHE IvySpdwl	POANN A.blugrs	LAMAM Henbit												
Rating Type	Control	Control	Control	Control	Control												
Rating Unit	%	%	%	%	%												
Rating Date	12/09/15	12/09/15	12/09/15	12/09/15	03/18/16												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code										
1	Axiom Premix	68	WG	0.255	lb ai/a	Spike	A	96.1	a	97.8	a	50.8	a	100.0	a	99.0	a
	----flufenacet	54		0.202													
	----metribuzin	14		0.0525													
2	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	A	75.0	b	91.4	a	46.3	a	98.9	a	43.3	b
3	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	A	96.1	a	96.7	a	67.1	a	100.0	a	93.3	a
	Glory.....metribuzin	75	DF	0.0525	lb ai/a	Spike	A										
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	A										
LSD P=.05								11.19		11.90		29.45		3.33		6.72	
Standard Deviation								4.94		4.58		8.38		1.28		2.96	
CV								5.54		4.81		15.32		1.29		3.77	
Replicate F								0.924		1.368		28.471		0.750		5.937	
Replicate Prob(F)								0.4678		0.3783		0.0339		0.5443		0.0635	
Treatment F								18.278		1.665		5.118		0.750		320.747	
Treatment Prob(F)								0.0097		0.3262		0.1635		0.5443		0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 7: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns: Yates=2,3,4

Could not calculate LSD (% mean diff) for columns 7,8 because error mean square = 0.

Pest Code		STEME	VERHE	POANN								
Description		C.chkwd	IvySpdwl	A.blugrs								
Rating Type		Control	Control	Control								
Rating Unit		%	%	%								
Rating Date		03/18/16	03/18/16	12/09/15								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code					
1	Axiom Premix	68	WG	0.255	lb ai/a	Spike	A	96.7	a	77.5	100.0	a
	----flufenacet	54		0.202								
	----metribuzin	14		0.0525								
2	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	A	98.3	a	0.0	100.0	a
3	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	Spike	A	100.0	a	0.0	100.0	a
	Glory.....metribuzin	75	DF	0.0525	lb ai/a	Spike	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	A					
LSD P=.05								9.25		.	.	
Standard Deviation								4.08		.	0.00	
CV								4.15		.	0.0	
Replicate F								0.500			0.000	
Replicate Prob(F)								0.6400			1.0000	
Treatment F								0.500			0.000	
Treatment Prob(F)								0.6400			1.0000	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 7: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns: Yates=2,3,4

Could not calculate LSD (% mean diff) for columns 7,8 because error mean square = 0.

Annual Bluegrass Control in Winter Wheat  
 Trial ID: SG21c-16      Location: Kent County      Trial Year: 2015  
 Protocol ID: SG21c-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C SECCE Secale cereale      Rye    BBCH Scale: BCER  
 Variety: unknown  
 Attributes: planted as cover crop

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 6      Tillage Type: REDTIL    reduced-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)  
  
 Trial Initiation Comments:  
 Rye was incorporated with vertical tillage.

**Application Description**

	A
Application Date	11/16/15
Appl. Stop Time	01:00 PM
Application Method	SPRAY
Application Timing	POST
Application Placement	BRDCST
Applied By	VanGessel
Air Temperature Start, Stop	67 F
% Relative Humidity Start, Stop	31
Wind Velocity+Dir. Start	2 MPH W
Wet Leaves (Y/N)	N no
Soil Temperature	67 F
Soil Moisture	GOOD
% Cloud Cover	0

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	SECCE BCER

**Trial Comments**

12/04/15: No cereal rye injury with Olympus, but 30% with Olympus Flex  
 Olympus was 20% POAAN control  
 Olympus Flex was 50% POAAN control

12/16/15: Olympus & Osprey lots of chlorosis on POANN but density and plant size does not appear to be significantly reduced.

03/17/16: Osprey provided poor to no control of ivyleaf speedwell; no ivyleaf speedwell observed in Powerflex or Glory treated plots. Treatment 4 (Olympus) only 30 to 40% annual bluegrass control and no control of common chickweed. Olympus Flex no control of common chickweed but 85 to 80% control of annual bluegrass.



Annual Bluegrass Control in Winter Wheat		
Trial ID: SG21c-16	Location: Kent County	Trial Year: 2015
Protocol ID: SG21c-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact:	

Pest Code						POAAN	POAAN
Description						A.blugrs	A.blugrs
Rating Type						Control	Control
Rating Unit						%	%
Rating Date						12/04/15	03/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code
1	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	3-lvs	A
	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	A
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	3-lvs	A
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	3-lvs	A
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	3-lvs	A
3	Glory.....metribuzin	75	DF	0.187	lb ai/a	3-lvs	A
	Nonionic Surfactant	100	L	0.25	% v/v	3-lvs	A
4	Olympus.....propoxycarbazone	70	WG	0.0394	lb ai/a	3-lvs	A
	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	A
	Ammonium Sulfate	100	SG	0.9	% w/v	3-lvs	A
	Yellow flag						
5	Olympus Flex Premix	11.25	DF	0.0246	lb ai/a	3-lvs	A
	----mesosulfuron	4.5		0.0098			
	----propoxycarbazone	6.75		0.0148			
	Nonionic Surfactant	100	L	0.5	% v/v	3-lvs	A
	Ammonium Sulfate	100	SG	0.9	% w/v	3-lvs	A
	Red flag						
6	Untreated Check						
LSD P=.05						20.69	16.32
Standard Deviation						9.13	7.20
CV						15.21	10.09
Replicate F						0.000	1.756
Replicate Prob(F)						1.0000	0.2836
Treatment F						2.800	24.875
Treatment Prob(F)						0.1736	0.0055

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

ALS-R Chickweed Control with Travallas and Sentrallas in Winter Wheat  
 Trial ID: SG23-16      Location: Kent County      Trial Year: 2016  
 Protocol ID: SG23-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

**General Trial Information**

Investigator: Mark VanGessel      Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: unknown

**Pest Description**

Pest 1 Type: W      Code: STEME Stellaria media  
 Common Name: Common chickweed  
 Attributes: ALS-resistant

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 8  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Application Description**

	A
Application Date	03/09/16
Appl. Stop Time	10:30 AM
Application Method	SPRAY
Application Timing	Spring
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	70 F
% Relative Humidity Start, Stop	45
Wind Velocity+Dir. Start	3 mph SW
Wet Leaves (Y/N)	N no
Soil Temperature	70 F
Soil Moisture	NORMAL
% Cloud Cover	0

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	TRZAW BCER
Stage Scale Used	DESC
Stage Majority, Percent	tillered 100
Height Average	5 in
Height Minimum, Maximum	4 6

<b>Pest Stage At Each Application</b>	
	A
Pest 1 Code, Type, Scale	STEME W
Stage Majority, Percent	veg 100
Height Average	3.5 in
Height Minimum, Maximum	3 4
Density Average	4 m2

<b>Application Equipment</b>	
	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	26 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	2 L
Propellant	COMCO2

Trial Comments

03/24/16: No chlorosis observed from any treatment

ALS-R Chickweed Control with Travallas and Sentrallas in Winter Wheat									
Trial ID: SG23-16		Location: Kent County		Trial Year: 2016					
Protocol ID: SG23-16		Investigator: Mark VanGessel							
Study Director:									
Sponsor Contact: DuPont									
Pest Code	C	TRZAW	C	TRZAW	C	TRZAW	STEME		
Crop Type, Code							C -		
Description	W.Wheat		W.Wheat		W.Wheat		C.Chkwd		
Rating Type	stunting		chlorosis		stunting		control		
Rating Unit	%		%		%		%		
Rating Date	03/17/16		03/17/16		03/24/16		03/24/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code		
1	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A		
	----metsulfuron	.025		0.00137					
	----thifensulfuron	0.25		0.0137					
	----fluroxypyr	1.3		0.071					
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
2	Sentrallas Premix	1.55	OD	0.109	lb ai/a	Spring	A		
	----thifensulfuron	0.25		0.0176					
	----fluroxypyr	1.3		0.091					
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
3	Sentrallas Premix	1.55	OD	0.133	lb ai/a	Spring	A		
	----thifensulfuron	0.25		0.0215					
	----fluroxypyr	1.3		0.112					
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
4	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A		
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
5	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A		
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
6	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A		
	----thifensulfuron	33		0.0154					
	----tribenuron	17		0.00796					
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
7	Quelex Premix	20	WG	0.0089	lb ai/a	Spring	A		
	----florasulam	10		0.00445					
	----halauxifen	10		0.00445					
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
8	Untreated Check								
LSD P=.05		4.21		2.66		3.45	8.04		
Standard Deviation		2.40		1.52		1.97	4.59		
CV		31.84		22.49		23.86	7.37		
Replicate F		3.171		2.116		1.258	0.713		
Replicate Prob(F)		0.0731		0.1574		0.3144	0.5070		
Treatment F		15.223		42.078		24.645	98.235		
Treatment Prob(F)		0.0001		0.0001		0.0001	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						STEME		
Crop Type, Code						C -		
Description						C.Chkwd		
Rating Type						control		
Rating Unit						%		
Rating Date						05/04/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	60.0 bc
	----metsulfuron	.025		0.00137				
	----thifensulfuron	0.25		0.0137				
	----fluroxypyr	1.3		0.071				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
2	Sentrallas Premix	1.55	OD	0.109	lb ai/a	Spring	A	97.0 a
	----thifensulfuron	0.25		0.0176				
	----fluroxypyr	1.3		0.091				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
3	Sentrallas Premix	1.55	OD	0.133	lb ai/a	Spring	A	93.3 a
	----thifensulfuron	0.25		0.0215				
	----fluroxypyr	1.3		0.112				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
4	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A	98.3 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spring	A	
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
5	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A	50.0 c
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
6	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	A	68.3 b
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A	
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
7	Quelex Premix	20	WG	0.0089	lb ai/a	Spring	A	95.7 a
	----florasulam	10		0.00445				
	----halauxifen	10		0.00445				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
8	Untreated Check							0.0 d
LSD P=.05								11.31
Standard Deviation								6.46
CV								9.19
Replicate F								0.651
Replicate Prob(F)								0.5367
Treatment F								83.550
Treatment Prob(F)								0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

ALS-Resistant Horseweed Control in Winter Wheat  
 Trial ID: SG24-16      Location: Field #32      Trial Year: 2015  
 Protocol ID: SG24-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C SECCE Secale cereale      Rye      BBCH Scale: BCER  
 Variety: unknown  
 Attributes: planted as cover crop  
 Planting Date: 10/12/15      Planting Rate: 2      bu/A  
 Depth: 1      in  
 Row Spacing: 7      in      Planting Method: DRILLE      drilled  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 75      F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 10/19/15

**Pest Description**

Pest 1 Type: W    Code: LAMAM Lamium amplexicaule  
 Common Name: Henbit

Pest 2 Type: W    Code: CERVU Cerastium fontanum vulgare  
 Common Name: Mouse-ear chickweed

Pest 3 Type: W    Code: CARHI Cardamine hirsuta  
 Common Name: Hairy bittercress

Pest 4 Type: W    Code: STEME Stellaria media  
 Common Name: Common chickweed

Pest 5 Type: W    Code: ERICA Conyza canadensis  
 Common Name: Canada horseweed

Pest 6 Type: W    Code: LAMPU Lamium purpureum  
 Common Name: Purple deadnettel

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 15      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**

% Sand: 77    % OM: 1.5    Texture: SL    sandy loam  
 % Silt: 12    pH: 6.5  
 % Clay: 11    CEC: 5.2    Fert. Level: G good  
 Soil Drainage: G    good

**Application Description**

	A
Application Date	03/23/16
Appl. Stop Time	10:30 AM
Application Method	SPRAY
Application Timing	Spring
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	58 F
% Relative Humidity Start, Stop	47
Wind Velocity+Dir. Start	4 mph SW
Wet Leaves (Y/N)	N no
Soil Temperature	58 F
Soil Moisture	NORMAL
% Cloud Cover	80

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	SECCE BCER
Stage Scale Used	DESC
Stage Majority, Percent	3-tillr 70
Stage Minimum, Percent	2-tillr 15
Stage Maximum, Percent	4-tillr 15
Height Average	7 in
Height Minimum, Maximum	6 8

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	LAMAM W
Stage Majority, Percent	eaFlwr 100
Height Average	5 in
Height Minimum, Maximum	4 6
Density Average	15 m2
Pest 2 Code, Type, Scale	CERVU W
Stage Majority, Percent	eaFlwr 100
Height Average	4 in
Height Minimum, Maximum	2 6
Density Average	8 m2
Pest 3 Code, Type, Scale	CARHI W
Stage Majority, Percent	seed 100
Height Average	5 in
Density Average	25 m2
Pest 4 Code, Type, Scale	STEME W
Stage Majority, Percent	eaFlwr 100
Height Average	5 in
Height Minimum, Maximum	2 6
Density Average	8 m2
Pest 5 Code, Type, Scale	ERICA W
Stage Majority, Percent	roset 100
Diameter	2 in
Height Minimum, Maximum	1 3
Density Average	25 m2
Pest 6 Code, Type, Scale	LAMPU W
Stage Majority, Percent	flower 100
Height Average	3 in
Height Minimum, Maximum	2 4
Density Average	25 m2

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	24 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	2 L
Propellant	COMCO2

Trt No Treatment Application Comment  
 6 Plot 106 back half oversprayed with trt. 11.



## ALS-Resistant Horseweed Control in Winter Wheat

Trial ID: SG24-16      Location: Field #32      Trial Year: 2015  
Protocol ID: SG24-16      Investigator: Mark VanGessel  
Study Director:  
Sponsor Contact:

## Trial Comments

05/02/16: The following species were not controlled effectively:

Henbit: Hamrony Extra (trt 2)

Field Pansy: 2,4-D (trt 8) Starane Ultra (6), Huskie (11), Quelex (12), Talinor (14, 15)

Vetch: Glory (trt 4), Quelex (12), Talinor (14)

Corn speedwell: Harmony Extra (trt 3), 2,4-D (8), Huskie (11), Quelex (12), Talinor (15)

05/24/16: Wheat stand was quite thin. Had this been a good stand of wheat, ratings above 60% control at this time of year would have been adequate to keep horseweed from competing with yield; however, the plants may have been an issue for soybean burndown.

06/17/16: Deer feeding and uneven stands made this trial difficult to rate

ALS-Resistant Horseweed Control in Winter Wheat  
 Trial ID: SG24-16      Location: Field #32      Trial Year: 2015  
 Protocol ID: SG24-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Pest Code					ERICA	CERVU	ERICA	C
Crop Type, Code					C -	C -	C -	GLXMA
Description					C.Horswd	MEchkwd	C.Horswd	Soybean
Rating Type					Control	Control	Control	Stunting
Rating Unit					%	%	%	%
Rating Date					05/02/16	05/02/16	05/24/16	06/16/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code	
1	Untreated Check							0.0 e
2	Harmony Extra SG Premix	50	SG	0.0234 lb ai/a		Spring	A	80.3 ab
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Nonionic Surfactant	100	L	0.25 % v/v		Spring	A	
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		Spring	A	
3	Harmony Extra SG Premix	50	SG	0.028 lb ai/a		Spring	A	83.3 ab
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	Nonionic Surfactant	100	L	0.25 % v/v		Spring	A	
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		Spring	A	
4	Glory.....metribuzin	75	DF	0.14 lb ai/a		Spring	A	30.0 d
	Nonionic Surfactant	100	L	0.25 % v/v		Spring	A	
5	Glory.....metribuzin	75	DF	0.188 lb ai/a		Spring	A	30.0 d
	Nonionic Surfactant	100	L	0.25 % v/v		Spring	A	
6	Starane Ultra...fluroxypyr	2.8	EC	0.14 lb ae/a		Spring	A	70.0 bc
7	Clarity.....dicamba	4	L	0.125 lb ai/a		Spring	A	100.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		Spring	A	
8	2,4-D amine	3.8	L	0.238 lb ae/a		Spring	A	85.0 ab
9	2,4-D amine	3.8	L	0.475 lb ae/a		Spring	A	99.7 a
10	Huskie Premix	2.05	EC	0.176 lb ai/a		Spring	A	67.7 bc
	----pyrasulfotole	0.3		0.0258				
	----bromoxynil	1.75		0.15				
	Dry Ammonium Sulfate	100	D	0.3 % w/v		Spring	A	
11	Huskie Premix	2.05	EC	0.24 lb ai/a		Spring	A	76.7 ab
	----pyrasulfotole	0.3		0.035				
	----bromoxynil	1.75		0.205				
	Dry Ammonium Sulfate	100	D	0.3 % w/v		Spring	A	
12	Quelex Premix	20	WG	0.0094 lb ai/a		Spring	A	98.3 a
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	Nonionic Surfactant	100	L	0.25 % v/v		Spring	A	
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v		Spring	A	
13	Talinor Premix	1.77	EC	0.19 lb ai/a		Spring	A	50.0 cd
	----bicyclopyrone	0.31		0.0333				
	----bromoxynil	1.46		0.157				
	Coact+ Sodium Bicarbonate	2.67	SL	0.0574 lb ai/a		Spring	A	
	Crop Oil Concentrate	100	L	1 % v/v		Spring	A	
14	Talinor Premix	1.77	EC	0.221 lb ai/a		Spring	A	33.3 d
	----bicyclopyrone	0.31		0.0387				
	----bromoxynil	1.46		0.182				
	Coact+ Sodium Bicarbonate	2.67	SL	0.067 lb ai/a		Spring	A	
	Crop Oil Concentrate	100	L	1 % v/v		Spring	A	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=2,3

Pest Code					ERICA	CERVU	ERICA	C
Crop Type, Code					C -	C -	C -	GLXMA
Description					C.Horswd	MEchkwd	C.Horswd	Soybean
Rating Type					Control	Control	Control	Stunting
Rating Unit					%	%	%	%
Rating Date					05/02/16	05/02/16	05/24/16	06/16/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
15	Talinor Premix	1.77	EC	0.252	lb ai/a	Spring	A	66.7 bc
	----bicyclopyrone	0.31		0.044				
	----bromoxynil	1.46		0.208				
	Coact+ Sodium Bicarbonate	2.67	SL	0.075	lb ai/a	Spring	A	
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A	7.0 b
	LSD P=.05			25.42				18.31
	Standard Deviation			15.20				10.93
	CV			23.48				20.91
	Replicate F			4.399				1.745
	Replicate Prob(F)			0.0218				0.1938
	Treatment F			11.673				25.582
	Treatment Prob(F)			0.0001				0.0001
								8.905
								0.0011
								65.092
								12.813
								0.0001
								0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,3

Control of Common Chickweed in Winter Wheat  
 Trial ID: SG25a-16      Location: Kent County, DE      Trial Year: 2015  
 Protocol ID: SG25a-16      Investigator: Mark VanGessel  
    Study Director:  
    Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel      Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: unknown

**Pest Description**

Pest 1 Type: W      Code: STEME Stellaria media  
 Common Name: Common chickweed  
 Attributes: ALS-resistant

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 10  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Application Description**

	A
Application Date	03/09/16
Appl. Stop Time	10:30 AM
Application Method	SPRAY
Application Timing	Spring
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	70 F
% Relative Humidity Start, Stop	45
Wind Velocity+Dir. Start	3 mph SW
Wet Leaves (Y/N)	N no
Soil Temperature	70 F
Soil Moisture	NORMAL
% Cloud Cover	0

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	TRZAW BCER
Stage Scale Used	DESC
Stage Majority, Percent	tillered 100
Height Average	5 in
Height Minimum, Maximum	4 6

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	STEME W
Stage Majority, Percent	veg 100
Height Average	3.5 in
Height Minimum, Maximum	3 4
Density Average	4 m2

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	26 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	2 L
Propellant	COMCO2

**Trial Comments**

03/17/16: No treatment had noticable leaf burn (a few scattered plants had ~3% leaf burn but was not related to treatment.  
Chlorosis was observed in treatment 7 (Harmony Extra + Starane Ultra) at 12, 12, and 15% for reps I, II, III, respectively.

04/08/16: Huskie was weak on cornflower  
Quelex is poor on ivyleaf speedwell and field pansy and cornflower  
Glory was poor on field pansy and cornflower  
Quelex was good on cornflower  
Harmony Extra and Starane Ultra looked very good for cornflower

Control of Common Chickweed in Winter Wheat					Trial ID: SG25a-16 Location: Kent County, DE Trial Year: 2015			
Protocol ID: SG25a-16 Investigator: Mark VanGessel					Study Director:			
Sponsor Contact:								
Pest Code					C TRZAW	C TRZAW	STEME	CENCY
Crop Type, Code					W.Wheat	W.Wheat	C.chkwd	Cency
Description					Stunting	Stunting	Control	Pres1/Abs0
Rating Type					%	%	%	%
Rating Unit					03/17/16	03/25/16	03/25/16	03/25/16
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 d 0.0 d 0.0 e 0.7 a
2	Huskie Premix	2.05 EC		0.24 lb ai/a		Spring A		4.0 bcd 7.3 b 77.7 cd 0.0 a
	----pyrasulfotole	0.3		0.035				
	----bromoxynil	1.75		0.205				
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A		
	Dry Ammonium Sulfate	100 D		0.3 % w/v		Spring A		
3	Huskie Premix	2.05 EC		0.24 lb ai/a		Spring A		5.7 bc 4.0 bcd 93.3 ab 0.3 a
	----pyrasulfotole	0.3		0.035				
	----bromoxynil	1.75		0.205				
	Glory.....metribuzin	75 DF		0.188 lb ai/a		Spring A		
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A		
	Dry Ammonium Sulfate	100 D		0.3 % w/v		Spring A		
4	Huskie Premix	2.05 EC		0.24 lb ai/a		Spring A		6.3 bc 0.0 d 89.0 b 0.0 a
	----pyrasulfotole	0.3		0.035				
	----bromoxynil	1.75		0.205				
	2,4-D ester	3.8 L		0.312 lb ae/a		Spring A		
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A		
	Dry Ammonium Sulfate	100 D		0.3 % w/v		Spring A		
5	Glory.....metribuzin	75 DF		0.14 lb ai/a		Spring A		0.0 d 4.0 bcd 92.0 ab 0.3 a
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A		
6	Glory.....metribuzin	75 DF		0.188 lb ai/a		Spring A		6.3 bc 6.3 bc 90.7 ab 0.7 a
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A		
7	Harmony Extra SG Premix	50 SG		0.0234 lb ai/a		Spring A		12.3 a 18.3 a 76.3 d 0.3 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		0.00796				
	Starane Ultra...fluroxypyr	2.8 EC		0.131 lb ae/a		Spring A		
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A		
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		Spring A		
8	Quelex Premix	20 WG		0.0094 lb ai/a		Spring A		1.7 cd 2.3 cd 81.7 c 0.7 a
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	30% Urea Ammonium Nitrate	100 L		100 % v/v		Spring A		
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A		
9	Quelex Premix	20 WG		0.0094 lb ai/a		Spring A		8.0 ab 2.3 cd 90.0 ab 0.3 a
	----florasulam	10		0.0047				
	----halauxifen	10		0.0047				
	2,4-D ester	3.8 L		0.312 lb ae/a		Spring A		
	30% Urea Ammonium Nitrate	100 L		100 % v/v		Spring A		
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	Crop Type, Code	Description	Rating Type	Rating Unit	Rating Date	C TRZAW W.Wheat Stunting %	04/08/16	STEME C - C.chkwd Control %	04/08/16	STEME C - C.chkwd Control %	05/04/16	CENCY C - Cency Pres1/Abs0	05/04/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code						
1	Untreated Check							0.0 d	0.0 e	0.0 d	0.0 a		
2	Huskie Premix	2.05 EC		0.24 lb ai/a		Spring A		2.3 cd	77.7 c	70.0 c	0.7 a		
	----pyrasulfotole	0.3		0.035									
	----bromoxynil	1.75		0.205									
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A							
	Dry Ammonium Sulfate	100 D		0.3 % w/v		Spring A							
3	Huskie Premix	2.05 EC		0.24 lb ai/a		Spring A		2.3 cd	100.0 a	99.0 a	0.3 a		
	----pyrasulfotole	0.3		0.035									
	----bromoxynil	1.75		0.205									
	Glory.....metribuzin	75 DF		0.188 lb ai/a		Spring A							
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A							
	Dry Ammonium Sulfate	100 D		0.3 % w/v		Spring A							
4	Huskie Premix	2.05 EC		0.24 lb ai/a		Spring A		0.0 d	71.0 d	68.3 c	0.0 a		
	----pyrasulfotole	0.3		0.035									
	----bromoxynil	1.75		0.205									
	2,4-D ester	3.8 L		0.312 lb ae/a		Spring A							
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A							
	Dry Ammonium Sulfate	100 D		0.3 % w/v		Spring A							
5	Glory.....metribuzin	75 DF		0.14 lb ai/a		Spring A		5.7 bc	99.0 a	97.7 a	0.7 a		
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A							
6	Glory.....metribuzin	75 DF		0.188 lb ai/a		Spring A		7.0 b	99.0 a	99.0 a	0.3 a		
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A							
7	Harmony Extra SG Premix	50 SG		0.0234 lb ai/a		Spring A		11.3 a	88.3 b	84.3 b	0.0 a		
	----thifensulfuron	33		0.0154									
	----tribenuron	17		0.00796									
	Starane Ultra...fluroxypyr	2.8 EC		0.131 lb ae/a		Spring A							
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A							
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		Spring A							
8	Quelex Premix	20 WG		0.0094 lb ai/a		Spring A		0.0 d	96.3 a	94.0 a	0.0 a		
	----florasulam	10		0.0047									
	----halauxifen	10		0.0047									
	30% Urea Ammonium Nitrate	100 L		100 % v/v		Spring A							
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A							
9	Quelex Premix	20 WG		0.0094 lb ai/a		Spring A		0.0 d	100.0 a	99.0 a	0.0 a		
	----florasulam	10		0.0047									
	----halauxifen	10		0.0047									
	2,4-D ester	3.8 L		0.312 lb ae/a		Spring A							
	30% Urea Ammonium Nitrate	100 L		100 % v/v		Spring A							
	Nonionic Surfactant	100 L		0.25 % v/v		Spring A							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code					C	C	STEME	CENCY
Crop Type, Code					TRZAW	TRZAW	C -	C -
Description					W.Wheat	W.Wheat	C.chkwd	Cency
Rating Type					Stunting	Stunting	Control	Pres1/Abs0
Rating Unit					%	%	%	
Rating Date					03/17/16	03/25/16	03/25/16	03/25/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
10	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	2.3 cd
	----florasulam	10		0.0047				1.7 cd
	----halauxifen	10		0.0047				95.0 a
	Glory.....metribuzin	75	DF	0.188	lb ae/a	Spring	A	0.7 a
	30% Urea Ammonium Nitrate	100	L	100	% v/v	Spring	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A	
LSD P=.05					5.21	4.73	5.15	0.59
Standard Deviation					3.04	2.76	3.00	0.34
CV					65.06	59.48	3.82	86.07
Replicate F					0.329	1.926	0.270	13.500
Replicate Prob(F)					0.7238	0.1745	0.7667	0.0003
Treatment F					4.877	11.452	267.477	1.750
Treatment Prob(F)					0.0021	0.0001	0.0001	0.1492

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code					C	TRZAW	STEME	STEME	CENCY
Crop Type, Code					W.Wheat	C -	C -	C -	C -
Description					Stunting	C.chkwd	C.chkwd	Pres1/Abs0	Cency
Rating Type					%	%	%		
Rating Unit									
Rating Date					04/08/16	04/08/16	05/04/16	05/04/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
10	Quelex Premix	20	WG	0.0094	lb ai/a	Spring	A	0.0 d	99.0 a
	----florasulam	10		0.0047					
	----halauxifen	10		0.0047					
	Glory.....metribuzin	75	DF	0.188	lb ae/a	Spring	A		
	30% Urea Ammonium Nitrate	100	L	100	% v/v	Spring	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	LSD P=.05			4.00				6.38	5.89
	Standard Deviation			2.33				3.72	3.44
	CV			81.31				4.48	4.24
	Replicate F			0.264				0.898	2.518
	Replicate Prob(F)			0.7710				0.4247	0.1086
	Treatment F			8.483				207.447	242.682
	Treatment Prob(F)			0.0001				0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Comparison of HPPD-Based Herbicides in Small Grains  
 Trial ID: SG29-16      Location: REC fld 22      Trial Year: 2015  
 Protocol ID: SG29-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      TRZAW Triticum aestivum (winter) Winter wheat      BBCH Scale: BCER  
 Variety: Shirley  
 Harvested Width: 7 FT  
 % Standard Moisture: 13.5      Harvested Length: 25 FT

**Site and Design**  
 Treated Plot Width: 10 FT  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 5  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	TRZAW BCER

**Trial Comments**

4/8/16: Other than stunting, no injury was observed from any treatment.

5/2/16: Quelex provided good control of red clover; and Talinor was fair  
 Poor control of corn speedwell with all treatments  
 Talinor was poor on controlling knawel.

Comparison of HPPD-Based Herbicides in Small Grains					Trial ID: SG29-16      Location: REC fld 22      Trial Year: 2015			
Protocol ID: SG29-16      Investigator: Mark VanGessel					Study Director:			
Sponsor Contact:								
Pest Code					C TRZAW	CERVU	VIORA	C TRZAW
Crop Type, Code					W.Wheat	C -	C -	W.Wheat
Description					Stunting	MEchkwd	FldPansy	Yield
Rating Type					%	Control	Control	Bu/A
Rating Unit					%	%	%	%
Rating Date					04/08/16	05/02/16	05/02/16	06/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 d
2	Harmony Extra SG Premix	50 SG		0.028 lb ai/a	Spring	A		10.0 a
	----thifensulfuron	33		0.0185				93.8 a
	----tribenuron	17		0.0095				50.0 a
	Nonionic Surfactant	100 L		0.25 % v/v	Spring	A		
	30% Urea Ammonium Nitrate	100 L		1.25 % v/v	Spring	A		
3	Huskie Premix	2.05 EC		0.208 lb ai/a	Spring	A		7.0 ab
	----pyrasulfotole	0.3		0.0304				53.3 c
	----bromoxynil	1.75		0.178				26.7 a
	Dry Ammonium Sulfate	100 D		0.3 % w/v	Spring	A		
4	Quelex Premix	20 WG		0.0094 lb ai/a	Spring	A		4.7 bc
	----florasulam	10		0.0047				82.7 ab
	----halauxifen	10		0.0047				16.7 a
	Nonionic Surfactant	100 L		0.25 % v/v	Spring	A		
	30% Urea Ammonium Nitrate	100 L		1.25 % v/v	Spring	A		
5	Talinor	1.77 EC		0.221 lb ai/a	Spring	A		2.3 cd
	Coact	2.67 SL		0.067 lb ai/a	Spring	A		62.3 bc
	Crop Oil Concentrate	100 L		1 % v/v	Spring	A		23.3 a
	LSD P=.05							4.50
	Standard Deviation							2.39
	CV							49.81
	Replicate F							1.714
	Replicate Prob(F)							0.073
	Treatment F							2.664
	Treatment Prob(F)							0.1486
								8.006
								28.245
								3.094
								0.1051
								0.8498

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2; Average=3

Comparing Different Programs for No-Till Soybeans  
 Trial ID: DSB2-16      Location: Field #22      Trial Year: 2016  
 Protocol ID: DSB2-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Delaware Soybean Board

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max      Soybean      BBCH Scale: BSOY  
 Variety: S43RY95  
 Attributes: Roundup Ready  
 Planting Date: 05/20/16      Planting Rate: 180000    S/A  
 Depth: 1    in  
 Row Spacing: 15    IN      Planting Method: PLANTD    planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA    medium/trashy  
 Soil Temperature: 73    F      Soil Moisture: SLIWET    slightly wet, moist  
 Emergence Date: 05/28/16  
 Harvest Date: 10/17/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25    FT

**Pest Description**

Pest 1 Type: W    Code: RUMCR Rumex crispus  
 Common Name: Curly dock

Pest 2 Type: W    Code: SCRAN Scleranthus annuus  
 Common Name: Annual knawel

Pest 3 Type: W    Code: LAMAM Lamium amplexicaule  
 Common Name: Henbit

Pest 4 Type: W    Code: STEME Stellaria media  
 Common Name: Common chickweed

Pest 5 Type: W    Code: VIORA Viola bicolor  
 Common Name: Field Pansy

Pest 6 Type: W    Code: TRZAW Triticum aestivum (winter)  
 Common Name: Winter wheat  
 Attributes: Volunteer

Pest 7 Type: W    Code: OEOLA Oenothera laciniata  
 Common Name: Cutleaf eveningprimrose

Pest 8 Type: W    Code: VICVI Vicia villosa  
 Common Name: Hairy vetch

Pest 9 Type: W    Code: AMBEL Ambrosia artemisiifolia  
 Common Name: Common ragweed

Pest10 Type: W    Code: CYPES Cyperus esculentus  
 Common Name: Yellow nutsedge

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**Site and Design**

Treated Plot Width: 10 FT  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Replications: 3  
 Site Type: FIELD field  
 Treatments: 16 Tillage Type: NOTILL no-till  
 Study Design: FACTOR Factorial

**Field Prep./Maintenance:**

Total POST application of Roundup PowerMax 1qt/A + Reflex 1.5 pt/A on 6-30-16.

**Soil Description**

% Sand: 79 % OM: 1.1 Texture: LS loamy sand  
 % Silt: 13 pH: 5.6  
 % Clay: 8 CEC: 4.0 Fert. Level: F fair  
 Soil Drainage: G good

**Application Description**

	A	B	C	D
Application Date	11/16/15	04/21/16	05/09/16	05/20/16
Appl. Stop Time	11:30 AM	10:30 AM	10:25 AM	04:00 PM
Interval to Prev. Appl.		157 DAYS	18 DAYS	11 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	Fall	4 WPP	10 DPP	PRE
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	65 F	67 F	68 F	73 F
% Relative Humidity Start, Stop	32	29	39	32
Wind Velocity+Dir. Start	1 mph NW	4 mph SW	4 mph SW	2 mph W
Wet Leaves (Y/N)	N no	N no	Y yes	N no
Soil Temperature	65 F	66 F	68 F	73 F
Soil Moisture	NORMAL	DRY	WET	NORMAL
% Cloud Cover	0	20	100	40

**Crop Stage At Each Application**

	A	B	C	D
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY

**Pest Stage At Each Application**

	A	B	C	D
Pest 1 Code, Type, Scale	RUMCR W	RUMCR W	RUMCR W	RUMCR W
Stage Majority, Percent	rosett 100	rosett 100	flower 100	
Diameter	11 in	12 in		
Height Average			24 in	
Height Minimum, Maximum	8 15	10 16	16 28	
Density Average	3 m <sup>2</sup>	3 m <sup>2</sup>	3 m <sup>2</sup>	
Pest 2 Code, Type, Scale	SCRAN W	SCRAN W	SCRAN W	SCRAN W
Stage Majority, Percent	veg 100	veg 100	flower 100	
Diameter	1.5 in	4 in	4 in	
Height Minimum, Maximum		3 5	3 5	
Density Average	200 m <sup>2</sup>	50 m <sup>2</sup>	50 m <sup>2</sup>	
Pest 3 Code, Type, Scale	LAMAM W	LAMAM W	LAMAM W	LAMAM W
Stage Majority, Percent	veg 100	seed 100		
Height Average	2.5 in	4 in		
Height Minimum, Maximum	2 3	3 5		
Density Average	15 m <sup>2</sup>	15 m <sup>2</sup>		
Pest 4 Code, Type, Scale	STEME W	STEME W	STEME W	STEME W
Stage Majority, Percent	veg 100	flower 80	seed 100	

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Stage Minimum, Percent		flower 80		
Stage Maximum, Percent		seed 20		
Diameter	5 in	8 in	8 in	
Height Minimum, Maximum	3 8	7 10	7 10	
Density Average	15 m2	5 m2	1 m2	
Pest 5 Code, Type, Scale	VIORA W	VIORA W	VIORA W	VIORA W
Stage Majority, Percent	veg 100	flower 100	flower 100	
Height Average	2 in	4 in	5 in	
Height Minimum, Maximum		3 5	4 7	
Density Average	20 m2	20 m2	15 m2	
Pest 6 Code, Type, Scale	TRZAW W	TRZAW W	TRZAW W	TRZAW W
Stage Majority, Percent	2-tilr 60	joint 100	flower 100	
Stage Minimum, Percent	2-tilr 60			
Stage Maximum, Percent	3-tilr 40			
Height Average	5 in	10 in	12 in	
Height Minimum, Maximum	4 6	8 12	8 16	
Density Average	10 m2	10 m2	10 m2	
Pest 7 Code, Type, Scale	OEOLA W	OEOLA W	OEOLA W	OEOLA W
Stage Majority, Percent		rosett 100	flower 100	
Diameter		4 in	6 in	
Height Minimum, Maximum		2 5	5 8	
Density Average		15 m2	5 m2	
Pest 8 Code, Type, Scale	VICVI W	VICVI W	VICVI W	VICVI W
Stage Majority, Percent		eaflwr 60	flower 100	
Stage Minimum, Percent		veg 40		
Stage Maximum, Percent		eaflwr 60		
Height Average		10 in	16 in	
Height Minimum, Maximum		6 16	12 20	
Density Average		7 m2	2 m2	
Pest 9 Code, Type, Scale	AMBEL W	AMBEL W	AMBEL W	AMBEL W
Stage Majority, Percent		6-leaf 100	veg 100	
Height Average		1.5 in	3 in	
Height Minimum, Maximum		1 2	2 4	
Density Average		8 m2	5 m2	
Pest10 Code, Type, Scale	CYPES W	CYPES W	CYPES W	CYPES W
Stage Majority, Percent				4-leaf 60
Stage Minimum, Percent				3-leaf 20
Stage Maximum, Percent				5-leaf 20
Height Average				2 in
Height Minimum, Maximum				1 3
Density Average				150 m2

**Application Equipment**

	A	B	C	D
Appl. Equipment	Tractor	Tractor	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	20 in	20 in	20 in	20 in
Boom Length	10 ft	10 ft	10 ft	10 ft
Boom Height	22 in	26 in	28 in	20 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Propellant	COMAIR	COMAIR	COMAIR	COMAIR

**Trial Comments**

05/24/16: Overall weed control was based on all winter annual species present. Ground cover is based on ground coverage of green tissue of winter annual weeds. Trt 5 had similar species to those observed in trt 1, but at lower densities. Ragweed seedlings observed in treatments 5, 9, 13.

05/25/16: Curly dock was present in treatment 13. Unacceptable weed control in trts 5, 9, and 13.

06/13/16: Curly dock was in treatment 1, and is dead in all other treatments, except trt 2. Overall weed density (summer and winter) was much less in rep 2 than in Rep 1 and 3. Morningglory seedlings just emerging, observed in trt 2, 6, 7, 8, and 10 (but no noticeable differences between these treatments). Winter annual weed density is very high in treatment 1 and interferes with summer annual weed emergence (also observed with treatments 5, 9, and 13; but not as much as treatment 1). Knawel has started to senesce so hard to rate what died as a result of herbicide treatment and what is due to senescing. But some green knawel plants in treatments 1, 2, 3, and 5. Best to refer to ratings on 5/25 for effectiveness on this species.

06/29/16: Untreated check was difficult to rate because it was influenced by the competition from winter annual weeds. Trtment 5 was dominated by common ragweed. Large crabgrass and common ragweed density was very high in untreated plots in rep 1 and 3.

07/21/16: Stunting due to early season weed competition and/or PRE herbicide application. Stunting is due to biomass production so maybe as tall as other treatments, but canopy is narrower. POST applications of glyphosate + Reflex resulted in excellent control of primrose. Treatment 5 and 13 had 88% control of morninggly. Other treatments were excellent.

Comparing Different Programs for No-Till Soybeans						Trial Year: 2016					
Trial ID: DSB2-16		Location: Field #22									
Protocol ID: DSB2-16		Investigator: Mark VanGessel									
		Study Director:									
		Sponsor Contact: Delaware Soybean Board									
Pest Code	Pest Name	Weed	Weed	VIORA	HORVW						
		C -	C -	FldPansy	W.barley						
	Crop Type, Code			C -	C -						
	Description	Overall	Overall	Control	Control						
	Rating Type	Control	GrndCovr	Control	Control						
	Rating Unit	%	%	%	%						
	Rating Date	05/24/16	05/24/16	05/25/16	05/25/16						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	Fall__None No Spring Burndown							0.0 f	94.7 a	0.0 f	0.0 d
2	Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03	4 WPP 4 WPP 4 WPP	B B B		78.3 e	12.3 e	65.0 e	66.7 c
3	Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.475 lb ae/a 0.21 lb ai/a 0.18 0.03	10 DPP 10 DPP 10 DPP	C C C		75.0 e	21.7 d	68.3 de	86.7 b
4	Fall__None Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L 2 SL 75 DF 64.3 10.7 100 SL 100 L		0.77 lb ae/a 0.71 lb ae/a 0.75 lb ai/a 0.21 lb ai/a 0.18 0.03 1.25 % v/v 2.5 % v/v	4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D		86.7 d	9.0 efg	87.0 c	94.0 a
5	Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a	Fall Fall	A A		0.0 f	63.3 b		
6	Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.71 lb ae/a 0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03	Fall Fall 4 WPP 4 WPP 4 WPP	A A B B B		93.0 c	5.3 f-i	84.3 c	100.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27



Pest Code Pest Name						SCRAN Knawel	RUMCR CryDock	EROCI RdstmFil	LAMAM Henbit		
Crop Type, Code						C -	C -	C -	C -		
Description Rating Type Rating Unit Rating Date						Control %	Control %	Control %	Control %		
						05/25/16	05/25/16	05/25/16	05/25/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	Fall__None No Spring Burndown							0.0 g	0.0 e	0.0 c	0.0 d
2	Fall__None Early Spring Pre-Plant							70.0 f	85.0 cd	100.0 a	100.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP	B					
	2,4-D ester	3.8	L	0.95 lb ae/a	4 WPP	B					
	Canopy Premix	75	DF	0.21 lb ai/a	4 WPP	B					
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
3	Fall__None Ten Days Pre-Plant							80.0 e	80.0 d	88.3 b	100.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	10 DPP	C					
	2,4-D ester	3.8	L	0.475 lb ae/a	10 DPP	C					
	Canopy Premix	75	DF	0.21 lb ai/a	10 DPP	C					
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
4	Fall__None Spring_Double Knock							91.0 abc	87.3 bcd	90.0 b	100.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP	B					
	2,4-D ester	3.8	L	0.71 lb ae/a	4 WPP	B					
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	PRE	D					
	Canopy Premix	75	DF	0.21 lb ai/a	PRE	D					
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	SL	1.25 % v/v	PRE	D					
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	D					
5	Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 3.8	AS L	0.77 lb ae/a 0.71 lb ae/a	Fall Fall	A A					
6	Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant	4.5 3.8	AS L	0.77 lb ae/a 0.71 lb ae/a	Fall Fall	A A		89.7 bcd	100.0 a	98.3 a	100.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP	B					
	2,4-D ester	3.8	L	0.95 lb ae/a	4 WPP	B					
	Canopy Premix	75	DF	0.21 lb ai/a	4 WPP	B					
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name	ERICA Horsewd		VIORA FldPansy		ERICA Horsewd		OEOLA CEprmrse			
Crop Type, Code	C -		C -		C -		C -			
Description Rating Type Rating Unit Rating Date	Control %		Control %		Control %		Control %			
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	05/25/16	06/13/16	06/13/16	06/13/16
1 Fall__None No Spring Burndown							0.0 d	0.0 e	0.0 d	0.0 d
2 Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03		4 WPP 4 WPP 4 WPP	B B B	100.0 a	40.0 cd	73.3 b	100.0 a
3 Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.475 lb ae/a 0.21 lb ai/a 0.18 0.03		10 DPP 10 DPP 10 DPP	C C C	92.5 bc	80.0 a	100.0 a	100.0 a
4 Fall__None Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L 2 SL 75 DF 64.3 10.7 100 SL 100 L		0.77 lb ae/a 0.71 lb ae/a 0.75 lb ai/a 0.21 lb ai/a 0.18 0.03 1.25 % v/v 2.5 % v/v		4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D	100.0 a	100.0 a	100.0 a	100.0 a
5 Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a		Fall Fall	A A		20.0 de	50.0 c	26.3 c
6 Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.71 lb ae/a 0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03		Fall Fall 4 WPP 4 WPP 4 WPP	A A B B B	100.0 a	76.7 ab	100.0 a	100.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name		VICVI H.vetch	AMAPA PalmerAm	AMBEL C.ragwd	DIGSA L.crbgrs				
Crop Type, Code		C -	C -	C -	C -				
Description Rating Type Rating Unit Rating Date		Control % 06/13/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16				
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code				
1 Fall__None No Spring Burndown						0.1 c	0.0 f	0.0 c	0.0 e
2 Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03	4 WPP 4 WPP 4 WPP	B B B	100.0 a	60.0 e	96.7 a	33.3 d
3 Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.475 lb ae/a 0.21 lb ai/a 0.18 0.03	10 DPP 10 DPP 10 DPP	C C C	100.0 a	77.5 b-e	100.0 a	74.3 abc
4 Fall__None Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L 2 SL 75 DF 64.3 10.7 100 SL 100 L		0.77 lb ae/a 0.71 lb ae/a 0.75 lb ai/a 0.21 lb ai/a 0.18 0.03 1.25 % v/v 2.5 % v/v	4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D	100.0 a	92.3 ab	100.0 a	70.7 abc
5 Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a	Fall Fall	A A	98.3 b	0.0 f	0.0 c	0.0 e
6 Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.71 lb ae/a 0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03	Fall Fall 4 WPP 4 WPP 4 WPP	A A B B B	100.0 a	71.7 de	100.0 a	63.3 c

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code						ERICA	AMAPA	AMBEL	IPOSS
Pest Name						Horsewd	PalmerAm	C.ragwd	Mornglry
Crop Type, Code						C -	C -	C -	C -
Description						Control	Control	Control	Control
Rating Type						%	%	%	%
Rating Unit						06/29/16	06/29/16	06/29/16	06/29/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1	Fall__None No Spring Burndown							0.0 d	
2	Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03		4 WPP 4 WPP 4 WPP	B B B	79.3 b	78.3 a 68.3 cd 75.0 a
3	Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.475 lb ae/a 0.21 lb ai/a 0.18 0.03		10 DPP 10 DPP 10 DPP	C C C	93.1 ab	70.0 a 100.0 a
4	Fall__None Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L 2 SL 75 DF 64.3 10.7 100 SL 100 L		0.77 lb ae/a 0.71 lb ae/a 0.75 lb ai/a 0.21 lb ai/a 0.18 0.03 1.25 % v/v 2.5 % v/v		4 WPP 4 WPP PRE PRE PRE PRE PRE PRE	B B D D D D D D	100.0 a	73.3 a 86.7 abc
5	Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a		Fall Fall	A A	61.7 c	75.0 a 16.7 f
6	Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.71 lb ae/a 0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03		Fall Fall 4 WPP 4 WPP 4 WPP	A A B B B	96.7 a	67.7 a 71.7 cd 70.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						DIGSA L.crbgrs		ERICA Horsewd	AMAPA PalmerAm
Crop Type, Code						C - C	GLXMA	C -	C -
Description Rating Type Rating Unit Rating Date						Control %	Soybean Stunting %	Control %	Control %
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code	06/29/16	07/21/16	07/21/16	07/21/16
1 Fall__None No Spring Burndown							43.3 a	60.0 c	99.7 a
2 Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03	4 WPP 4 WPP 4 WPP	B B B	0.0 d	25.7 abc	88.3 ab	100.0 a
3 Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.475 lb ae/a 0.21 lb ai/a 0.18 0.03	10 DPP 10 DPP 10 DPP	C C C	26.7 c	33.3 ab	93.3 a	100.0 a
4 Fall__None Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L 2 SL 75 DF 64.3 10.7 100 SL 100 L		0.77 lb ae/a 0.71 lb ae/a 0.75 lb ai/a 0.21 lb ai/a 0.18 0.03 1.25 % v/v 2.5 % v/v	4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D	36.7 bc	5.7 cde	100.0 a	99.0 a
5 Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a	Fall Fall	A A	0.0 d	46.7 a	71.0 bc	100.0 a
6 Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.71 lb ae/a 0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03	Fall Fall 4 WPP 4 WPP 4 WPP	A A B B B	10.0 d	6.7 cde	97.3 a	91.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name	AMBEL C.ragwd	DIGSA L.crbgrs	CYPES Y.nutsge						
Crop Type, Code	C -	C -	C -	C GLXMA					
Description Rating Type Rating Unit Rating Date	Control % 07/21/16	Control % 07/21/16	Control % 07/21/16	Soybean Yield Bu/A 10/17/16					
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code				
1 Fall__None No Spring Burndown						99.7 a	97.7 a	81.3 a	42.8 a
2 Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03	4 WPP 4 WPP 4 WPP	B B B	100.0 a	98.0 a	74.0 a	49.9 a
3 Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.475 lb ae/a 0.21 lb ai/a 0.18 0.03	10 DPP 10 DPP 10 DPP	C C C	100.0 a	98.0 a	79.0 a	51.5 a
4 Fall__None Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L 2 SL 75 DF 64.3 10.7 100 SL 100 L		0.77 lb ae/a 0.71 lb ae/a 0.75 lb ai/a 0.21 lb ai/a 0.18 0.03 1.25 % v/v 2.5 % v/v	4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D	100.0 a	97.7 a	86.0 a	49.5 a
5 Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a	Fall Fall	A A	100.0 a	100.0 a	81.7 a	42.8 a
6 Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 4.5 AS 3.8 L 75 DF 64.3 10.7		0.77 lb ae/a 0.71 lb ae/a 0.77 lb ae/a 0.95 lb ae/a 0.21 lb ai/a 0.18 0.03	Fall Fall 4 WPP 4 WPP 4 WPP	A A B B B	100.0 a	98.0 a	73.7 a	56.9 a

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						Weed	Weed	VIORA FldPansy	HORVW W.barley		
Crop Type, Code						C -	C -	C -	C -		
Description Rating Type						Overall Control	Overall GrndCovr	Control	Control		
Rating Unit Rating Date						% 05/24/16	% 05/24/16	% 05/25/16	% 05/25/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
7	Roundup WeatherMax..glyphosate 2,4-D ester Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a	ae/a	Fall Fall	A A	84.3 d	10.7 ef	71.7 de	100.0 a
8	Roundup WeatherMax..glyphosate 2,4-D ester Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a	ae/a	Fall Fall	A A	94.7 abc	2.0 hi	90.0 bc	100.0 a
9	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS....tribenuron No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a	ae/a	Fall Fall	A A	0.0 f	24.4 d	75.0 d	100.0 a
10	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS....tribenuron Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L		0.77 lb ae/a 0.71 lb ae/a	ae/a	Fall Fall	A A	96.3 abc	1.7 hi	91.0 bc	100.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						SCRAN Knawel	RUMCR CrlyDock	EROCI RdstmFil	LAMAM Henbit		
Crop Type, Code						C -	C -	C -	C -		
Description Rating Type Rating Unit Rating Date						Control %	Control %	Control %	Control %		
						05/25/16	05/25/16	05/25/16	05/25/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Appl Timing	Appl Code					
7	Roundup WeatherMax..glyphosate 2,4-D ester Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 3.8	AS L	0.77 0.71	lb ae/a lb ae/a	Fall Fall	A A	81.7 de	100.0 a	100.0 a	96.7 b
					10 DPP 10 DPP	C C					
8	Roundup WeatherMax..glyphosate 2,4-D ester Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 3.8	AS L	0.77 0.71	lb ae/a lb ae/a	Fall Fall	A A	92.5 abc	100.0 a	94.7 ab	100.0 a
					4 WPP 4 WPP PRE PRE	B B D D					
					1.25 % v/v 2.5 % v/v	PRE PRE	D D				
9	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS.....tribenuron No Spring Burndown	4.5 3.8	AS L	0.77 0.71	lb ae/a lb ae/a	Fall Fall	A A	100.0 a	100.0 a	100.0 a	100.0 a
					0.0406 lb ai/a 0.0312 0.0094	Fall Fall	A A				
					0.0313 lb ai/a 0.0094 lb ai/a	Fall Fall	A A				
10	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS.....tribenuron Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 3.8	AS L	0.77 0.71	lb ae/a lb ae/a	Fall Fall	A A	100.0 a	100.0 a	100.0 a	100.0 a
					0.0406 lb ai/a 0.0312 0.0094	Fall Fall	A A				
					0.0313 lb ai/a 0.0094 lb ai/a	Fall Fall	A A				
					0.77 lb ae/a 0.95 lb ae/a	4 WPP 4 WPP	B B				
					0.21 lb ai/a	4 WPP	B				
					0.18 0.03						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27



Pest Code Pest Name						ERICA Horsewd	VIORA FldPansy	ERICA Horsewd	OEOLA CEprmrse
Crop Type, Code						C -	C -	C -	C -
Description Rating Type Rating Unit Rating Date						Control % 05/25/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
7	Roundup WeatherMax..glyphosate 2,4-D ester Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 3.8	AS L	0.77 0.71	lb lb	ae/a ae/a	Fall Fall	A A	100.0 a 100.0 a 100.0 a 100.0 a 100.0 a 100.0 a
8	Roundup WeatherMax..glyphosate 2,4-D ester Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 3.8	AS L	0.77 0.71	lb lb	ae/a ae/a	Fall Fall	A A	100.0 a 100.0 a 100.0 a 100.0 a 100.0 a 100.0 a 100.0 a
9	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS.....tribenuron No Spring Burndown	4.5 3.8	AS L	0.77 0.71	lb lb	ae/a ae/a	Fall Fall	A A	88.0 c 43.3 bcd 63.3 bc 63.3 b
10	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS.....tribenuron Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 3.8	AS L	0.77 0.71	lb lb	ae/a ae/a	Fall Fall	A A	100.0 a 75.0 ab 100.0 a 100.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name	University of Delaware					VICVI H.vetch	AMAPA PalmerAm	AMBEL C.ragwd	DIGSA L.crbgrs
Crop Type, Code						C -	C -	C -	C -
Description Rating Type Rating Unit Rating Date						Control %	Control %	Control %	Control %
						06/13/16	06/13/16	06/13/16	06/13/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
7	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	97.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		10 DPP	C		
	2,4-D ester	3.8 L		0.475 lb ae/a		10 DPP	C		
	Canopy Premix	75 DF		0.21 lb ai/a		10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
8	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	94.7 ab
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Spring_Double Knock								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B		
	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP	B		
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE	D		
	Canopy Premix	75 DF		0.21 lb ai/a		PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE	D		
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE	D		
9	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	0.0 f
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A		
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A		
	No Spring Burndown								
10	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	70.7 de
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A		
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A		
	Early Spring Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B		
	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP	B		
	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP	B		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						ERICA Horsewd	AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Morngrly
Crop Type, Code						C -	C -	C -	C -
Description						Control	Control	Control	Control
Rating Type						%	%	%	%
Rating Unit						06/29/16	06/29/16	06/29/16	06/29/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
7	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	68.3 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		10 DPP	C		
	2,4-D ester	3.8 L		0.475 lb ae/a		10 DPP	C		
	Canopy Premix	75 DF		0.21 lb ai/a		10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
8	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	75.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Spring_Double Knock								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B		
	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP	B		
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE	D		
	Canopy Premix	75 DF		0.21 lb ai/a		PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE	D		
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE	D		
9	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	91.7 ab	75.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A		
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A		
	No Spring Burndown								
10	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	68.3 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A		
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A		
	Early Spring Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B		
	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP	B		
	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP	B		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						DIGSA L.crbgrs		ERICA Horsewd	AMAPA PalmerAm		
Crop Type, Code						C - C	GLXMA	C -	C -		
Description						Control	Soybean Stunting	Control	Control		
Rating Type						%	%	%	%		
Rating Unit						06/29/16	07/21/16	07/21/16	07/21/16		
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code				
7	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	36.7 bc	4.7 cde	100.0 a	100.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		10 DPP	C				
	2,4-D ester	3.8 L		0.475 lb ae/a		10 DPP	C				
	Canopy Premix	75 DF		0.21 lb ai/a		10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
8	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	46.7 ab	2.3 de	100.0 a	100.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
	Spring_Double Knock										
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B				
	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP	B				
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE	D				
	Canopy Premix	75 DF		0.21 lb ai/a		PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE	D				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE	D				
9	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	30.0 c	33.3 ab	86.0 ab	100.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall					
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A				
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A				
	No Spring Burndown										
10	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	26.7 c	4.0 cde	100.0 a	96.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall					
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A				
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A				
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B				
	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP	B				
	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							

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 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						AMBEL C.ragwd	DIGSA L.crbgrs	CYPES Y.nutsge	
Crop Type, Code						C -	C -	C -	C GLXMA
Description						Control	Control	Control	Soybean
Rating Type						%	%	%	Yield
Rating Unit						07/21/16	07/21/16	07/21/16	Bu/A
Rating Date									10/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
7	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	98.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		10 DPP	C		
	2,4-D ester	3.8 L		0.475 lb ae/a		10 DPP	C		
	Canopy Premix	75 DF		0.21 lb ai/a		10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
8	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	98.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Spring_Double Knock								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B		
	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP	B		
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE	D		
	Canopy Premix	75 DF		0.21 lb ai/a		PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE	D		
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE	D		
9	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	90.7 b	98.7 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A		
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A		
	No Spring Burndown								
10	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	99.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A		
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A		
	Early Spring Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B		
	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP	B		
	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP	B		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						Weed	Weed	VIORA FldPansy	HORVW W.barley		
Crop Type, Code						C -	C -	C -	C -		
Description Rating Type						Overall Control	Overall GrndCovr	Control	Control		
Rating Unit Rating Date						% 05/24/16	% 05/24/16	% 05/25/16	% 05/25/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
11	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS.....tribenuron Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 3.8 29.5 22.7 6.8 25 50	AS L WG WG SG	0.77 0.71 0.0406 0.0312 0.0094 0.0313 0.0094	lb ae/a lb ae/a lb ai/a lb ai/a lb ai/a lb ai/a lb ai/a	Fall Fall Fall Fall Fall Fall Fall	A A A A A A A	99.0 a	1.0 i	100.0 a	100.0 a
12	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS.....tribenuron Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 3.8 29.5 22.7 6.8 25 50 4.5 3.8 2 75 64.3 10.7 100 100	AS L WG WG SG WG SG SL SL SL DF DF SL L	0.77 0.71 0.0406 0.0312 0.0094 0.0313 0.0094 0.77 0.71 0.75 0.21 0.18 0.03 1.25 2.5	lb ae/a lb ae/a lb ai/a lb ai/a lb ai/a lb ai/a lb ai/a lb ae/a lb ae/a lb ai/a lb ai/a lb ai/a % v/v % v/v	Fall Fall Fall Fall Fall Fall Fall 4 WPP 4 WPP PRE PRE PRE PRE PRE PRE	A A A A A A A B B D D D D D D	98.0 ab	1.0 i	100.0 a	100.0 a
13	Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin No Spring Burndown	4.5 3.8 51	AS L WG	0.77 0.71 0.096	lb ae/a lb ae/a lb ai/a	Fall Fall Fall	A A A	0.0 f	33.3 c		
14	Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 3.8 51 4.5 3.8 75 64.3 10.7	AS L WG AS L DF DF DF	0.77 0.71 0.096 0.77 0.95 0.21 0.18 0.03	lb ae/a lb ae/a lb ai/a lb ae/a lb ae/a lb ai/a lb ai/a lb ai/a	Fall Fall Fall 4 WPP 4 WPP 4 WPP 4 WPP	A A A B B B B	94.0 bc	3.0 ghi	86.7 c	100.0 a

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Pest Code Pest Name							SCRAN Knawel	RUMCR CrlyDock	EROCI RdstmFil	LAMAM Henbit	
Crop Type, Code							C -	C -	C -	C -	
Description Rating Type Rating Unit Rating Date							Control %	Control %	Control %	Control %	
							05/25/16	05/25/16	05/25/16	05/25/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
11	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	ae/a	Fall	A	100.0 a	96.0 ab	100.0 a	100.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a	ae/a	Fall	A				
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a	ai/a	Fall					
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a	ai/a	Fall	A				
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a	ai/a	Fall	A				
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	ae/a	10 DPP	C				
	2,4-D ester	3.8 L		0.475 lb ae/a	ae/a	10 DPP	C				
	Canopy Premix	75 DF		0.21 lb ai/a	ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
12	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	ae/a	Fall	A				
	2,4-D ester	3.8 L		0.71 lb ae/a	ae/a	Fall	A				
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a	ai/a	Fall					
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a	ai/a	Fall	A				
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a	ai/a	Fall	A				
	Spring_Double Knock										
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	ae/a	4 WPP	B				
	2,4-D ester	3.8 L		0.71 lb ae/a	ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a	ai/a	PRE	D				
	Canopy Premix	75 DF		0.21 lb ai/a	ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100 SL		1.25 % v/v	v/v	PRE	D				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	v/v	PRE	D				
13	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	ae/a	Fall	A				
	2,4-D ester	3.8 L		0.71 lb ae/a	ae/a	Fall	A				
	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a	ai/a	Fall	A				
	No Spring Burndown										
14	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	ae/a	Fall	A	96.0 abc	100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a	ae/a	Fall	A				
	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a	ai/a	Fall	A				
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a	ae/a	4 WPP	B				
	2,4-D ester	3.8 L		0.95 lb ae/a	ae/a	4 WPP	B				
	Canopy Premix	75 DF		0.21 lb ai/a	ai/a	4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							

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 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						ERICA Horsewd	VIORA FldPansy	ERICA Horsewd	OEOLA CEprmrse
Crop Type, Code						C -	C -	C -	C -
Description						Control	Control	Control	Control
Rating Type						%	%	%	%
Rating Unit						05/25/16	06/13/16	06/13/16	06/13/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
11	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	100.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A		
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		10 DPP	C		
	2,4-D ester	3.8 L		0.475 lb ae/a		10 DPP	C		
	Canopy Premix	75 DF		0.21 lb ai/a		10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
12	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	100.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A		
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A		
	Spring_Double Knock								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B		
	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP	B		
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE	D		
	Canopy Premix	75 DF		0.21 lb ai/a		PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE	D		
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE	D		
13	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A		20.0 de
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		62.4 bc
	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		Fall	A		41.3 c
	No Spring Burndown								
14	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	73.3 abc
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A		100.0 a
	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		Fall	A		
	Early Spring Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B		
	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP	B		
	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP	B		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27



Pest Code Pest Name	VICVI H.vetch					AMAPA PalmerAm	AMBEL C.ragwd	DIGSA L.crbgrs		
Crop Type, Code	C -					C -	C -	C -		
Description Rating Type Rating Unit Rating Date	Control %					Control %	Control %	Control %		
Trt No. Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code	06/13/16	06/13/16		
11 Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS.....tribenuron Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 3.8 29.5 22.7 6.8 25 50	AS L WG WG WG SG	0.77 0.71 0.0406 0.0312 0.0094 0.0313 0.0094	lb ae/a lb ae/a lb ai/a lb ai/a lb ai/a lb ai/a lb ai/a	Fall Fall Fall Fall Fall Fall Fall	A A A A A A A	100.0 a	82.3 a-d	100.0 a	82.3 ab
12 Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix ----chlorimuron ----tribenuron _Classic.....chlorimuron _Express TS.....tribenuron Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 3.8 29.5 22.7 6.8 25 50	AS L WG WG WG SG	0.77 0.71 0.0406 0.0312 0.0094 0.0313 0.0094	lb ae/a lb ae/a lb ai/a lb ai/a lb ai/a lb ai/a lb ai/a	Fall Fall Fall Fall Fall Fall Fall	A A A A A A A	100.0 a	93.0 ab	100.0 a	88.3 a
13 Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin No Spring Burndown	4.5 3.8 51	AS L WG	0.77 0.71 0.096	lb ae/a lb ae/a lb ai/a	Fall Fall Fall	A A A	100.0 a	0.0 f	29.3 b	0.0 e
14 Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 3.8 51	AS L WG	0.77 0.71 0.096	lb ae/a lb ae/a lb ai/a	Fall Fall Fall	A A A	100.0 a	74.0 cde	100.0 a	63.3 c

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						ERICA Horsewd	AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Mornglry
Crop Type, Code						C -	C -	C -	C -
Description						Control	Control	Control	Control
Rating Type						%	%	%	%
Rating Unit						06/29/16	06/29/16	06/29/16	06/29/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	76.7 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A		
	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C		
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C		
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	73.3 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A		
	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A		
	Spring_Double Knock								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
13	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	85.0 ab	65.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	No Spring Burndown								
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	95.0 ab	66.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Early Spring Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B		
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					

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Pest Code Pest Name						DIGSA L.crbgrs		ERICA Horsewd	AMAPA PalmerAm		
Crop Type, Code						C - C	GLXMA	C -	C -		
Description						Control	Soybean Stunting	Control	Control		
Rating Type						%	%	%	%		
Rating Unit						06/29/16	07/21/16	07/21/16	07/21/16		
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code				
11	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	55.0 a	4.7 cde	100.0 a	100.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall					
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A				
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A				
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		10 DPP	C				
	2,4-D ester	3.8 L		0.475 lb ae/a		10 DPP	C				
	Canopy Premix	75 DF		0.21 lb ai/a		10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
12	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	58.3 a	2.3 de	100.0 a	100.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall					
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A				
	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A				
	Spring_Double Knock										
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B				
	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP	B				
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE	D				
	Canopy Premix	75 DF		0.21 lb ai/a		PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE	D				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE	D				
13	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	30.0 c	24.0 a-d	86.7 ab	90.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		Fall	A				
	No Spring Burndown										
14	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	33.3 bc	12.3 b-e	100.0 a	95.0 a
	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		Fall	A				
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B				
	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP	B				
	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							

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Pest Code Pest Name						AMBEL C.ragwd	DIGSA L.crbgrs	CYPES Y.nutsge	
Crop Type, Code						C -	C -	C -	C GLXMA
Description						Control	Control	Control	Soybean
Rating Type						%	%	%	Yield
Rating Unit						07/21/16	07/21/16	07/21/16	Bu/A
Rating Date									10/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	98.7 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A		
	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C		
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C		
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	99.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall			
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A		
	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A		
	Spring_Double Knock								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
13	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	99.0 a	97.7 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	No Spring Burndown								
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	99.7 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Early Spring Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B		
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					

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Pest Code Pest Name		Weed	Weed	VIORA FldPansy	HORVW W.barley
Crop Type, Code		C -	C -	C -	C -
Description Rating Type		Overall Control	Overall GrndCovr	Control	Control
Rating Unit Rating Date		% 05/24/16	% 05/24/16	% 05/25/16	% 05/25/16
Trt Treatment No. Name	Form Form Conc Type Rate	Rate Unit	Appl Timing	Appl Code	
15 Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Canopy Premix ----metribuzin ----chlorimuron	4.5 AS 3.8 L 51 WG 4.5 AS 3.8 L 75 DF 64.3 10.7	0.77 lb ae/a 0.71 lb ae/a 0.096 lb ai/a 0.77 lb ae/a 0.475 lb ae/a 0.21 lb ai/a 0.18 0.03	Fall Fall Fall 10 DPP 10 DPP 10 DPP	A A A C C C	84.3 d 8.0 e-h 72.3 de 100.0 a
16 Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin Spring_Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Canopy Premix ----metribuzin ----chlorimuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L 51 WG 4.5 AS 3.8 L 2 SL 75 DF 64.3 10.7 100 SL 100 L	0.77 lb ae/a 0.71 lb ae/a 0.096 lb ai/a 0.77 lb ae/a 0.71 lb ae/a 0.75 lb ai/a 0.21 lb ai/a 0.18 0.03 1.25 % v/v 2.5 % v/v	Fall Fall Fall 4 WPP 4 WPP PRE PRE PRE PRE	A A A B B D D D D D	96.3 abc 1.7 hi 97.3 ab 100.0 a
LSD P=.05		4.90	6.36	8.86	7.13
Standard Deviation		2.93	3.81	5.26	4.23
CV		4.35	20.8	6.76	4.75
Replicate F		1.460	1.059	4.599	2.219
Replicate Prob(F)		0.2488	0.3598	0.0204	0.1306
Treatment F		581.262	141.058	69.081	124.465
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						SCRAN Knawel	RUMCR CrlyDock	EROI RdstmFil	LAMAM Henbit	
Crop Type, Code						C -	C -	C -	C -	
Description Rating Type Rating Unit Rating Date						Control %	Control %	Control %	Control %	
						05/25/16	05/25/16	05/25/16	05/25/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Timing	Appl Code				
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	88.3 cde	93.3 abc	100.0 a	89.3 c
	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	Fall	A				
	Ten Days Pre-Plant									
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475 lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21 lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18						
	----chlorimuron	10.7		0.03						
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A				
	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	Fall	A				
	Spring_Double Knock									
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71 lb ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21 lb ai/a	PRE	D				
	----metribuzin	64.3		0.18						
	----chlorimuron	10.7		0.03						
	Crop Oil Concentrate	100	SL	1.25 % v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	D				
LSD P=.05						9.31	10.05	7.11	3.31	
Standard Deviation						5.51	5.97	4.21	1.96	
CV						6.49	6.73	4.64	2.15	
Replicate F						1.732	3.529	1.918	0.970	
Replicate Prob(F)						0.1993	0.0453	0.1696	0.3936	
Treatment F						66.984	58.716	118.199	546.251	
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001	

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 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						ERICA Horsewd	VIORA FldPansy	ERICA Horsewd	OEOLA CEprmrse		
Crop Type, Code						C -	C -	C -	C -		
Description Rating Type Rating Unit Rating Date						Control %	Control %	Control %	Control %		
						05/25/16	06/13/16	06/13/16	06/13/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code				
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	96.0 ab	76.7 ab	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Spring_Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL.....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
LSD P=.05						4.73	33.42	19.48	16.03		
Standard Deviation						2.80	19.95	11.66	9.59		
CV						3.07	28.89	13.83	11.52		
Replicate F						1.766	7.503	2.292	0.896		
Replicate Prob(F)						0.1935	0.0026	0.1191	0.4196		
Treatment F						268.007	8.605	17.687	34.165		
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001		

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Pest Code Pest Name						VICVI H.vetch	AMAPA PalmerAm	AMBEL C.ragwd	DIGSA L.crbgrs
Crop Type, Code						C -	C -	C -	C -
Description Rating Type Rating Unit Rating Date						Control %	Control %	Control %	Control %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code		
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	98.5 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C		
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C		
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	90.3 abc
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Spring_Double Knock								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
	Gramoxone SL.....paraquat	2	SL	0.75	lb ai/a	PRE	D		
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
	LSD P=.05							1.25	17.85
	Standard Deviation							0.75	10.44
	CV							0.8	16.68
	Replicate F							0.969	0.738
	Replicate Prob(F)							0.3919	0.4914
	Treatment F							3353.180	41.534
	Treatment Prob(F)							0.0001	0.0001
								24.21	18.89
								14.43	11.21
								19.01	20.98
								0.563	0.860
								0.5760	0.4358
								24.771	28.293
								0.0001	0.0001

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 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27



Pest Code Pest Name						ERICA Horsewd	AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Mornglry
Crop Type, Code						C -	C -	C -	C -
Description						Control	Control	Control	Control
Rating Type						%	%	%	%
Rating Unit						06/29/16	06/29/16	06/29/16	06/29/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code		
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	98.3 a	73.3 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C		
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C		
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	72.5 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Spring_Double Knock								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
LSD P=.05						16.58	13.13	22.10	35.77
Standard Deviation						9.93	7.75	13.22	17.04
CV						11.34	10.79	17.88	23.48
Replicate F						0.677	3.046	4.098	0.830
Replicate Prob(F)						0.5159	0.0680	0.0275	0.4883
Treatment F						19.865	0.816	9.597	0.463
Treatment Prob(F)						0.0001	0.6461	0.0001	0.8594

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						DIGSA L.crbgrs		ERICA Horsewd	AMAPA PalmerAm		
Crop Type, Code						C - C	GLXMA	C -	C -		
Description						Control	Soybean Stunting	Control	Control		
Rating Type						%	%	%	%		
Rating Unit						06/29/16	07/21/16	07/21/16	07/21/16		
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code				
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	48.3 ab	1.7 de	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	60.0 a	0.0 e	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Spring_Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL.....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
LSD P=.05						16.13	22.84	18.85	9.17		
Standard Deviation						9.61	13.70	11.30	5.50		
CV						28.93	87.43	12.2	5.6		
Replicate F						4.227	0.140	2.985	1.187		
Replicate Prob(F)						0.0257	0.8696	0.0657	0.3189		
Treatment F						11.847	4.144	3.354	1.120		
Treatment Prob(F)						0.0001	0.0005	0.0023	0.3811		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Pest Code Pest Name						AMBEL C.ragwd	DIGSA L.crbgrs	CYPES Y.nutsge	
Crop Type, Code						C -	C -	C -	C GLXMA
Description						Control	Control	Control	Soybean
Rating Type						%	%	%	Yield
Rating Unit									Bu/A
Rating Date						07/21/16	07/21/16	07/21/16	10/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code		
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	97.7 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C		
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C		
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	97.7 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Spring_Double Knock								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
	Gramoxone SL.....paraquat	2	SL	0.75	lb ai/a	PRE	D		
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
	LSD P=.05							4.29	2.40
	Standard Deviation							2.57	1.44
	CV							2.59	1.46
	Replicate F							0.815	0.796
	Replicate Prob(F)							0.4521	0.4605
	Treatment F							2.451	0.817
	Treatment Prob(F)							0.0178	0.6526
									19.02
									11.33
									14.12
									10.91
									6.53
									12.88
									5.083
									0.0128
									1.323
									0.2511

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,11,12,13,17,30; Average=3,4,5,6,7,8,9,10,14,15,16,18,20,21,27

Comparing Different Programs for No-Till Soybeans				
Trial ID: DSB2-16		Location: Field #22		Trial Year: 2016
Protocol ID: DSB2-16		Investigator: Mark VanGessel		
Study Director:				
Sponsor Contact: Delaware Soybean Board				

Pest Code	Weed	Weed	VIORA	HORVW
Pest Name	C -	C -	FldPansy	W.barley
Crop Type, Code	C -	C -	C -	C -
Description	Overall	Overall	Control	Control
Rating Type	Control	GrndCovr	Control	Control
Rating Unit	%	%	%	%
Rating Date	05/24/16	05/24/16	05/25/16	05/25/16
Trt Treatment	Form	Form	Rate	Appl
No. Name	Conc	Type	Unit	Appl
TABLE OF R MEANS				
Replicate 1	68.5	19.1		
Replicate 2	67.2	17.2		
Replicate 3	66.8	18.7		
TABLE OF A (Fall Treatment) MEANS				
1 Fall__None	60.0 c	34.4 a		
2 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/a	Fall	A
2 2,4-D ester	3.8 L	0.71 lb ae/a	Fall	A
3 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/a	Fall	A
3 2,4-D ester	3.8 L	0.71 lb ae/a	Fall	A
3 Canopy EX Premix	29.5 WG	0.0406 lb ai/a	Fall	
3 ----chlorimuron	22.7	0.0312		
3 ----tribenuron	6.8	0.0094		
3 _Classic.....chlorimuron	25 WG	0.0313 lb ai/a	Fall	A
3 _Express TS.....tribenuron	50 SG	0.0094 lb ai/a	Fall	A
4 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/a	Fall	A
4 2,4-D ester	3.8 L	0.71 lb ae/a	Fall	A
4 Valor SX.....flumioxazin	51 WG	0.096 lb ai/a	Fall	A
LSD P=.05	2.45	3.18		
Standard Deviation	2.93	3.81		
CV	4.35	20.80		
TABLE OF B (Burndown Treatment) MEANS				
1 No Spring Burndown	0.0 d	53.9 a		
2 Early Spring Pre-Plant				
2 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/a	4 WPP	B
2 2,4-D ester	3.8 L	0.95 lb ae/a	4 WPP	B
2 Canopy Premix	75 DF	0.21 lb ai/a	4 WPP	B
2 ----metribuzin	64.3	0.18		
2 ----chlorimuron	10.7	0.03		
3 Ten Days Pre-Plant				
3 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/a	10 DPP	C
3 2,4-D ester	3.8 L	0.475 lb ae/a	10 DPP	C
3 Canopy Premix	75 DF	0.21 lb ai/a	10 DPP	C
3 ----metribuzin	64.3	0.18		
3 ----chlorimuron	10.7	0.03		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	SCRAN Knawel	RUMCR CrlyDock	EROI RdstmFil	LAMAM Henbit		
Crop Type, Code	C -	C -	C -	C -		
Description Rating Type Rating Unit Rating Date	Control % 05/25/16	Control % 05/25/16	Control % 05/25/16	Control % 05/25/16		
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
TABLE OF R MEANS						
Replicate 1						
Replicate 2						
Replicate 3						
TABLE OF A (Fall Treatment) MEANS						
1 Fall__None						
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall		A
2 2,4-D ester	3.8	L	0.71 lb ae/a	Fall		A
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall		A
3 2,4-D ester	3.8	L	0.71 lb ae/a	Fall		A
3 Canopy EX Premix	29.5	WG	0.0406 lb ai/a	Fall		
3 ----chlorimuron	22.7		0.0312			
3 ----tribenuron	6.8		0.0094			
3 _Classic.....chlorimuron	25	WG	0.0313 lb ai/a	Fall		A
3 _Express TS.....tribenuron	50	SG	0.0094 lb ai/a	Fall		A
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall		A
4 2,4-D ester	3.8	L	0.71 lb ae/a	Fall		A
4 Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	Fall		A
LSD P=.05						
Standard Deviation						
CV						
TABLE OF B (Burndown Treatment) MEANS						
1 No Spring Burndown						
2 Early Spring Pre-Plant						
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP		B
2 2,4-D ester	3.8	L	0.95 lb ae/a	4 WPP		B
2 Canopy Premix	75	DF	0.21 lb ai/a	4 WPP		B
2 ----metribuzin	64.3		0.18			
2 ----chlorimuron	10.7		0.03			
3 Ten Days Pre-Plant						
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	10 DPP		C
3 2,4-D ester	3.8	L	0.475 lb ae/a	10 DPP		C
3 Canopy Premix	75	DF	0.21 lb ai/a	10 DPP		C
3 ----metribuzin	64.3		0.18			
3 ----chlorimuron	10.7		0.03			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	ERICA Horsewd	VIORA FldPansy	ERICA Horsewd	OEOLA CEprmrse		
Crop Type, Code	C -	C -	C -	C -		
Description Rating Type Rating Unit Rating Date	Control % 05/25/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16		
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
<b>TABLE OF R MEANS</b>						
Replicate 1						
Replicate 2						
Replicate 3						
<b>TABLE OF A (Fall Treatment) MEANS</b>						
1 Fall__None						
2 Roundup WeatherMax..glyphosate 4.5 AS 0.77 lb ae/a Fall A						
2 2,4-D ester 3.8 L 0.71 lb ae/a Fall A						
3 Roundup WeatherMax..glyphosate 4.5 AS 0.77 lb ae/a Fall A						
3 2,4-D ester 3.8 L 0.71 lb ae/a Fall A						
3 Canopy EX Premix 29.5 WG 0.0406 lb ai/a Fall						
3 ----chlorimuron 22.7 0.0312						
3 ----tribenuron 6.8 0.0094						
3 _Classic.....chlorimuron 25 WG 0.0313 lb ai/a Fall A						
3 _Express TS.....tribenuron 50 SG 0.0094 lb ai/a Fall A						
4 Roundup WeatherMax..glyphosate 4.5 AS 0.77 lb ae/a Fall A						
4 2,4-D ester 3.8 L 0.71 lb ae/a Fall A						
4 Valor SX.....flumioxazin 51 WG 0.096 lb ai/a Fall A						
LSD P=.05						
Standard Deviation						
CV						
<b>TABLE OF B (Burndown Treatment) MEANS</b>						
1 No Spring Burndown						
2 Early Spring Pre-Plant						
2 Roundup WeatherMax..glyphosate 4.5 AS 0.77 lb ae/a 4 WPP B						
2 2,4-D ester 3.8 L 0.95 lb ae/a 4 WPP B						
2 Canopy Premix 75 DF 0.21 lb ai/a 4 WPP B						
2 ----metribuzin 64.3 0.18						
2 ----chlorimuron 10.7 0.03						
3 Ten Days Pre-Plant						
3 Roundup WeatherMax..glyphosate 4.5 AS 0.77 lb ae/a 10 DPP C						
3 2,4-D ester 3.8 L 0.475 lb ae/a 10 DPP C						
3 Canopy Premix 75 DF 0.21 lb ai/a 10 DPP C						
3 ----metribuzin 64.3 0.18						
3 ----chlorimuron 10.7 0.03						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	VICVI H.vetch	AMAPA PalmerAm	AMBEL C.ragwd	DIGSA L.crbgrs					
Crop Type, Code	C -	C -	C -	C -					
Description Rating Type Rating Unit Rating Date	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16					
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code				
TABLE OF R MEANS									
Replicate 1						93.8	60.5	75.0	50.9
Replicate 2						93.8	65.0	78.9	56.1
Replicate 3						93.4	62.4	73.8	53.3
TABLE OF A (Fall Treatment) MEANS									
1 Fall__None						75.0 b	57.5 a	74.2 a	44.6 b
2 Roundup WeatherMax..glyphosate						99.6 a	65.8 a	73.8 a	54.0 ab
2 2,4-D ester									
3 Roundup WeatherMax..glyphosate						100.0 a	61.5 a	73.3 a	58.1 a
3 2,4-D ester									
3 Canopy EX Premix									
3 ----chlorimuron									
3 ----tribenuron									
3 _Classic.....chlorimuron									
3 _Express TS.....tribenuron									
4 Roundup WeatherMax..glyphosate						100.0 a	65.7 a	82.3 a	57.1 a
4 2,4-D ester									
4 Valor SX.....flumioxazin									
LSD P=.05						0.62	8.92	12.11	9.45
Standard Deviation						0.75	10.44	14.43	11.21
CV						0.80	16.68	19.01	20.98
TABLE OF B (Burndown Treatment) MEANS									
1 No Spring Burndown						74.6 b	0.0 c	7.3 b	0.0 c
2 Early Spring Pre-Plant						100.0 a	69.1 b	97.5 a	55.4 b
2 Roundup WeatherMax..glyphosate									
2 2,4-D ester									
2 Canopy Premix									
2 ----metribuzin									
2 ----chlorimuron									
3 Ten Days Pre-Plant						100.0 a	88.8 a	98.8 a	75.8 a
3 Roundup WeatherMax..glyphosate									
3 2,4-D ester									
3 Canopy Premix									
3 ----metribuzin									
3 ----chlorimuron									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	ERICA Horsewd	AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Mornglry						
Crop Type, Code	C -	C -	C -	C -						
Description Rating Type Rating Unit Rating Date	Control % 06/29/16	Control % 06/29/16	Control % 06/29/16	Control % 06/29/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code					
TABLE OF R MEANS										
Replicate 1						85.2				
Replicate 2						88.7				
Replicate 3						88.8				
TABLE OF A (Fall Treatment) MEANS										
1 Fall__None						68.1 c				
2 Roundup WeatherMax..glyphosate						4.5 AS	0.77 lb ae/a	Fall	A	89.6 b
2 2,4-D ester						3.8 L	0.71 lb ae/a	Fall	A	
3 Roundup WeatherMax..glyphosate						4.5 AS	0.77 lb ae/a	Fall	A	97.9 a
3 2,4-D ester						3.8 L	0.71 lb ae/a	Fall	A	
3 Canopy EX Premix						29.5 WG	0.0406 lb ai/a	Fall		
3 ----chlorimuron						22.7	0.0312			
3 ----tribenuron						6.8	0.0094			
3 _Classic.....chlorimuron						25 WG	0.0313 lb ai/a	Fall	A	
3 _Express TS.....tribenuron						50 SG	0.0094 lb ai/a	Fall	A	
4 Roundup WeatherMax..glyphosate						4.5 AS	0.77 lb ae/a	Fall	A	94.6 ab
4 2,4-D ester						3.8 L	0.71 lb ae/a	Fall	A	
4 Valor SX.....flumioxazin						51 WG	0.096 lb ai/a	Fall	A	
LSD P=.05						8.29				
Standard Deviation						9.93				
CV						11.34				
TABLE OF B (Burndown Treatment) MEANS										
1 No Spring Burndown						59.6 b				
2 Early Spring Pre-Plant										92.8 a
2 Roundup WeatherMax..glyphosate						4.5 AS	0.77 lb ae/a	4 WPP	B	
2 2,4-D ester						3.8 L	0.95 lb ae/a	4 WPP	B	
2 Canopy Premix						75 DF	0.21 lb ai/a	4 WPP	B	
2 ----metribuzin						64.3	0.18			
2 ----chlorimuron						10.7	0.03			
3 Ten Days Pre-Plant										97.9 a
3 Roundup WeatherMax..glyphosate						4.5 AS	0.77 lb ae/a	10 DPP	C	
3 2,4-D ester						3.8 L	0.475 lb ae/a	10 DPP	C	
3 Canopy Premix						75 DF	0.21 lb ai/a	10 DPP	C	
3 ----metribuzin						64.3	0.18			
3 ----chlorimuron						10.7	0.03			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code Pest Name						DIGSA L.crbgrs		ERICA Horsewd	AMAPA PalmerAm
Crop Type, Code						C - C	GLXMA	C -	C -
Description Rating Type Rating Unit Rating Date						Control %	Soybean Stunting %	Control %	Control %
						06/29/16	07/21/16	07/21/16	07/21/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code		
TABLE OF R MEANS									
Replicate 1							16.0	87.9	99.0
Replicate 2							14.3	97.7	96.4
Replicate 3							16.8	92.4	99.1
TABLE OF A (Fall Treatment) MEANS									
1 Fall__None							27.0 a	85.4 a	99.7 a
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	15.1 b	92.1 a	97.8 a
2	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A			
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	11.1 b	96.5 a	99.0 a
3	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A			
3	Canopy EX Premix	29.5	WG	0.0406 lb ai/a	Fall				
3	----chlorimuron	22.7		0.0312					
3	----tribenuron	6.8		0.0094					
3	_Classic.....chlorimuron	25	WG	0.0313 lb ai/a	Fall	A			
3	_Express TS.....tribenuron	50	SG	0.0094 lb ai/a	Fall	A			
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	9.5 b	96.7 a	96.3 a
4	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A			
4	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	Fall	A			
LSD P=.05							11.42	9.42	4.58
Standard Deviation							13.70	11.30	5.50
CV							87.43	12.20	5.60
TABLE OF B (Burndown Treatment) MEANS									
1 No Spring Burndown							36.8 a	75.9 b	97.4 a
2 Early Spring Pre-Plant							12.2 b	96.4 a	95.5 a
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP	B			
2	2,4-D ester	3.8	L	0.95 lb ae/a	4 WPP	B			
2	Canopy Premix	75	DF	0.21 lb ai/a	4 WPP	B			
2	----metribuzin	64.3		0.18					
2	----chlorimuron	10.7		0.03					
3 Ten Days Pre-Plant							11.1 b	98.3 a	100.0 a
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	10 DPP	C			
3	2,4-D ester	3.8	L	0.475 lb ae/a	10 DPP	C			
3	Canopy Premix	75	DF	0.21 lb ai/a	10 DPP	C			
3	----metribuzin	64.3		0.18					
3	----chlorimuron	10.7		0.03					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	AMBEL	DIGSA	CYPES											
Pest Name	C.ragwd	L.crbgrs	Y.nutsge											
Crop Type, Code	C -	C -	C -	C GLXMA										
Description				Soybean										
Rating Type	Control	Control	Control	Yield										
Rating Unit	%	%	%	Bu/A										
Rating Date	07/21/16	07/21/16	07/21/16	10/17/16										
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code								
TABLE OF R MEANS														
Replicate 1							98.7	98.1	80.8	53.0				
Replicate 2							99.8	98.7	75.8	52.7				
Replicate 3							99.5	98.3	84.2	46.5				
TABLE OF A (Fall Treatment) MEANS														
1 Fall__None							99.9 a	97.8 a	80.1 a	48.4 a				
2 Roundup WeatherMax..glyphosate							4.5 AS	0.77 lb ae/a	Fall	A	100.0 a	98.5 a	79.5 a	49.5 a
2 2,4-D ester							3.8 L	0.71 lb ae/a	Fall	A				
3 Roundup WeatherMax..glyphosate							4.5 AS	0.77 lb ae/a	Fall	A	97.7 a	98.8 a	81.6 a	52.3 a
3 2,4-D ester							3.8 L	0.71 lb ae/a	Fall	A				
3 Canopy EX Premix							29.5 WG	0.0406 lb ai/a	Fall					
3 ----chlorimuron							22.7	0.0312						
3 ----tribenuron							6.8	0.0094						
3 _Classic.....chlorimuron							25 WG	0.0313 lb ai/a	Fall	A				
3 _Express TS.....tribenuron							50 SG	0.0094 lb ai/a	Fall	A				
4 Roundup WeatherMax..glyphosate							4.5 AS	0.77 lb ae/a	Fall	A	99.8 a	98.2 a	79.8 a	52.7 a
4 2,4-D ester							3.8 L	0.71 lb ae/a	Fall	A				
4 Valor SX.....flumioxazin							51 WG	0.096 lb ai/a	Fall	A				
LSD P=.05							2.14	1.20	9.51	5.46				
Standard Deviation							2.57	1.44	11.33	6.53				
CV							2.59	1.46	14.12	12.88				
TABLE OF B (Burndown Treatment) MEANS														
1 No Spring Burndown							97.3 b	98.5 a	77.3 b	44.9 b				
2 Early Spring Pre-Plant							100.0 a	98.7 a	73.0 b	54.0 a				
2 Roundup WeatherMax..glyphosate							4.5 AS	0.77 lb ae/a	4 WPP	B				
2 2,4-D ester							3.8 L	0.95 lb ae/a	4 WPP	B				
2 Canopy Premix							75 DF	0.21 lb ai/a	4 WPP	B				
2 ----metribuzin							64.3	0.18						
2 ----chlorimuron							10.7	0.03						
3 Ten Days Pre-Plant							100.0 a	98.1 a	81.5 ab	52.4 a				
3 Roundup WeatherMax..glyphosate							4.5 AS	0.77 lb ae/a	10 DPP	C				
3 2,4-D ester							3.8 L	0.475 lb ae/a	10 DPP	C				
3 Canopy Premix							75 DF	0.21 lb ai/a	10 DPP	C				
3 ----metribuzin							64.3	0.18						
3 ----chlorimuron							10.7	0.03						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name							Weed	Weed	VIORA FldPansy	HORVW W.barley	
Crop Type, Code							C -	C -	C -	C -	
Description Rating Type							Overall Control	Overall GrndCovr	Control	Control	
Rating Unit Rating Date							% 05/24/16	% 05/24/16	% 05/25/16	% 05/25/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
4	Spring_Double Knock							93.9 a	3.4 c		
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B					
4	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP B					
4	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE D					
4	Canopy Premix	75 DF		0.21 lb ai/a		PRE D					
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE D					
4	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE D					
LSD P=.05								2.45	3.18		
Standard Deviation								2.93	3.81		
CV								4.35	20.80		
TABLE OF A (Fall Treatment) B (Burndown Treatment) MEANS											
1	Fall_None							0.0 f	94.7 a	0.0 a	0.0 a
1	No Spring Burndown										
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		0.0 f	63.3 b	.	.
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A					
1	No Spring Burndown										
3	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		0.0 f	24.4 d	75.0 a	100.0 a
3	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A					
3	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall A					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall A					
3	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall A					
1	No Spring Burndown										
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		0.0 f	33.3 c	.	.
4	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A					
4	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		Fall A					
1	No Spring Burndown										
1	Fall_None							78.3 e	12.3 e	65.0 a	66.7 a
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B					
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP B					
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP B					
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		93.0 c	5.3 f-i	84.3 a	100.0 a
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A					
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B					
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP B					
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP B					
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	SCRAN Knawel	RUMCR CrlyDock	EROCI RdstmFil	LAMAM Henbit							
Crop Type, Code	C -	C -	C -	C -							
Description	Control	Control	Control	Control							
Rating Type	%	%	%	%							
Rating Unit	05/25/16	05/25/16	05/25/16	05/25/16							
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code				
4	Spring_Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
LSD P=.05											
Standard Deviation											
CV											
TABLE OF A (Fall Treatment) B (Burndown Treatment) MEANS											
1	Fall_None							0.0 a	0.0 a	0.0 a	0.0 a
1	No Spring Burndown										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	.	.	.	.
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
1	No Spring Burndown										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A				
1	No Spring Burndown										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	.	.	.	.
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
1	No Spring Burndown										
1	Fall_None							70.0 a	85.0 a	100.0 a	100.0 a
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	89.7 a	100.0 a	98.3 a	100.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						ERICA Horsewd	VIORA FldPansy	ERICA Horsewd	OEOLA CEprmrse
Crop Type, Code						C -	C -	C -	C -
Description Rating Type Rating Unit Rating Date						Control % 05/25/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
4	Spring_Double Knock							100.0 a	100.0 a
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B			
4	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP B			
4	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE D			
4	Canopy Premix	75 DF		0.21 lb ai/a		PRE D			
4	----metribuzin	64.3		0.18					
4	----chlorimuron	10.7		0.03					
4	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE D			
4	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE D			
LSD	P=.05							16.71	9.74
Standard Deviation								19.95	11.66
CV								28.89	13.83
TABLE OF A (Fall Treatment) B (Burndown Treatment) MEANS									
1	Fall_None							0.0 a	0.0 a
1	No Spring Burndown							0.0 d	0.0 d
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		20.0 a	50.0 c
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A			
1	No Spring Burndown								
3	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A	88.0 a	43.3 a	63.3 bc
3	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A			
3	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall			
3	----chlorimuron	22.7		0.0312					
3	----tribenuron	6.8		0.0094					
3	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall A			
3	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall A			
1	No Spring Burndown								
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		20.0 a	62.4 bc
4	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A			
4	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		Fall A			
1	No Spring Burndown								
1	Fall_None						100.0 a	40.0 a	73.3 b
2	Early Spring Pre-Plant								
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B			
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP B			
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP B			
2	----metribuzin	64.3		0.18					
2	----chlorimuron	10.7		0.03					
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A	100.0 a	76.7 a	100.0 a
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A			
2	Early Spring Pre-Plant								
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B			
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP B			
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP B			
2	----metribuzin	64.3		0.18					
2	----chlorimuron	10.7		0.03					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	VICVI H.vetch	AMAPA PalmerAm	AMBEL C.ragwd	DIGSA L.crbgrs							
Crop Type, Code	C -	C -	C -	C -							
Description Rating Type Rating Unit Rating Date	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code				
4	Spring_Double Knock							100.0 a	92.6 a	100.0 a	82.5 a
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B				
4	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP	B				
4	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE	D				
4	Canopy Premix	75 DF		0.21 lb ai/a		PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE	D				
4	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE	D				
LSD	P=.05			0.62				0.62	8.92	12.11	9.45
Standard Deviation				0.75				0.75	10.44	14.43	11.21
CV				0.80				0.80	16.68	19.01	20.98
TABLE OF A (Fall Treatment) B (Burndown Treatment) MEANS											
1	Fall_None							0.1 c	0.0 a	0.0 a	0.0 a
1	No Spring Burndown										
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	98.3 b	0.0 a	0.0 a	0.0 a
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
1	No Spring Burndown										
3	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	0.0 a	0.0 a	0.0 a
3	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
3	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall	A				
3	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall	A				
1	No Spring Burndown										
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	0.0 a	29.3 a	0.0 a
4	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
4	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		Fall	A				
1	No Spring Burndown										
1	Fall_None							100.0 a	60.0 a	96.7 a	33.3 a
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B				
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP	B				
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall	A	100.0 a	71.7 a	100.0 a	63.3 a
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP	B				
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP	B				
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						ERICA Horsewd	AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Morngrly
Crop Type, Code						C -	C -	C -	C -
Description Rating Type Rating Unit Rating Date						Control % 06/29/16	Control % 06/29/16	Control % 06/29/16	Control % 06/29/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
4	Spring_Double Knock							100.0 a	
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B			
4	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP B			
4	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE D			
4	Canopy Premix	75 DF		0.21 lb ai/a		PRE D			
4	----metribuzin	64.3		0.18					
4	----chlorimuron	10.7		0.03					
4	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE D			
4	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE D			
LSD P=.05								8.29	
Standard Deviation								9.93	
CV								11.34	
TABLE OF A (Fall Treatment) B (Burndown Treatment) MEANS									
1	Fall_None							0.0 d	.
1	No Spring Burndown								.
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		61.7 c	75.0 a
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A			16.7 a
1	No Spring Burndown								.
3	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		91.7 ab	75.0 a
3	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A			33.3 a
3	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall A			60.0 a
3	----chlorimuron	22.7		0.0312					
3	----tribenuron	6.8		0.0094					
3	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall A			
3	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall A			
1	No Spring Burndown								
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		85.0 ab	65.0 a
4	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A			53.3 a
4	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		Fall A			60.0 a
1	No Spring Burndown								
1	Fall_None							79.3 b	78.3 a
2	Early Spring Pre-Plant								68.3 a
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B			75.0 a
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP B			
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP B			
2	----metribuzin	64.3		0.18					
2	----chlorimuron	10.7		0.03					
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A		96.7 a	67.7 a
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A			71.7 a
2	Early Spring Pre-Plant								70.0 a
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B			
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP B			
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP B			
2	----metribuzin	64.3		0.18					
2	----chlorimuron	10.7		0.03					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						DIGSA L.crbgrs		ERICA Horsewd	AMAPA PalmerAm	
Crop Type, Code						C - C	GLXMA	C -	C -	
Description Rating Type Rating Unit Rating Date						Control %	Soybean Stunting %	Control %	Control %	
						06/29/16	07/21/16	07/21/16	07/21/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code			
4	Spring_Double Knock							2.6 b	100.0 a	99.8 a
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B				
4	2,4-D ester	3.8 L		0.71 lb ae/a		4 WPP B				
4	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		PRE D				
4	Canopy Premix	75 DF		0.21 lb ai/a		PRE D				
4	----metribuzin	64.3		0.18						
4	----chlorimuron	10.7		0.03						
4	Crop Oil Concentrate	100 SL		1.25 % v/v		PRE D				
4	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE D				
LSD P=.05								11.42	9.42	4.58
Standard Deviation								13.70	11.30	5.50
CV								87.43	12.20	5.60
TABLE OF A (Fall Treatment) B (Burndown Treatment) MEANS										
1	Fall_None							43.3 a	60.0 a	99.7 a
1	No Spring Burndown									
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A	0.0 a	46.7 a	71.0 a	100.0 a
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A				
1	No Spring Burndown									
3	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A	30.0 a	33.3 a	86.0 a	100.0 a
3	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A				
3	Canopy EX Premix	29.5 WG		0.0406 lb ai/a		Fall				
3	----chlorimuron	22.7		0.0312						
3	----tribenuron	6.8		0.0094						
3	_Classic.....chlorimuron	25 WG		0.0313 lb ai/a		Fall A				
3	_Express TS.....tribenuron	50 SG		0.0094 lb ai/a		Fall A				
1	No Spring Burndown									
4	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A	30.0 a	24.0 a	86.7 a	90.0 a
4	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A				
4	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		Fall A				
1	No Spring Burndown									
1	Fall_None						0.0 a	25.7 a	88.3 a	100.0 a
2	Early Spring Pre-Plant									
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B				
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP B				
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP B				
2	----metribuzin	64.3		0.18						
2	----chlorimuron	10.7		0.03						
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		Fall A	10.0 a	6.7 a	97.3 a	91.0 a
2	2,4-D ester	3.8 L		0.71 lb ae/a		Fall A				
2	Early Spring Pre-Plant									
2	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/a		4 WPP B				
2	2,4-D ester	3.8 L		0.95 lb ae/a		4 WPP B				
2	Canopy Premix	75 DF		0.21 lb ai/a		4 WPP B				
2	----metribuzin	64.3		0.18						
2	----chlorimuron	10.7		0.03						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
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Pest Code						AMBEL	DIGSA	CYPES	
Pest Name						C.ragwd	L.crbgrs	Y.nutsge	
Crop Type, Code						C -	C -	C -	C GLXMA
Description									Soybean
Rating Type						Control	Control	Control	Yield
Rating Unit						%	%	%	Bu/A
Rating Date						07/21/16	07/21/16	07/21/16	10/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
4	Spring_Double Knock							100.0 a	51.6 a
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		4 WPP	B	98.1 a	
4	2,4-D ester	3.8	L	0.71 lb ae/a		4 WPP	B	89.3 a	
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a		PRE	D		
4	Canopy Premix	75	DF	0.21 lb ai/a		PRE	D		
4	----metribuzin	64.3		0.18					
4	----chlorimuron	10.7		0.03					
4	Crop Oil Concentrate	100	SL	1.25 % v/v		PRE	D		
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v		PRE	D		
LSD P=.05								2.14	5.46
Standard Deviation								2.57	6.53
CV								2.59	12.88
TABLE OF A (Fall Treatment) B (Burndown Treatment) MEANS									
1	Fall_None							99.7 a	42.8 a
1	No Spring Burndown							97.7 a	81.3 a
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		Fall	A	100.0 a	42.8 a
2	2,4-D ester	3.8	L	0.71 lb ae/a		Fall	A	100.0 a	81.7 a
1	No Spring Burndown								
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		Fall	A	90.7 b	47.4 a
3	2,4-D ester	3.8	L	0.71 lb ae/a		Fall	A	98.7 a	
3	Canopy EX Premix	29.5	WG	0.0406 lb ai/a		Fall		71.0 a	
3	----chlorimuron	22.7		0.0312					
3	----tribenuron	6.8		0.0094					
3	_Classic.....chlorimuron	25	WG	0.0313 lb ai/a		Fall	A		
3	_Express TS.....tribenuron	50	SG	0.0094 lb ai/a		Fall	A		
1	No Spring Burndown								
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		Fall	A	99.0 a	46.6 a
4	2,4-D ester	3.8	L	0.71 lb ae/a		Fall	A	97.7 a	
4	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a		Fall	A	75.0 a	
1	No Spring Burndown								
1	Fall_None							100.0 a	49.9 a
2	Early Spring Pre-Plant							98.0 a	
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		4 WPP	B	74.0 a	
2	2,4-D ester	3.8	L	0.95 lb ae/a		4 WPP	B		
2	Canopy Premix	75	DF	0.21 lb ai/a		4 WPP	B		
2	----metribuzin	64.3		0.18					
2	----chlorimuron	10.7		0.03					
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		Fall	A	100.0 a	56.9 a
2	2,4-D ester	3.8	L	0.71 lb ae/a		Fall	A	98.0 a	
2	Early Spring Pre-Plant							73.7 a	
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		4 WPP	B		
2	2,4-D ester	3.8	L	0.95 lb ae/a		4 WPP	B		
2	Canopy Premix	75	DF	0.21 lb ai/a		4 WPP	B		
2	----metribuzin	64.3		0.18					
2	----chlorimuron	10.7		0.03					

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Pest Code Pest Name							Weed	Weed	VIORA FldPansy	HORVW W.barley
Crop Type, Code							C -	C -	C -	C -
Description Rating Type							Overall Control	Overall GrndCovr	Control	Control
Rating Unit Rating Date							% 05/24/16	% 05/24/16	% 05/25/16	% 05/25/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code			
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	96.3 abc	1.7 hi	91.0 a	100.0 a
3	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406 lb ai/a	Fall					
3	----chlorimuron	22.7		0.0312						
3	----tribenuron	6.8		0.0094						
3	_Classic.....chlorimuron	25	WG	0.0313 lb ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094 lb ai/a	Fall	A				
2	Early Spring Pre-Plant									
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95 lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21 lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18						
2	----chlorimuron	10.7		0.03						
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	94.0 bc	3.0 ghi	86.7 a	100.0 a
4	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	Fall	A				
2	Early Spring Pre-Plant									
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95 lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21 lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18						
2	----chlorimuron	10.7		0.03						
1	Fall__None									
3	Ten Days Pre-Plant									
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475 lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21 lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18						
3	----chlorimuron	10.7		0.03						
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	84.3 d	10.7 ef	71.7 a	100.0 a
2	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A				
3	Ten Days Pre-Plant									
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475 lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21 lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18						
3	----chlorimuron	10.7		0.03						

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	SCRAN Knawel	RUMCR CrlyDock	EROI RdstmFil	LAMAM Henbit						
Crop Type, Code	C -	C -	C -	C -						
Description Rating Type Rating Unit Rating Date	Control % 05/25/16	Control % 05/25/16	Control % 05/25/16	Control % 05/25/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
3 2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3 Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall					
3 ----chlorimuron	22.7		0.0312							
3 ----tribenuron	6.8		0.0094							
3 _Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A				
3 _Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A				
2 Early Spring Pre-Plant										
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2 2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2 Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2 ----metribuzin	64.3		0.18							
2 ----chlorimuron	10.7		0.03							
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	96.0 a	100.0 a	100.0 a	100.0 a
4 2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4 Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
2 Early Spring Pre-Plant										
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2 2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2 Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2 ----metribuzin	64.3		0.18							
2 ----chlorimuron	10.7		0.03							
1 Fall _None							80.0 a	80.0 a	88.3 a	100.0 a
3 Ten Days Pre-Plant										
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3 2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3 Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3 ----metribuzin	64.3		0.18							
3 ----chlorimuron	10.7		0.03							
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	81.7 a	100.0 a	100.0 a	96.7 a
2 2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3 Ten Days Pre-Plant										
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3 2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3 Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3 ----metribuzin	64.3		0.18							
3 ----chlorimuron	10.7		0.03							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						ERICA Horsewd	VIORA FldPansy	ERICA Horsewd	OEOLA CEprmrse		
Crop Type, Code						C -	C -	C -	C -		
Description Rating Type Rating Unit Rating Date						Control % 05/25/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	75.0 a	100.0 a	100.0 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	73.3 a	100.0 a	100.0 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
1	Fall__None							92.5 a	80.0 a	100.0 a	100.0 a
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	VICVI H.vetch	AMAPA PalmerAm	AMBEL C.ragwd	DIGSA L.crbgrs						
Crop Type, Code	C -	C -	C -	C -						
Description Rating Type Rating Unit Rating Date	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	100.0 a	70.7 a	93.3 a	61.7 a
3 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A				
3 Canopy EX Premix	29.5	WG	0.0406 lb ai/a	lb ai/a	Fall					
3 ----chlorimuron	22.7		0.0312							
3 ----tribenuron	6.8		0.0094							
3 _Classic.....chlorimuron	25	WG	0.0313 lb ai/a	lb ai/a	Fall	A				
3 _Express TS.....tribenuron	50	SG	0.0094 lb ai/a	lb ai/a	Fall	A				
2 Early Spring Pre-Plant										
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	4 WPP	B				
2 2,4-D ester	3.8	L	0.95 lb ae/a	lb ae/a	4 WPP	B				
2 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	4 WPP	B				
2 ----metribuzin	64.3		0.18							
2 ----chlorimuron	10.7		0.03							
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	100.0 a	74.0 a	100.0 a	63.3 a
4 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A				
4 Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	lb ai/a	Fall	A				
2 Early Spring Pre-Plant										
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	4 WPP	B				
2 2,4-D ester	3.8	L	0.95 lb ae/a	lb ae/a	4 WPP	B				
2 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	4 WPP	B				
2 ----metribuzin	64.3		0.18							
2 ----chlorimuron	10.7		0.03							
1 Fall _None							100.0 a	77.5 a	100.0 a	74.3 a
3 Ten Days Pre-Plant										
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	10 DPP	C				
3 2,4-D ester	3.8	L	0.475 lb ae/a	lb ae/a	10 DPP	C				
3 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	10 DPP	C				
3 ----metribuzin	64.3		0.18							
3 ----chlorimuron	10.7		0.03							
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	100.0 a	97.0 a	95.0 a	68.3 a
2 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A				
3 Ten Days Pre-Plant										
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	10 DPP	C				
3 2,4-D ester	3.8	L	0.475 lb ae/a	lb ae/a	10 DPP	C				
3 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	10 DPP	C				
3 ----metribuzin	64.3		0.18							
3 ----chlorimuron	10.7		0.03							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	ERICA Horsewd	AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Mornglry							
Crop Type, Code	C -	C -	C -	C -							
Description	Control	Control	Control	Control							
Rating Type	%	%	%	%							
Rating Unit	06/29/16	06/29/16	06/29/16	06/29/16							
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	68.3 a	80.0 a	75.0 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	95.0 ab	66.0 a	73.3 a	.
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
1	Fall__None							93.1 ab	70.0 a	100.0 a	.
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	68.3 a	75.0 a	75.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						DIGSA L.crbgrs		ERICA Horsewd	AMAPA PalmerAm		
Crop Type, Code						C - C	GLXMA	C -	C -		
Description Rating Type Rating Unit Rating Date						Control %	Soybean Stunting %	Control %	Control %		
						06/29/16	07/21/16	07/21/16	07/21/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	26.7 a	4.0 a	100.0 a	96.0 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	33.3 a	12.3 a	100.0 a	95.0 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
1	Fall__None										
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	36.7 a	4.7 a	100.0 a	100.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							

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Pest Code Pest Name Crop Type, Code Description Rating Type Rating Unit Rating Date						AMBEL C.ragwd C -  Control % 07/21/16	DIGSA L.crbgrs C -  Control % 07/21/16	CYPES Y.nutsge C -  Control % 07/21/16	C GLXMA  Soybean Yield Bu/A 10/17/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	99.0 a	74.3 a	54.8 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	99.7 a	70.0 a	54.6 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
1	Fall__None							100.0 a	98.0 a	79.0 a	51.5 a
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	98.0 a	71.0 a	49.3 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code Pest Name							Weed	Weed	VIORA FldPansy	HORVW W.barley	
Crop Type, Code							C -	C -	C -	C -	
Description Rating Type							Overall Control	Overall GrndCovr	Control	Control	
Rating Unit Rating Date							% 05/24/16	% 05/24/16	% 05/25/16	% 05/25/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		Fall	A	99.0 a	1.0 i	100.0 a	100.0 a
3	2,4-D ester	3.8	L	0.71 lb ae/a		Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406 lb ai/a		Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25	WG	0.0313 lb ai/a		Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094 lb ai/a		Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		10 DPP	C				
3	2,4-D ester	3.8	L	0.475 lb ae/a		10 DPP	C				
3	Canopy Premix	75	DF	0.21 lb ai/a		10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		Fall	A	84.3 d	8.0 e-h	72.3 a	100.0 a
4	2,4-D ester	3.8	L	0.71 lb ae/a		Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a		Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		10 DPP	C				
3	2,4-D ester	3.8	L	0.475 lb ae/a		10 DPP	C				
3	Canopy Premix	75	DF	0.21 lb ai/a		10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
1	Fall__None										
4	Spring_Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		4 WPP	B				
4	2,4-D ester	3.8	L	0.71 lb ae/a		4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a		PRE	D				
4	Canopy Premix	75	DF	0.21 lb ai/a		PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	SL	1.25 % v/v		PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v		PRE	D				
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		Fall	A	94.7 abc	2.0 hi	90.0 a	100.0 a
2	2,4-D ester	3.8	L	0.71 lb ae/a		Fall	A				
4	Spring_Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a		4 WPP	B				
4	2,4-D ester	3.8	L	0.71 lb ae/a		4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a		PRE	D				
4	Canopy Premix	75	DF	0.21 lb ai/a		PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	SL	1.25 % v/v		PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v		PRE	D				

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Pest Code Pest Name	SCRAN Knawel	RUMCR CrlyDock	EROCI RdstmFil	LAMAM Henbit						
Crop Type, Code	C -	C -	C -	C -						
Description Rating Type Rating Unit Rating Date	Control % 05/25/16	Control % 05/25/16	Control % 05/25/16	Control % 05/25/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	100.0 a	96.0 a	100.0 a	100.0 a
3 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A				
3 Canopy EX Premix	29.5	WG	0.0406 lb ai/a	lb ai/a	Fall					
3 ----chlorimuron	22.7		0.0312							
3 ----tribenuron	6.8		0.0094							
3 _Classic.....chlorimuron	25	WG	0.0313 lb ai/a	lb ai/a	Fall	A				
3 _Express TS.....tribenuron	50	SG	0.0094 lb ai/a	lb ai/a	Fall	A				
3 Ten Days Pre-Plant										
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	10 DPP	C				
3 2,4-D ester	3.8	L	0.475 lb ae/a	lb ae/a	10 DPP	C				
3 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	10 DPP	C				
3 ----metribuzin	64.3		0.18							
3 ----chlorimuron	10.7		0.03							
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	88.3 a	93.3 a	100.0 a	89.3 a
4 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A				
4 Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	lb ai/a	Fall	A				
3 Ten Days Pre-Plant										
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	10 DPP	C				
3 2,4-D ester	3.8	L	0.475 lb ae/a	lb ae/a	10 DPP	C				
3 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	10 DPP	C				
3 ----metribuzin	64.3		0.18							
3 ----chlorimuron	10.7		0.03							
1 Fall__None							91.0 a	87.3 a	90.0 a	100.0 a
4 Spring_Double Knock										
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	4 WPP	B				
4 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	4 WPP	B				
4 Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	lb ai/a	PRE	D				
4 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	PRE	D				
4 ----metribuzin	64.3		0.18							
4 ----chlorimuron	10.7		0.03							
4 Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D				
4 30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D				
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	92.5 a	100.0 a	94.7 a	100.0 a
2 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A				
4 Spring_Double Knock										
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	4 WPP	B				
4 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	4 WPP	B				
4 Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	lb ai/a	PRE	D				
4 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	PRE	D				
4 ----metribuzin	64.3		0.18							
4 ----chlorimuron	10.7		0.03							
4 Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D				
4 30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D				

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Pest Code Pest Name	University of Delaware					ERICA Horsewd	VIORA FldPansy	ERICA Horsewd	OEOLA CEprmrse
Crop Type, Code						C -	C -	C -	C -
Description Rating Type Rating Unit Rating Date						Control % 05/25/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	100.0 a	100.0 a
3	2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A		
3	Canopy EX Premix	29.5	WG	0.0406 lb ai/a	lb ai/a	Fall			
3	----chlorimuron	22.7		0.0312					
3	----tribenuron	6.8		0.0094					
3	_Classic.....chlorimuron	25	WG	0.0313 lb ai/a	lb ai/a	Fall	A		
3	_Express TS.....tribenuron	50	SG	0.0094 lb ai/a	lb ai/a	Fall	A		
3	Ten Days Pre-Plant								
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	10 DPP	C		
3	2,4-D ester	3.8	L	0.475 lb ae/a	lb ae/a	10 DPP	C		
3	Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	10 DPP	C		
3	----metribuzin	64.3		0.18					
3	----chlorimuron	10.7		0.03					
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	96.0 a	76.7 a
4	2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A		
4	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	lb ai/a	Fall	A		
3	Ten Days Pre-Plant								
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	10 DPP	C		
3	2,4-D ester	3.8	L	0.475 lb ae/a	lb ae/a	10 DPP	C		
3	Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	10 DPP	C		
3	----metribuzin	64.3		0.18					
3	----chlorimuron	10.7		0.03					
1	Fall__None							100.0 a	100.0 a
4	Spring_Double Knock								
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	4 WPP	B		
4	2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	4 WPP	B		
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	lb ai/a	PRE	D		
4	Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	PRE	D		
4	----metribuzin	64.3		0.18					
4	----chlorimuron	10.7		0.03					
4	Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D		
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D		
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	100.0 a	100.0 a
2	2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A		
4	Spring_Double Knock								
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	4 WPP	B		
4	2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	4 WPP	B		
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	lb ai/a	PRE	D		
4	Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	PRE	D		
4	----metribuzin	64.3		0.18					
4	----chlorimuron	10.7		0.03					
4	Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D		
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D		

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Pest Code Pest Name	VICVI H.vetch	AMAPA PalmerAm	AMBEL C.ragwd	DIGSA L.crbgrs						
Crop Type, Code	C -	C -	C -	C -						
Description Rating Type Rating Unit Rating Date	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	100.0 a	82.3 a	100.0 a	82.3 a
3 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A				
3 Canopy EX Premix	29.5	WG	0.0406 lb ai/a	lb ai/a	Fall					
3 ----chlorimuron	22.7		0.0312							
3 ----tribenuron	6.8		0.0094							
3 _Classic.....chlorimuron	25	WG	0.0313 lb ai/a	lb ai/a	Fall	A				
3 _Express TS.....tribenuron	50	SG	0.0094 lb ai/a	lb ai/a	Fall	A				
3 Ten Days Pre-Plant										
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	10 DPP	C				
3 2,4-D ester	3.8	L	0.475 lb ae/a	lb ae/a	10 DPP	C				
3 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	10 DPP	C				
3 ----metribuzin	64.3		0.18							
3 ----chlorimuron	10.7		0.03							
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	100.0 a	98.5 a	100.0 a	78.3 a
4 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A				
4 Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	lb ai/a	Fall	A				
3 Ten Days Pre-Plant										
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	10 DPP	C				
3 2,4-D ester	3.8	L	0.475 lb ae/a	lb ae/a	10 DPP	C				
3 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	10 DPP	C				
3 ----metribuzin	64.3		0.18							
3 ----chlorimuron	10.7		0.03							
1 Fall__None							100.0 a	92.3 a	100.0 a	70.7 a
4 Spring_Double Knock										
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	4 WPP	B				
4 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	4 WPP	B				
4 Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	lb ai/a	PRE	D				
4 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	PRE	D				
4 ----metribuzin	64.3		0.18							
4 ----chlorimuron	10.7		0.03							
4 Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D				
4 30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D				
2 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	Fall	A	100.0 a	94.7 a	100.0 a	84.3 a
2 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	Fall	A				
4 Spring_Double Knock										
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	lb ae/a	4 WPP	B				
4 2,4-D ester	3.8	L	0.71 lb ae/a	lb ae/a	4 WPP	B				
4 Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	lb ai/a	PRE	D				
4 Canopy Premix	75	DF	0.21 lb ai/a	lb ai/a	PRE	D				
4 ----metribuzin	64.3		0.18							
4 ----chlorimuron	10.7		0.03							
4 Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D				
4 30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						ERICA Horsewd	AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Morngly	
Crop Type, Code						C -	C -	C -	C -	
Description Rating Type Rating Unit Rating Date						Control %	Control %	Control %	Control %	
						06/29/16	06/29/16	06/29/16	06/29/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Appl Timing	Appl Code				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	100.0 a	76.7 a	86.7 a	80.0 a
3	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406 lb ai/a	Fall					
3	----chlorimuron	22.7		0.0312						
3	----tribenuron	6.8		0.0094						
3	_Classic.....chlorimuron	25	WG	0.0313 lb ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094 lb ai/a	Fall	A				
3	Ten Days Pre-Plant									
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475 lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21 lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18						
3	----chlorimuron	10.7		0.03						
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	98.3 a	73.3 a	80.0 a	75.0 a
4	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	Fall	A				
3	Ten Days Pre-Plant									
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475 lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21 lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18						
3	----chlorimuron	10.7		0.03						
1	Fall__None						100.0 a	73.3 a	86.7 a	.
4	Spring_Double Knock									
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71 lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21 lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18						
4	----chlorimuron	10.7		0.03						
4	Crop Oil Concentrate	100	SL	1.25 % v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	D				
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	Fall	A	100.0 a	75.0 a	87.7 a	78.5 a
2	2,4-D ester	3.8	L	0.71 lb ae/a	Fall	A				
4	Spring_Double Knock									
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71 lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21 lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18						
4	----chlorimuron	10.7		0.03						
4	Crop Oil Concentrate	100	SL	1.25 % v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	D				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						DIGSA L.crbgrs		ERICA Horsewd	AMAPA PalmerAm						
Crop Type, Code						C - C	GLXMA	C -	C -						
Description Rating Type Rating Unit Rating Date						Control %	Soybean Stunting %	Control %	Control %						
						06/29/16	07/21/16	07/21/16	07/21/16						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code								
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	55.0 a	4.7 a	100.0 a	100.0 a				
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A								
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall									
3	----chlorimuron	22.7		0.0312											
3	----tribenuron	6.8		0.0094											
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A								
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A								
3	Ten Days Pre-Plant														
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C								
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C								
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C								
3	----metribuzin	64.3		0.18											
3	----chlorimuron	10.7		0.03											
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	48.3 a	1.7 a	100.0 a	100.0 a				
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A								
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A								
3	Ten Days Pre-Plant														
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C								
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C								
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C								
3	----metribuzin	64.3		0.18											
3	----chlorimuron	10.7		0.03											
1	Fall__None														
4	Spring_Double Knock														
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B	36.7 a	5.7 a	100.0 a	99.0 a				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B								
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D								
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D								
4	----metribuzin	64.3		0.18											
4	----chlorimuron	10.7		0.03											
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D								
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D								
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A					46.7 a	2.3 a	100.0 a	100.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A								
4	Spring_Double Knock														
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B								
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B								
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D								
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D								
4	----metribuzin	64.3		0.18											
4	----chlorimuron	10.7		0.03											
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D								
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name Crop Type, Code Description Rating Type Rating Unit Rating Date						AMBEL C.ragwd C -  Control % 07/21/16	DIGSA L.crbgrs C -  Control % 07/21/16	CYPES Y.nutsge C -  Control % 07/21/16	C GLXMA  Soybean Yield Bu/A 10/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	98.7 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall			
3	----chlorimuron	22.7		0.0312					
3	----tribenuron	6.8		0.0094					
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A		
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A		
3	Ten Days Pre-Plant								
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C		
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C		
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C		
3	----metribuzin	64.3		0.18					
3	----chlorimuron	10.7		0.03					
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	97.7 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
3	Ten Days Pre-Plant								
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C		
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C		
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C		
3	----metribuzin	64.3		0.18					
3	----chlorimuron	10.7		0.03					
1	Fall__None							100.0 a	97.7 a
4	Spring_Double Knock								
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
4	----metribuzin	64.3		0.18					
4	----chlorimuron	10.7		0.03					
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D		
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	98.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
4	Spring_Double Knock								
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
4	----metribuzin	64.3		0.18					
4	----chlorimuron	10.7		0.03					
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D		
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name							Weed	Weed	VIORA FldPansy	HORVW W.barley					
Crop Type, Code							C -	C -	C -	C -					
Description Rating Type							Overall Control	Overall GrndCovr	Control	Control					
Rating Unit Rating Date							% 05/24/16	% 05/24/16	% 05/25/16	% 05/25/16					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code								
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	98.0 ab	1.0 i	100.0 a	100.0 a				
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A								
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall									
3	----chlorimuron	22.7		0.0312											
3	----tribenuron	6.8		0.0094											
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A								
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A								
4	Spring_Double Knock														
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B								
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B								
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D								
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D								
4	----metribuzin	64.3		0.18											
4	----chlorimuron	10.7		0.03											
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D								
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D								
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	96.3 abc	1.7 hi	97.3 a	100.0 a				
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A								
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A								
4	Spring_Double Knock														
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B								
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B								
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D								
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D								
4	----metribuzin	64.3		0.18											
4	----chlorimuron	10.7		0.03											
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D								
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D								
LSD P=.05												4.90	6.36	8.86	7.13
Standard Deviation												2.93	3.81	5.26	4.23
CV								4.35	20.80	6.76	4.75				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code Pest Name	SCRAN Knawel	RUMCR CrlyDock	EROI RdstmFil	LAMAM Henbit							
Crop Type, Code	C -	C -	C -	C -							
Description	Control	Control	Control	Control							
Rating Type	%	%	%	%							
Rating Unit	05/25/16	05/25/16	05/25/16	05/25/16							
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
3	2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406 lb ai/a	ai/a	Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25	WG	0.0313 lb ai/a	ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094 lb ai/a	ai/a	Fall	A				
4	Spring_Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21 lb ai/a	ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	SL	1.25 % v/v	v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	v/v	PRE	D				
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	Fall	A	98.3 a	100.0 a	100.0 a	90.7 a
4	2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	ai/a	Fall	A				
4	Spring_Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21 lb ai/a	ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	SL	1.25 % v/v	v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	v/v	PRE	D				
LSD P=.05								9.31	10.05	7.11	3.31
Standard Deviation								5.51	5.97	4.21	1.96
CV								6.49	6.73	4.64	2.15

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	ERICA Horsewd	VIORA FldPansy	ERICA Horsewd	OEOLA CEprmrse							
Crop Type, Code	C -	C -	C -	C -							
Description	Control	Control	Control	Control							
Rating Type	%	%	%	%							
Rating Unit	05/25/16	06/13/16	06/13/16	06/13/16							
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A				
4	Spring_Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
4	Spring_Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
LSD P=.05								4.73	33.42	19.48	16.03
Standard Deviation								2.80	19.95	11.66	9.59
CV								3.07	28.89	13.83	11.52

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	VICVI H.vetch	AMAPA PalmerAm	AMBEL C.ragwd	DIGSA L.crbgrs						
Crop Type, Code	C -	C -	C -	C -						
Description Rating Type Rating Unit Rating Date	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16	Control % 06/13/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
3 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	Fall	A	100.0 a	93.0 a	100.0 a	88.3 a
3 2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	Fall	A				
3 Canopy EX Premix	29.5	WG	0.0406 lb ai/a	ai/a	Fall					
3 ----chlorimuron	22.7		0.0312							
3 ----tribenuron	6.8		0.0094							
3 _Classic.....chlorimuron	25	WG	0.0313 lb ai/a	ai/a	Fall	A				
3 _Express TS.....tribenuron	50	SG	0.0094 lb ai/a	ai/a	Fall	A				
4 Spring_Double Knock										
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	4 WPP	B				
4 2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	4 WPP	B				
4 Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	ai/a	PRE	D				
4 Canopy Premix	75	DF	0.21 lb ai/a	ai/a	PRE	D				
4 ----metribuzin	64.3		0.18							
4 ----chlorimuron	10.7		0.03							
4 Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D				
4 30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D				
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	Fall	A	100.0 a	90.3 a	100.0 a	86.7 a
4 2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	Fall	A				
4 Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	ai/a	Fall	A				
4 Spring_Double Knock										
4 Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	4 WPP	B				
4 2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	4 WPP	B				
4 Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	ai/a	PRE	D				
4 Canopy Premix	75	DF	0.21 lb ai/a	ai/a	PRE	D				
4 ----metribuzin	64.3		0.18							
4 ----chlorimuron	10.7		0.03							
4 Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D				
4 30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D				
LSD P=.05							1.25	17.85	24.21	18.89
Standard Deviation							0.75	10.44	14.43	11.21
CV							0.80	16.68	19.01	20.98

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name	ERICA Horsewd	AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Mornlry							
Crop Type, Code	C -	C -	C -	C -							
Description	Control	Control	Control	Control							
Rating Type	%	%	%	%							
Rating Unit	06/29/16	06/29/16	06/29/16	06/29/16							
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	Fall	A	100.0 a	73.3 a	100.0 a	75.0 a
3	2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406 lb ai/a	ai/a	Fall					
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	_Classic.....chlorimuron	25	WG	0.0313 lb ai/a	ai/a	Fall	A				
3	_Express TS.....tribenuron	50	SG	0.0094 lb ai/a	ai/a	Fall	A				
4	Spring_Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21 lb ai/a	ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D				
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	Fall	A	100.0 a	72.5 a	96.0 a	75.0 a
4	2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096 lb ai/a	ai/a	Fall	A				
4	Spring_Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/a	ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71 lb ae/a	ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/a	ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21 lb ai/a	ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	SL	1.25 % v/v	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	% v/v	PRE	D				
LSD	P=.05							16.58	13.13	22.10	35.77
Standard Deviation								9.93	7.75	13.22	17.04
CV								11.34	10.79	17.88	23.48

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						DIGSA L.crbgrs		ERICA Horsewd	AMAPA PalmerAm				
Crop Type, Code						C - C	GLXMA	C -	C -				
Description Rating Type Rating Unit Rating Date						Control %	Soybean Stunting %	Control %	Control %				
						06/29/16	07/21/16	07/21/16	07/21/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code						
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	58.3 a	2.3 a	100.0 a	100.0 a		
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A						
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall							
3	----chlorimuron	22.7		0.0312									
3	----tribenuron	6.8		0.0094									
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A						
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A						
4	Spring_Double Knock												
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B						
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B						
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D						
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D						
4	----metribuzin	64.3		0.18									
4	----chlorimuron	10.7		0.03									
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D						
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D						
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	60.0 a	0.0 a	100.0 a	100.0 a		
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A						
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A						
4	Spring_Double Knock												
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B						
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B						
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D						
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D						
4	----metribuzin	64.3		0.18									
4	----chlorimuron	10.7		0.03									
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D						
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D						
LSD P=.05						16.13	22.84					18.85	9.17
Standard Deviation						9.61	13.70					11.30	5.50
CV						28.93	87.43	12.20	5.60				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						AMBEL	DIGSA	CYPES	
Pest Name						C.ragwd	L.crbgrs	Y.nutsge	
Crop Type, Code						C -	C -	C -	C GLXMA
Description									Soybean
Rating Type						Control	Control	Control	Yield
Rating Unit						%	%	%	Bu/A
Rating Date						07/21/16	07/21/16	07/21/16	10/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	52.9 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A	99.0 a	
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall		94.5 a	
3	----chlorimuron	22.7		0.0312					
3	----tribenuron	6.8		0.0094					
3	_Classic.....chlorimuron	25	WG	0.0313	lb ai/a	Fall	A		
3	_Express TS.....tribenuron	50	SG	0.0094	lb ai/a	Fall	A		
4	Spring_Double Knock								
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
4	----metribuzin	64.3		0.18					
4	----chlorimuron	10.7		0.03					
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D		
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	55.0 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A	97.7 a	
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A	85.0 a	
4	Spring_Double Knock								
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
4	----metribuzin	64.3		0.18					
4	----chlorimuron	10.7		0.03					
4	Crop Oil Concentrate	100	SL	1.25	% v/v	PRE	D		
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
LSD P=.05						4.29	2.40	19.02	10.91
Standard Deviation						2.57	1.44	11.33	6.53
CV						2.59	1.46	14.12	12.88

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
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FACTORIAL/POOLED ERROR AOV For Weed C Overall Control % 05/24/16 Missing values in column 1 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	75300.000000				
R	2	25.125000	12.562500	1.460	0.2488	
A	3	1102.666667	367.555556	42.715	0.0001	2.4
B	3	73311.500000	24437.166667	2839.918	0.0001	2.4
AB	9	611.166667	67.907407	7.892	0.0001	4.9
ERROR	29	249.541667	8.604885			

FACTORIAL/POOLED ERROR AOV For Weed C Overall GrndCovr % 05/24/16 Missing values in column 2 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	31175.546296				
R	2	30.754630	15.377315	1.059	0.3598	
A	3	5246.194444	1748.731481	120.431	0.0001	3.2
B	3	20606.638889	6868.879630	473.044	0.0001	3.2
AB	9	4870.861111	541.206790	37.272	0.0001	6.4
ERROR	29	421.097222	14.520594			

Randomized Complete Block (RCB) AOV For VIORA FldPansy C Control % 05/25/16 Missing factor A2 B1 levels prevents analyzing column 3 as Factorial design; Missing factor A4 B1 levels prevents analyzing column 3 as Factorial design; Missing values in column 3 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	25751.619048			
Replicate	2	254.333333	127.166667	4.599	0.0204
Treatment	13	24833.619048	1910.278388	69.081	0.0001
ERROR	24	663.666667	27.652778		

Randomized Complete Block (RCB) AOV For HORVW W.barley C Control % 05/25/16 Missing factor A2 B1 levels prevents analyzing column 4 as Factorial design; Missing factor A4 B1 levels prevents analyzing column 4 as Factorial design; Missing values in column 4 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	29489.619048			
Replicate	2	79.476190	39.738095	2.219	0.1306
Treatment	13	28980.285714	2229.252747	124.465	0.0001
ERROR	24	429.857143	17.910714		

Randomized Complete Block (RCB) AOV For SCRAN Knawel C Control % 05/25/16 Missing factor A2 B1 levels prevents analyzing column 5 as Factorial design; Missing factor A4 B1 levels prevents analyzing column 5 as Factorial design; Missing values in column 5 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	38	27231.910714			
Replicate	2	105.107143	52.553571	1.732	0.1993
Treatment	13	26428.744048	2032.980311	66.984	0.0001
ERROR	23	698.059524	30.350414		

Randomized Complete Block (RCB) AOV For RUMCR CrlyDock C Control % 05/25/16 Missing factor A2 B1 levels prevents analyzing column 6 as Factorial design; Missing factor A4 B1 levels prevents analyzing column 6 as Factorial design; Missing values in column 6 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	28270.976190			
Replicate	2	251.190476	125.595238	3.529	0.0453
Treatment	13	27165.642857	2089.664835	58.716	0.0001
ERROR	24	854.142857	35.589286		

Randomized Complete Block (RCB) AOV For EROCI RdstmFil C Control % 05/25/16 Missing factor A2 B1 levels prevents analyzing column 7 as Factorial design; Missing factor A4 B1 levels prevents analyzing column 7 as Factorial design; Missing values in column 7 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	38	27730.476190			
Replicate	2	68.047619	34.023810	1.918	0.1696
Treatment	13	27254.476190	2096.498168	118.199	0.0001
ERROR	23	407.952381	17.737060		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Randomized Complete Block (RCB) AOV For LAMAM Henbit C Control % 05/25/16 Missing factor A2 B1 levels prevents analyzing column 8 as Factorial design; Missing factor A4 B1 levels prevents analyzing column 8 as Factorial design; Missing values in column 8 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	27476.476190			
Replicate	2	7.476190	3.738095	0.970	0.3936
Treatment	13	27376.476190	2105.882784	546.251	0.0001
ERROR	24	92.523810	3.855159		

Randomized Complete Block (RCB) AOV For ERICA Horsewd C Control % 05/25/16 Missing factor A2 B1 levels prevents analyzing column 9 as Factorial design; Missing factor A4 B1 levels prevents analyzing column 9 as Factorial design; Missing values in column 9 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	38	27588.910714			
Replicate	2	27.750000	13.875000	1.766	0.1935
Treatment	13	27380.410714	2106.185440	268.007	0.0001
ERROR	23	180.750000	7.858696		

FACTORIAL/POOLED ERROR AOV For VIORA FldPansy C Control % 06/13/16 Missing values in column 10 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	68082.812500				
R	2	5971.875000	2985.937500	7.503	0.0026	
A	3	4043.229167	1347.743056	3.387	0.0324	16.7
B	3	44343.229167	14781.076389	37.143	0.0001	16.7
AB	9	2979.687500	331.076389	0.832	0.5933	33.4
ERROR	27	10744.791667	397.955247			

FACTORIAL/POOLED ERROR AOV For ERICA Horsewd C Control % 06/13/16 Missing values in column 11 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	40664.879630				
R	2	623.629630	311.814815	2.292	0.1191	
A	3	4172.250000	1390.750000	10.222	0.0001	9.7
B	3	26437.805556	8812.601852	64.773	0.0001	9.7
AB	9	5485.638889	609.515432	4.480	0.0009	19.5
ERROR	29	3945.555556	136.053640			

FACTORIAL/POOLED ERROR AOV For OEOLA CEprmrse C Control % 06/13/16 Missing values in column 12 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	45	49822.658658				
R	2	164.625993	82.312997	0.896	0.4196	
A	3	1591.985469	530.661823	5.776	0.0033	8.0
B	3	40717.471740	13572.490580	147.721	0.0001	8.0
AB	9	4775.956408	530.661823	5.776	0.0002	16.0
ERROR	28	2572.619048	91.879252			

FACTORIAL/POOLED ERROR AOV For VICVI H.vetch C Control % 06/13/16 Missing values in column 13 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	45	28053.566314				
R	2	1.080197	0.540098	0.969	0.3919	
A	3	5557.405439	1852.468480	3323.298	0.0001	0.6
B	3	5807.256633	1935.752211	3472.707	0.0001	0.6
AB	9	16672.216317	1852.468480	3323.298	0.0001	1.2
ERROR	28	15.607727	0.557419			

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm C Control % 06/13/16 Missing values in column 14 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	36	70177.750000				
R	2	160.906250	80.453125	0.738	0.4914	
A	3	573.125000	191.041667	1.752	0.1905	8.9
B	3	66575.750000	22191.916667	203.488	0.0001	8.9
AB	9	795.875000	88.430556	0.811	0.6126	17.8
ERROR	19	2072.093750	109.057566			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



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FACTORIAL/POOLED ERROR AOV For AMBEL C.ragwd C Control % 06/13/16 Missing values in column 15 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	43	82980.479167				
R	2	234.541667	117.270833	0.563	0.5760	
A	3	667.229167	222.409722	1.069	0.3795	12.1
B	3	75250.562500	25083.520833	120.517	0.0001	12.1
AB	9	1416.687500	157.409722	0.756	0.6560	24.2
ERROR	26	5411.458333	208.133013			

FACTORIAL/POOLED ERROR AOV For DIGSA L.crbgrs C Control % 06/13/16 Missing values in column 16 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	56561.812500				
R	2	216.125000	108.062500	0.860	0.4358	
A	3	1363.062500	454.354167	3.616	0.0276	9.4
B	3	50468.229167	16822.743056	133.874	0.0001	9.4
AB	9	1498.520833	166.502315	1.325	0.2758	18.9
ERROR	24	3015.875000	125.661458			

FACTORIAL/POOLED ERROR AOV For ERICA Horsewd C Control % 06/29/16 Missing values in column 17 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	32382.983866				
R	2	133.578657	66.789329	0.677	0.5159	
A	3	6471.172847	2157.057616	21.870	0.0001	8.3
B	3	12843.889514	4281.296505	43.408	0.0001	8.3
AB	9	10074.085208	1119.342801	11.349	0.0001	16.6
ERROR	29	2860.257639	98.629574			

Randomized Complete Block (RCB) AOV For AMAPA PalmerAm C Control % 06/29/16 Missing factor A1 B1 levels prevents analyzing column 18 as Factorial design; Missing values in column 18 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	38	2374.311111			
Replicate	2	366.011111	183.005556	3.046	0.0680
Treatment	14	686.477778	49.034127	0.816	0.6461
ERROR	22	1321.822222	60.082828		

Randomized Complete Block (RCB) AOV For AMBEL C.ragwd C Control % 06/29/16 Missing factor A1 B1 levels prevents analyzing column 19 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	44	29789.644444			
Replicate	2	1431.511111	715.755556	4.098	0.0275
Treatment	14	23467.644444	1676.260317	9.597	0.0001
ERROR	28	4890.488889	174.660317		

Randomized Complete Block (RCB) AOV For IPOSS Morngrly C Control % 06/29/16 Missing factor A1 B1 levels prevents analyzing column 20 as Factorial design; Missing factor A2 B1 levels prevents analyzing column 20 as Factorial design; Missing factor A4 B2 levels prevents analyzing column 20 as Factorial design; Missing factor A1 B3 levels prevents analyzing column 20 as Factorial design; Missing factor A1 B4 levels prevents analyzing column 20 as Factorial design; Missing values in column 20 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	17	3279.727273			
Replicate	2	482.227273	241.113636	0.830	0.4883
Treatment	10	1345.227273	134.522727	0.463	0.8594
ERROR	5	1452.272727	290.454545		

Randomized Complete Block (RCB) AOV For DIGSA L.crbgrs C Control % 06/29/16 Missing factor A1 B1 levels prevents analyzing column 21 as Factorial design; Missing values in column 21 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	42	18507.777778			
Replicate	2	781.111111	390.555556	4.227	0.0257
Treatment	14	15324.444444	1094.603175	11.847	0.0001
ERROR	26	2402.222222	92.393162		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/21/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	17342.666667				
R	2	52.666667	26.333333	0.140	0.8696	
A	3	2253.833333	751.277778	4.005	0.0164	11.4
B	3	7829.500000	2609.833333	13.912	0.0001	11.4
AB	9	1578.666667	175.407407	0.935	0.5100	22.8
ERROR	30	5628.000000	187.600000			

FACTORIAL/POOLED ERROR AOV For ERICA Horsewd C Control % 07/21/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	11020.666667				
R	2	762.541667	381.270833	2.985	0.0657	
A	3	1003.166667	334.388889	2.618	0.0691	9.4
B	3	4566.166667	1522.055556	11.915	0.0001	9.4
AB	9	856.666667	95.185185	0.745	0.6655	18.8
ERROR	30	3832.125000	127.737500			

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm C Control % 07/21/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1486.666667				
R	2	71.791667	35.895833	1.187	0.3189	
A	3	81.500000	27.166667	0.899	0.4533	4.6
B	3	162.500000	54.166667	1.792	0.1700	4.6
AB	9	264.000000	29.333333	0.970	0.4831	9.2
ERROR	30	906.875000	30.229167			

FACTORIAL/POOLED ERROR AOV For AMBEL C.ragwd C Control % 07/21/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	452.666667				
R	2	10.791667	5.395833	0.815	0.4521	
A	3	44.833333	14.944444	2.258	0.1020	2.1
B	3	64.000000	21.333333	3.224	0.0365	2.1
AB	9	134.500000	14.944444	2.258	0.0457	4.3
ERROR	30	198.541667	6.618056			

FACTORIAL/POOLED ERROR AOV For DIGSA L.crbgrs C Control % 07/21/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	90.666667				
R	2	3.291667	1.645833	0.796	0.4605	
A	3	6.666667	2.222222	1.075	0.3747	1.2
B	3	3.166667	1.055556	0.510	0.6782	1.2
AB	9	15.500000	1.722222	0.833	0.5919	2.4
ERROR	30	62.041667	2.068056			

FACTORIAL/POOLED ERROR AOV For CYPES Y.nutsge C Control % 07/21/16 Missing values in column 27 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	43	6724.994792				
R	2	571.072917	285.536458	2.224	0.1283	
A	3	31.848958	10.616319	0.083	0.9689	9.5
B	3	1738.515625	579.505208	4.514	0.0112	9.5
AB	9	1045.463542	116.162616	0.905	0.5355	19.0
ERROR	26	3338.093750	128.388221			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Yield Bu/A 10/17/16 Missing values in column 30 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	2519.821650				
R	2	434.134861	217.067431	5.083	0.0128	
A	3	159.203823	53.067941	1.243	0.3123	5.5
B	3	584.546475	194.848825	4.563	0.0098	5.5
AB	9	103.597645	11.510849	0.270	0.9780	10.9
ERROR	29	1238.338846	42.701340			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Herbicide Approaches for Rye Cover Crop in No-Till Soybeans  
 Trial ID: DSB3-16      Location: Field #32      Trial Year: 2016  
 Protocol ID: DSB3-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Delaware Soybean Board

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max      Soybean      BBCH Scale: BSOY  
 Variety: S43RY95  
 Attributes: Roundup Ready  
 Planting Date: 05/27/16      Planting Rate: 180000      S/A  
 Depth: 1      in  
 Row Spacing: 15      in      Planting Method: PLANTD      planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA      medium/trashy  
 Soil Temperature: 88      F      Soil Moisture: NORMAL      normal, adequate  
 Emergence Date: 06/02/16  
 Harvest Date: 10/27/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 Harvested Length: 25      FT  
 % Standard Moisture: 13.0

**Pest Description**

Pest 1 Type: W      Code: ERICA *Conyza canadensis*  
 Common Name: Canada horseweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 16      Tillage Type: NOTILL      no-till  
 Replications: 4      Study Design: FACTOR      Factorial

**Trial Initiation Comments:**

A rye cover crop was established over the study area in the fall of the year. Rye was drilled at 2 bu/A. No-till plots were sprayed with Select Max (16 oz/A), nonionic surfactant (0.25%v/v), and 30% UAN (2.5%v/v) on 12-14-15 to kill the rye cover crop in those plots.

**Soil Description**

% Sand: 77      % OM: 1.5      Texture: SL      sandy loam  
 % Silt: 12      pH: 6.5  
 % Clay: 11      CEC: 5.2      Fert. Level: G      good  
 Soil Drainage: G      good

**Application Description**

	A	B	C	D
Application Date	03/09/16	05/09/16	05/17/16	05/27/16
Appl. Stop Time	09:00 AM	10:15 AM	07:45 AM	01:40 PM
Interval to Prev. Appl.		61 DAYS	8 DAYS	10 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	ESpring	20days EPP	10days_PP	PRE
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	63 F	68 F	55 F	88 F
% Relative Humidity Start, Stop	54	39	78	46
Wind Velocity+Dir. Start	1 mph SW	4 mph SW	0 mph N/A	4 mph SW
Wet Leaves (Y/N)	N no	Y yes	N no	N no
Soil Temperature	62 F	68 F	55 F	88 F
Soil Moisture	NORMAL	WET	NORMAL	NORMAL
% Cloud Cover	5	100	100	10

**Pest Stage At Each Application**

	A	B	C	D
Pest 1 Code, Type, Scale	ERICA W	ERICA W	ERICA W	ERICA W
Stage Majority, Percent		bolt 100	bolt 100	bolt 100
Height Average		4 in	5 in	5 in
Height Minimum, Maximum		2 5	3 9	2 7
Density Average		100 m2	100 m2	50 m2

**Application Equipment**

	A	B	C	D
Appl. Equipment	Backpack	Backpack	Tractor	Tractor
Equipment Type	SPRBAC	SPRBAC	TRMOSP	TRMOSP
Operation Pressure	31 psi	31 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	18 in	18 in	20 in	20 in
Boom Length	9 ft	9 ft	10 ft	10 ft
Boom Height	20 in	56 in	68 in	24 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L	0.7 GAL	0.7 GAL
Propellant	COMCO2	COMCO2	COMAIR	COMAIR

**Trial Comments**

05/09/16: Rye is heading. Average rye height at application: High rye biomass 40"; Low rye biomass 30"

05/17/16: Rye is flowering. Average rye height at application: High rye biomass 54"; Low rye biomass 40".

05/24/16: Overall weed control is percent control of all weeds present, including horseweed; % ground cover is ground coverage of plants with green tissue (live or living plants).

06/17/16: Significant amount of deer feeding in plots.

07/23/16: Due to very high density of horseweed, poor horseweed control resulted in poor to no emergence of other weed species. Glyphosate plus Reflex did an excellent job of controlling summer annuals, except for a few treatments with large Palmer amaranth plants present at time of application. Morningglory ratings are based on emergence of

seedlings since application

Rep 4 had lots of deer feeding which adds to variability of weed control and/or stunting. Stunting was worse on the left edge of the study (plots ending in X01 or X09).

Herbicide Approaches for Rye Cover Crop in No-Till Soybeans							ERICA		
Trial ID: DSB3-16		Location: Field #32		Trial Year: 2016			C -	C -	C -
Protocol ID: DSB3-16		Investigator: Mark VanGessel			Study Director:				
Sponsor Contact: Delaware Soybean Board									
Pest Code							ERICA		
Crop Type, Code							C -	C -	C -
Description							Horsewd	OvrallWd	OvrallWd
Rating Type							Control	Control	GndCovr
Rating Unit							%	%	%
Rating Date							05/24/16	05/24/16	05/24/16
Trt No.	Treatment Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing	Appl Code			
1	High Rye Biomass						77.5 cd	82.5 abc	18.8 ef
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B			
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B			
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B			
	----chlorimuron	9.199999		0.0172					
	----flumioxazin	29.2		0.0547					
	----thifensulfuron	2.9		0.00543					
	20 Days Pre-Plant								
2	High Rye Biomass						55.0 hi	52.5 fg	50.0 ab
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C			
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C			
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C			
	----chlorimuron	9.199999		0.0172					
	----flumioxazin	29.2		0.0547					
	----thifensulfuron	2.9		0.00543					
	10 Days Pre-Plant								
3	High Rye Biomass						76.0 d	81.3 bcd	12.5 f
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B			
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B			
	20 Days Pre-Plant								
4	High Rye Biomass						52.5 i	55.0 efg	41.3 bcd
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C			
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C			
	10 Days Pre-Plant								
5	Low Rye Biomass						89.3 a	90.0 a	13.8 ef
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B			
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B			
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B			
	----chlorimuron	9.199999		0.0172					
	----flumioxazin	29.2		0.0547					
	----thifensulfuron	2.9		0.00543					
	20 Days Pre-Plant								
6	Low Rye Biomass						67.0 e	57.5 ef	42.5 bcd
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C			
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C			
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C			
	----chlorimuron	9.199999		0.0172					
	----flumioxazin	29.2		0.0547					
	----thifensulfuron	2.9		0.00543					
	10 Days Pre-Plant								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code							ERICA	AMAPA	IPOSS	
Crop Type, Code							C -	C -	C -	
Description							Horsewd	PalmerAm	morngrly	
Rating Type							Control	Control	Control	
Rating Unit							%	%	%	
Rating Date							06/17/16	06/17/16	06/17/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	High Rye Biomass							88.5 abc	98.3 a	96.5 a
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
2	High Rye Biomass							78.0 cde	98.0 a	98.0 a
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									
3	High Rye Biomass							89.3 abc	68.8 bc	57.5 bc
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	20 Days Pre-Plant									
4	High Rye Biomass							70.5 def	83.0 ab	71.8 ab
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	10 Days Pre-Plant									
5	Low Rye Biomass							93.3 ab	96.5 a	95.5 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
6	Low Rye Biomass							90.0 ab	98.0 a	97.5 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code							DIGSA	ERICA	AMAPA	
Crop Type, Code							C -	C -	C -	
Description							L.crbgrs	Horsewd	PalmerAm	
Rating Type							Control	Control	Control	
Rating Unit							%	%	%	
Rating Date							06/17/16	06/29/16	06/29/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	High Rye Biomass							96.5 ab	83.8 ab	99.5 a
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
2	High Rye Biomass							98.0 a	73.3 b-e	97.3 a
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									
3	High Rye Biomass							68.8 a-e	82.5 ab	73.8 bc
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	20 Days Pre-Plant									
4	High Rye Biomass							61.8 b-f	66.3 de	80.9 b
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	10 Days Pre-Plant									
5	Low Rye Biomass							92.3 abc	89.3 a	96.3 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
6	Low Rye Biomass							95.8 ab	82.5 ab	98.0 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12



Pest Code							IPOSS	DIGSA		
Crop Type, Code							C -	C -	C GLXMA	
Description							morngrly	L.crbgrs	Soybean	
Rating Type							Control	Control	Stunting	
Rating Unit							%	%	%	
Rating Date							06/29/16	06/29/16	07/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	High Rye Biomass							94.3 a	93.3 ab	17.3 ab
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
2	High Rye Biomass							97.3 a	97.8 a	0.0 d
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									
3	High Rye Biomass							52.5 cd	64.5 cd	18.6 ab
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	20 Days Pre-Plant									
4	High Rye Biomass							68.6 b	59.3 cd	6.0 bcd
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	10 Days Pre-Plant									
5	Low Rye Biomass							97.0 a	95.0 a	4.3 cd
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
6	Low Rye Biomass							99.0 a	98.8 a	0.0 d
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code							ERICA	AMAPA	IPOSS	
Crop Type, Code							C -	C -	C -	
Description							Horsewd	PalmerAm	morngrly	
Rating Type							Control	Control	Control	
Rating Unit							%	%	%	
Rating Date							07/23/16	07/23/16	07/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	High Rye Biomass							85.8 a-d	100.0 a	94.3 ab
	30% Urea Ammonium Nitrate	3.25	L	60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3	WG	0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
2	High Rye Biomass							82.0 a-e	100.0 a	99.8 a
	30% Urea Ammonium Nitrate	3.25	L	60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8	L	0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3	WG	0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									
3	High Rye Biomass							82.0 a-e	100.0 a	92.8 bc
	30% Urea Ammonium Nitrate	3.25	L	60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B				
	20 Days Pre-Plant									
4	High Rye Biomass							75.3 c-f	97.5 a	100.0 a
	30% Urea Ammonium Nitrate	3.25	L	60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8	L	0.475 lb ae/a	10days	PP C				
	10 Days Pre-Plant									
5	Low Rye Biomass							95.0 a	100.0 a	96.3 ab
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3	WG	0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
6	Low Rye Biomass							84.5 a-d	100.0 a	99.8 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8	L	0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3	WG	0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code							DIGSA	ERICA	AMAPA
Crop Type, Code							C -	C -	C -
Description							L.crbgrs	Horsewd	PalmerAm
Rating Type							Control	Control	Control
Rating Unit							%	%	%
Rating Date							07/23/16	10/10/16	10/10/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
1	High Rye Biomass							100.0 a	
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B			
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B			
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B			
	----chlorimuron	9.199999		0.0172					
	----flumioxazin	29.2		0.0547					
	----thifensulfuron	2.9		0.00543					
	20 Days Pre-Plant								
2	High Rye Biomass							100.0 a	
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C			
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C			
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C			
	----chlorimuron	9.199999		0.0172					
	----flumioxazin	29.2		0.0547					
	----thifensulfuron	2.9		0.00543					
	10 Days Pre-Plant								
3	High Rye Biomass							99.3 a	93.8 a
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			100.0 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B			
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B			
	20 Days Pre-Plant								
4	High Rye Biomass							99.3 a	89.3 a
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			96.3 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C			
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C			
	10 Days Pre-Plant								
5	Low Rye Biomass							100.0 a	
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B			
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B			
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B			
	----chlorimuron	9.199999		0.0172					
	----flumioxazin	29.2		0.0547					
	----thifensulfuron	2.9		0.00543					
	20 Days Pre-Plant								
6	Low Rye Biomass							100.0 a	
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C			
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C			
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C			
	----chlorimuron	9.199999		0.0172					
	----flumioxazin	29.2		0.0547					
	----thifensulfuron	2.9		0.00543					
	10 Days Pre-Plant								

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=7,9,10,11,12

Pest Code							C	SECCE	C	GLXMA
Crop Type, Code										
Description										
Rating Type										
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code				
1	High Rye Biomass									36.3 abc
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
2	High Rye Biomass									37.4 ab
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									
3	High Rye Biomass						96.3 a			36.1 abc
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	20 Days Pre-Plant									
4	High Rye Biomass						102.5 a			36.7 abc
	30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	10 Days Pre-Plant									
5	Low Rye Biomass									39.2 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	20days	EPP B				
	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
	Envive Premix	41.3 WG		0.0774 lb ai/a	20days	EPP B				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	20 Days Pre-Plant									
6	Low Rye Biomass									35.5 abc
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	10days	PP C				
	2,4-D ester	3.8 L		0.475 lb ae/a	10days	PP C				
	Envive Premix	41.3 WG		0.0774 lb ai/a	10days	PP C				
	----chlorimuron	9.199999		0.0172						
	----flumioxazin	29.2		0.0547						
	----thifensulfuron	2.9		0.00543						
	10 Days Pre-Plant									

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code							ERICA		
Crop Type, Code							C -	C -	C -
Description							Horsewd	OvrallWd	OvrallWd
Rating Type							Control	Control	GndCovr
Rating Unit							%	%	%
Rating Date							05/24/16	05/24/16	05/24/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
7	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	84.0 abc	88.8 ab	10.0 f
8	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	60.0 fgh	52.5 fg	38.8 cd
9	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 20 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	20days 20days 20days	EPP B EPP B EPP B	84.5 ab	80.0 cd	18.8 ef
10	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 10 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	10days 10days 10days	PP C PP C PP C	55.0 hi	47.5 g	52.5 a
11	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	81.3 bcd	73.8 d	22.5 e
12	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	57.5 ghi	52.5 fg	47.5 abc
13	Untreated Check No Rye - NT						0.0 j	0.0 h	0.0 g
14	No Rye - NT Roundup PowerMax..glyphosate Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Crop Oil Concentrate	4.5 41.3 9.199999 29.2 2.9 100	AS WG WG WG WG L	1.13 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543 1.25 % v/v	20days PRE	EPP B D	65.0 ef	62.5 e	47.5 abc
15	No Rye - NT Roundup PowerMax..glyphosate Roundup PowerMax..glyphosate	4.5 4.5	AS AS	1.13 lb ae/a 1.13 lb ae/a	20days PRE	EPP B D	63.8 efg	60.0 ef	35.0 d

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 Missing data estimates are included in columns:Yates=7,9,10,11,12

Pest Code							ERICA	AMAPA	IPOSS
Crop Type, Code							C -	C -	C -
Description							Horsewd	PalmerAm	mornglry
Rating Type							Control	Control	Control
Rating Unit							%	%	%
Rating Date							06/17/16	06/17/16	06/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
7	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	96.8 a	54.5 c	47.5 bcd
8	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	78.0 cde	60.0 bc	52.5 bc
9	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 20 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	20days 20days 20days	EPP B EPP B EPP B	83.8 bc	98.3 a	92.8 a
10	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 10 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	10days 10days 10days	PP C PP C PP C	65.5 f	99.0 a	97.3 a
11	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	92.8 ab	22.5 d	22.5 d
12	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	69.5 ef	67.3 bc	52.3 bc
13	Untreated Check No Rye - NT						0.0 g		
14	No Rye - NT Roundup PowerMax..glyphosate Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Crop Oil Concentrate	4.5 41.3 9.199999 29.2 2.9 100	AS WG WG WG WG L	1.13 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543 1.25 % v/v	20days PRE	EPP B D	82.0 bcd	98.8 a	98.8 a
15	No Rye - NT Roundup PowerMax..glyphosate Roundup PowerMax..glyphosate	4.5 4.5	AS AS	1.13 lb ae/a 1.13 lb ae/a	20days PRE	EPP B D	82.5 bc	47.5 cd	40.0 cd

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 Missing data estimates are included in columns:Yates=7,9,10,11,12

Pest Code							DIGSA	ERICA	AMAPA
Crop Type, Code							C -	C -	C -
Description							L.crbgrs	Horsewd	PalmerAm
Rating Type							Control	Control	Control
Rating Unit							%	%	%
Rating Date							06/17/16	06/29/16	06/29/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
7	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	58.8 c-f	89.3 a	75.8 bc
8	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	63.9 a-f	78.5 abc	77.8 bc
9	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 20 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	20days 20days 20days	EPP B EPP B EPP B	87.3 a-d	82.5 ab	98.8 a
10	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 10 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	10days 10days 10days	PP C PP C PP C	97.0 ab	64.5 e	97.5 a
11	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	31.3 f	80.5 ab	67.9 c
12	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	56.3 def	68.8 cde	75.8 bc
13	Untreated Check No Rye - NT							0.0 f	
14	No Rye - NT Roundup PowerMax..glyphosate Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Crop Oil Concentrate	4.5 41.3 9.199999 29.2 2.9 100	AS WG WG WG WG L	1.13 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543 1.25 % v/v	20days PRE	EPP B D	95.3 ab	77.0 bcd	98.0 a
15	No Rye - NT Roundup PowerMax..glyphosate Roundup PowerMax..glyphosate	4.5 4.5	AS AS	1.13 lb ae/a 1.13 lb ae/a	20days PRE	EPP B D	42.5 ef	78.3 bc	71.3 bc

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=7,9,10,11,12

Pest Code							IPOSS	DIGSA	C	GLXMA
Crop Type, Code							C -	C -	C	
Description							mornglry	L.crbgrs		Soybean
Rating Type							Control	Control		Stunting
Rating Unit							%	%		%
Rating Date							06/29/16	06/29/16		07/23/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code				
7	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	63.8 bc	62.5 cd		10.5 a-d
8	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	45.6 d	73.5 c		9.0 a-d
9	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 20 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	20days 20days 20days	EPP B EPP B EPP B	92.8 a	75.8 bc		3.8 cd
10	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 10 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	10days 10days 10days	PP C PP C PP C	91.0 a	97.0 a		3.5 cd
11	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	45.6 d	48.8 d		21.3 a
12	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	60.4 bcd	58.8 cd		10.3 a-d
13	Untreated Check No Rye - NT									
14	No Rye - NT Roundup PowerMax..glyphosate Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Crop Oil Concentrate	4.5 41.3 9.199999 29.2 2.9 100	AS WG WG WG WG L	1.13 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543 1.25 % v/v	20days PRE	EPP B D	96.3 a	93.8 ab		3.0 cd
15	No Rye - NT Roundup PowerMax..glyphosate Roundup PowerMax..glyphosate	4.5 4.5	AS AS	1.13 lb ae/a 1.13 lb ae/a	20days PRE	EPP B D	60.0 bcd	60.0 cd		14.8 abc

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=7,9,10,11,12



Pest Code							ERICA	AMAPA	IPOSS
Crop Type, Code							C -	C -	C -
Description							Horsewd	PalmerAm	mornglry
Rating Type							Control	Control	Control
Rating Unit							%	%	%
Rating Date							07/23/16	07/23/16	07/23/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
7	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	88.5 ab	93.3 a	94.5 ab
8	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	73.3 def	98.3 a	99.5 a
9	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 20 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	20days 20days 20days	EPP B EPP B EPP B	87.5 abc	100.0 a	92.8 bc
10	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 10 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	10days 10days 10days	PP C PP C PP C	65.5 f	100.0 a	94.3 ab
11	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	81.5 b-e	94.3 a	87.5 c
12	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	70.0 ef	95.0 a	92.0 bc
13	Untreated Check No Rye - NT						0.0 h		
14	No Rye - NT Roundup PowerMax..glyphosate Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Crop Oil Concentrate	4.5 41.3 9.199999 29.2 2.9 100	AS WG	1.13 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543 1.25 % v/v	20days PRE	EPP B D	79.3 b-e	100.0 a	96.5 ab
15	No Rye - NT Roundup PowerMax..glyphosate Roundup PowerMax..glyphosate	4.5 4.5	AS AS	1.13 lb ae/a 1.13 lb ae/a	20days PRE	EPP B D	75.8 b-f	91.3 a	95.0 ab

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=7,9,10,11,12

Pest Code							DIGSA	ERICA	AMAPA
Crop Type, Code							C -	C -	C -
Description							L.crbgrs	Horsewd	PalmerAm
Rating Type							Control	Control	Control
Rating Unit							%	%	%
Rating Date							07/23/16	10/10/16	10/10/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
7	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	99.3 a	88.8 a	88.8 a
8	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	99.3 a	91.3 a	90.0 a
9	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 20 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG   	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	20days 20days 20days	EPP B EPP B EPP B	99.3 a	72.5 a	100.0 a
10	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 10 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG   	1.13 lb ae/a 0.475 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543	10days 10days 10days	PP C PP C PP C	100.0 a		
11	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	20days 20days	EPP B EPP B	97.8 a	69.3 a	97.5 a
12	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 lb ae/a 0.475 lb ae/a	10days 10days	PP C PP C	98.5 a	90.0 a	63.3 a
13	Untreated Check No Rye - NT							0.0 b	
14	No Rye - NT Roundup PowerMax..glyphosate Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Crop Oil Concentrate	4.5 41.3 9.199999 29.2 2.9 100	AS WG    L	1.13 lb ae/a 0.0774 lb ai/a 0.0172 0.0547 0.00543 1.25 % v/v	20days PRE    PRE	EPP B D    D	100.0 a	92.5 a	100.0 a
15	No Rye - NT Roundup PowerMax..glyphosate Roundup PowerMax..glyphosate	4.5 4.5	AS AS	1.13 lb ae/a 1.13 lb ae/a	20days PRE	EPP B D	99.3 a	83.3 a	93.8 a

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=7,9,10,11,12

Pest Code							C	SECCE	C	GLXMA
Crop Type, Code										
Description								Rye		Soybean
Rating Type								Biomass		Yield
Rating Unit								gr/0.5m <sup>2</sup>		Bu/A
Rating Date								07/21/16		10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code				
7	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 0.475	lb ae/a lb ae/a	20days 20days	EPP EPP	B B	43.8 b	36.8 abc
8	Low Rye Biomass Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 0.475	lb ae/a lb ae/a	10days 10days	PP PP	C C	45.0 b	30.0 c
9	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 20 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 0.475 0.0774 0.0172 0.0547 0.00543	lb ae/a lb ae/a lb ai/a	20days 20days 20days	EPP EPP EPP	B B B		35.8 abc
10	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron 10 Days Pre-Plant	4.5 3.8 41.3 9.199999 29.2 2.9	AS L WG WG WG WG	1.13 0.475 0.0774 0.0172 0.0547 0.00543	lb ae/a lb ae/a lb ai/a	10days 10days 10days	PP PP PP	C C C		31.7 bc
11	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 20 Days Pre-Plant	4.5 3.8	AS L	1.13 0.475	lb ae/a lb ae/a	20days 20days	EPP EPP	B B		32.5 abc
12	No Rye - NT Roundup PowerMax..glyphosate 2,4-D ester 10 Days Pre-Plant	4.5 3.8	AS L	1.13 0.475	lb ae/a lb ae/a	10days 10days	PP PP	C C		32.7 abc
13	Untreated Check No Rye - NT									15.5 d
14	No Rye - NT Roundup PowerMax..glyphosate Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Crop Oil Concentrate	4.5 41.3 9.199999 29.2 2.9 100	AS WG WG WG WG L	1.13 0.0774 0.0172 0.0547 0.00543 1.25	lb ae/a lb ai/a	20days PRE	EPP D	B D		37.4 ab
15	No Rye - NT Roundup PowerMax..glyphosate Roundup PowerMax..glyphosate	4.5 4.5	AS AS	1.13 1.13	lb ae/a lb ae/a	20days PRE	EPP D	B D		32.5 abc

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code						ERICA		
Crop Type, Code						C -	C -	C -
Description						Horsewd	OvrallWd	OvrallWd
Rating Type						Control	Control	GndCovr
Rating Unit						%	%	%
Rating Date						05/24/16	05/24/16	05/24/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code		
16	No Herbicide High Rye Biomass 30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A		
LSD P=.05						6.63	7.97	8.95
Standard Deviation						4.64	5.58	6.27
CV						7.2	8.95	20.85
Replicate F						0.405	0.761	0.349
Replicate Prob(F)						0.7505	0.5221	0.7897
Treatment F						86.559	65.481	29.648
Treatment Prob(F)						0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code	ERICA						AMAPA	IPOSS
Crop Type, Code	C -						C -	C -
Description	Horsewd						PalmerAm	mornglry
Rating Type	Control						Control	Control
Rating Unit	%						%	%
Rating Date	06/17/16						06/17/16	06/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code		
16	No Herbicide High Rye Biomass 30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A		
LSD	P=.05						11.93	25.38
Standard Deviation							8.36	17.75
CV							10.81	22.79
Replicate F							1.986	0.299
Replicate Prob(F)							0.1307	0.8259
Treatment F							31.119	7.765
Treatment Prob(F)							0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code	University of Delaware						DIGSA	ERICA	AMAPA
Crop Type, Code							C -	C -	C -
Description							L.crbgrs	Horsewd	PalmerAm
Rating Type							Control	Control	Control
Rating Unit							%	%	%
Rating Date							06/17/16	06/29/16	06/29/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
16	No Herbicide High Rye Biomass 30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			
LSD	P=.05						35.40	10.91	9.90
Standard Deviation							24.73	7.64	6.91
CV							33.12	10.46	8.01
Replicate F							0.643	2.355	0.326
Replicate Prob(F)							0.5919	0.0856	0.8063
Treatment F							3.363	31.825	12.856
Treatment Prob(F)							0.0018	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code						IPOSS	DIGSA	
Crop Type, Code						C -	C -	C GLXMA
Description						mornglry	L.crbgrs	Soybean
Rating Type						Control	Control	Stunting
Rating Unit						%	%	%
Rating Date						06/29/16	06/29/16	07/23/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code		
16	No Herbicide High Rye Biomass 30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A		
LSD P=.05						15.56	18.92	12.81
Standard Deviation						10.84	13.22	8.95
CV						14.26	17.16	102.62
Replicate F						0.585	2.712	0.462
Replicate Prob(F)						0.6287	0.0584	0.7106
Treatment F						15.111	7.553	2.434
Treatment Prob(F)						0.0001	0.0001	0.0165

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code	ERICA						AMAPA	IPOSS
Crop Type, Code	C -						C -	C -
Description	Horsewd						PalmerAm	morngrly
Rating Type	Control						Control	Control
Rating Unit	%						%	%
Rating Date	07/23/16						07/23/16	07/23/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code		
16	No Herbicide High Rye Biomass 30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A	25.0 g	
LSD	P=.05						13.19	7.18
Standard Deviation							9.26	5.02
CV							12.87	5.13
Replicate F							0.208	0.806
Replicate Prob(F)							0.8905	0.4983
Treatment F							28.605	1.502
Treatment Prob(F)							0.0001	0.1604
								10.137
								0.0001
								2.451
								0.0154

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12



Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	DIGSA C	ERICA C	AMAPA C
	16 No Herbicide High Rye Biomass 30% Urea Ammonium Nitrate	3.25	L	60 lb ai/a		ESpring	A		0.0 b	
	LSD P=.05							1.57	29.73	23.93
	Standard Deviation							1.10	20.58	16.39
	CV							1.1	29.39	17.79
	Replicate F							2.636	5.558	0.765
	Replicate Prob(F)							0.0632	0.0037	0.5247
	Treatment F							1.495	11.919	2.017
	Treatment Prob(F)							0.1631	0.0001	0.0880

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Pest Code							C	SECCE	C	GLXMA
Crop Type, Code										
Description								Rye		Soybean
Rating Type								Biomass		Yield
Rating Unit								gr/0.5m2		Bu/A
Rating Date								07/21/16		10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code				
16	No Herbicide High Rye Biomass 30% Urea Ammonium Nitrate	3.25 L		60 lb ai/a	ESpring	A			14.0 d	
LSD P=.05							32.57		7.09	
Standard Deviation							20.36		4.98	
CV							28.33		15.31	
Replicate F							1.312		3.397	
Replicate Prob(F)							0.3297		0.0257	
Treatment F							9.794		8.750	
Treatment Prob(F)							0.0034		0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,11,12

Herbicide Approaches for Rye Cover Crop in No-Till Soybeans					
Trial ID: DSB3-16		Location: Field #32		Trial Year: 2016	
Protocol ID: DSB3-16		Investigator: Mark VanGessel			
Study Director:					
Sponsor Contact: Delaware Soybean Board					

Pest Code	ERICA		ERICA		AMAPA	
Crop Type, Code	C -	C -	C -	C -	C -	
Description	Horsewd	OvrallWd	OvrallWd	Horsewd	PalmerAm	
Rating Type	Control	Control	GndCovr	Control	Control	
Rating Unit	%	%	%	%	%	
Rating Date	05/24/16	05/24/16	05/24/16	06/17/16	06/17/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code
TABLE OF R MEANS						
Replicate 1						
Replicate 2						
Replicate 3						
Replicate 4						
TABLE OF A (Rye cover) MEANS						
1 High Rye Biomass						
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A
2 Low Rye Biomass						
3 No Rye - NT						
LSD P=.05						
Standard Deviation						
CV						
TABLE OF B (Brndwn) MEANS						
1 Roundup PowrMax 4.5 AS 1.13 lb ae/a 20days EPP B						
1 2,4-D ester 3.8 L 0.475 lb ae/a 20days EPP B						
1 Envive 41.3 WG 0.0774 lb ai/a 20days EPP B						
2 Roundup PowrMax 4.5 AS 1.13 lb ae/a 20days EPP B						
2 2,4-D ester 3.8 L 0.475 lb ae/a 20days EPP B						
LSD P=.05						
Standard Deviation						
CV						
TABLE OF C (Brndwn Timing) MEANS						
1 20 Days Pre-Plant						
2 10 Days Pre-Plant						
LSD P=.05						
Standard Deviation						
CV						
TABLE OF A (Rye cover) B (Brndwn) MEANS						
1 High Rye Biomass						
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A
1 Roundup PowrMax 4.5 AS 1.13 lb ae/a 20days EPP B						
1 2,4-D ester 3.8 L 0.475 lb ae/a 20days EPP B						
1 Envive 41.3 WG 0.0774 lb ai/a 20days EPP B						
2 Low Rye Biomass						
1 Roundup PowrMax 4.5 AS 1.13 lb ae/a 20days EPP B						
1 2,4-D ester 3.8 L 0.475 lb ae/a 20days EPP B						
1 Envive 41.3 WG 0.0774 lb ai/a 20days EPP B						
3 No Rye - NT						
1 Roundup PowrMax 4.5 AS 1.13 lb ae/a 20days EPP B						
1 2,4-D ester 3.8 L 0.475 lb ae/a 20days EPP B						
1 Envive 41.3 WG 0.0774 lb ai/a 20days EPP B						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	IPOSS	DIGSA	ERICA	AMAPA	IPOSS
Crop Type, Code	C -	C -	C -	C -	C -
Description	morngrly	L.crbgrs	Horsewd	PalmerAm	morngrly
Rating Type	Control	Control	Control	Control	Control
Rating Unit	%	%	%	%	%
Rating Date	06/17/16	06/17/16	06/29/16	06/29/16	06/29/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code
<b>TABLE OF R MEANS</b>					
Replicate 1	79.2	74.5	80.8	86.1	77.0
Replicate 2	76.3	83.8	73.8	88.2	77.0
Replicate 3	72.8	76.3	77.7	87.5	76.3
Replicate 4	65.5	68.0	81.6	84.6	72.4
<b>TABLE OF A (Rye cover) MEANS</b>					
1 High Rye Biomass	80.9 a	81.3 a	76.4 b	87.8 a	78.2 a
1 30% UAN	3.25 L	60 lb ai/a	ESpring	A	
2 Low Rye Biomass	73.3 a	77.7 a	84.9 a	86.9 a	76.3 a
3 No Rye - NT	66.2 a	67.9 a	74.1 b	85.0 a	72.4 a
LSD P=.05	14.57	17.64	5.52	5.02	8.40
Standard Deviation	20.26	24.49	7.68	6.96	11.62
CV	27.57	32.39	9.78	8.04	15.36
<b>TABLE OF B (Brndwn) MEANS</b>					
1 Roundup PowrMax	4.5 AS	1.13 lb ae/a	20days EPP B		
1 2,4-D ester	3.8 L	0.475 lb ae/a	20days EPP B		
1 Envive	41.3 WG	0.0774 lb ai/a	20days EPP B		
2 Roundup PowrMax	4.5 AS	1.13 lb ae/a	20days EPP B		
2 2,4-D ester	3.8 L	0.475 lb ae/a	20days EPP B		
LSD P=.05	11.90	14.40	4.51	4.10	6.86
Standard Deviation	20.26	24.49	7.68	6.96	11.62
CV	27.57	32.39	9.78	8.04	15.36
<b>TABLE OF C (Brndwn Timing) MEANS</b>					
1 20 Days Pre-Plant	68.7 a	72.5 a	84.6 a	85.3 a	74.3 a
2 10 Days Pre-Plant	78.2 a	78.8 a	72.3 b	87.9 a	77.0 a
LSD P=.05	11.90	14.40	4.51	4.10	6.86
Standard Deviation	20.26	24.49	7.68	6.96	11.62
CV	27.57	32.39	9.78	8.04	15.36
<b>TABLE OF A (Rye cover) B (Brndwn) MEANS</b>					
1 High Rye Biomass	97.3 a	97.3 a	78.5 a	98.4 a	95.8 a
1 30% UAN	3.25 L	60 lb ai/a	ESpring	A	
1 Roundup PowrMax	4.5 AS	1.13 lb ae/a	20days EPP B		
1 2,4-D ester	3.8 L	0.475 lb ae/a	20days EPP B		
1 Envive	41.3 WG	0.0774 lb ai/a	20days EPP B		
2 Low Rye Biomass	96.5 a	94.0 a	85.9 a	97.1 a	98.0 a
1 Roundup PowrMax	4.5 AS	1.13 lb ae/a	20days EPP B		
1 2,4-D ester	3.8 L	0.475 lb ae/a	20days EPP B		
1 Envive	41.3 WG	0.0774 lb ai/a	20days EPP B		
3 No Rye - NT	95.0 a	92.1 a	73.5 a	98.1 a	91.9 a
1 Roundup PowrMax	4.5 AS	1.13 lb ae/a	20days EPP B		
1 2,4-D ester	3.8 L	0.475 lb ae/a	20days EPP B		
1 Envive	41.3 WG	0.0774 lb ai/a	20days EPP B		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code					DIGSA		ERICA	AMAPA	IPOSS
Crop Type, Code					C - C	GLXMA	C -	C -	C -
Description					L.crbgrs	Soybean	Horsewd	PalmerAm	mornnglry
Rating Type					Control	Stunting	Control	Control	Control
Rating Unit					%	%	%	%	%
Rating Date					06/29/16	07/23/16	07/23/16	07/23/16	07/23/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code			
TABLE OF R MEANS									
Replicate 1					77.0	10.6	81.8	97.5	96.2
Replicate 2					84.2	4.3	80.0	99.4	98.9
Replicate 3					77.8	9.8	79.3	98.3	96.7
Replicate 4					69.3	10.1	82.4	97.5	89.3
TABLE OF A (Rye cover) MEANS									
1 High Rye Biomass					78.7 ab	10.5 a	81.3 a	99.4 a	96.7 a
1 30% UAN	3.25 L			60 lb ai/a	ESpring	A			
2 Low Rye Biomass					82.4 a	5.9 a	85.3 a	97.9 a	97.5 a
3 No Rye - NT					70.1 b	9.7 a	76.1 a	97.3 a	91.6 b
LSD P=.05					9.05	6.43	7.31	3.75	3.19
Standard Deviation					12.57	8.94	10.17	5.21	4.43
CV					16.32	102.73	12.57	5.31	4.65
TABLE OF B (Brndwn) MEANS									
1 Roundup PowrMax	4.5 AS			1.13 lb ae/a	20days	EPP B	92.9 a	4.8 b	83.4 a
1 2,4-D ester	3.8 L			0.475 lb ae/a	20days	EPP B			
1 Envive	41.3 WG			0.0774 lb ai/a	20days	EPP B			
2 Roundup PowrMax	4.5 AS			1.13 lb ae/a	20days	EPP B	61.2 b	12.6 a	78.4 a
2 2,4-D ester	3.8 L			0.475 lb ae/a	20days	EPP B			
LSD P=.05					7.39	5.25	5.97	3.06	2.60
Standard Deviation					12.57	8.94	10.17	5.21	4.43
CV					16.32	102.73	12.57	5.31	4.65
TABLE OF C (Brndwn Timing) MEANS									
1 20 Days Pre-Plant					73.3 b	12.6 a	86.7 a	97.9 a	93.0 b
2 10 Days Pre-Plant					80.8 a	4.8 b	75.1 b	98.5 a	97.5 a
LSD P=.05					7.39	5.25	5.97	3.06	2.60
Standard Deviation					12.57	8.94	10.17	5.21	4.43
CV					16.32	102.73	12.57	5.31	4.65
TABLE OF A (Rye cover) B (Brndwn) MEANS									
1 High Rye Biomass					95.5 a	8.6 a	83.9 a	100.0 a	97.0 a
1 30% UAN	3.25 L			60 lb ai/a	ESpring	A			
1 Roundup PowrMax	4.5 AS			1.13 lb ae/a	20days	EPP B			
1 2,4-D ester	3.8 L			0.475 lb ae/a	20days	EPP B			
1 Envive	41.3 WG			0.0774 lb ai/a	20days	EPP B			
2 Low Rye Biomass					96.9 a	2.1 a	89.8 a	100.0 a	98.0 a
1 Roundup PowrMax	4.5 AS			1.13 lb ae/a	20days	EPP B			
1 2,4-D ester	3.8 L			0.475 lb ae/a	20days	EPP B			
1 Envive	41.3 WG			0.0774 lb ai/a	20days	EPP B			
3 No Rye - NT					86.4 a	3.6 a	76.5 a	100.0 a	93.5 a
1 Roundup PowrMax	4.5 AS			1.13 lb ae/a	20days	EPP B			
1 2,4-D ester	3.8 L			0.475 lb ae/a	20days	EPP B			
1 Envive	41.3 WG			0.0774 lb ai/a	20days	EPP B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						DIGSA	
Crop Type, Code						C - C	GLXMA
Description						L.crbgrs	Soybean
Rating Type						Control	Yield
Rating Unit						%	Bu/A
Rating Date						07/23/16	10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code
TABLE OF R MEANS							
Replicate 1						99.5	33.6
Replicate 2						100.0	33.4
Replicate 3						99.5	34.6
Replicate 4						98.5	38.7
TABLE OF A (Rye cover) MEANS							
1 High Rye Biomass						99.6 a	36.6 a
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A	
2 Low Rye Biomass						99.6 a	35.4 a
3 No Rye - NT						98.9 a	33.2 a
LSD P=.05						0.74	3.64
Standard Deviation						1.03	5.05
CV						1.04	14.42
TABLE OF B (Brndwn) MEANS							
1 Roundup PowrMax						99.9 a	36.0 a
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B	
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B	
2 Roundup PowrMax						98.9 b	34.1 a
2	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B	
LSD P=.05						0.61	2.97
Standard Deviation						1.03	5.05
CV						1.04	14.42
TABLE OF C (Brndwn Timing) MEANS							
1 20 Days Pre-Plant						99.3 a	36.1 a
2 10 Days Pre-Plant						99.5 a	34.0 a
LSD P=.05						0.61	2.97
Standard Deviation						1.03	5.05
CV						1.04	14.42
TABLE OF A (Rye cover) B (Brndwn) MEANS							
1 High Rye Biomass						100.0 a	36.8 a
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A	
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B	
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B	
2 Low Rye Biomass						100.0 a	37.3 a
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B	
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B	
3 No Rye - NT						99.6 a	33.7 a
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B	
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	University of Delaware					ERICA			ERICA	AMAPA		
Crop Type, Code						C -	C -	C -	C -	C -		
Description						Horsewd	OvrallWd	OvrallWd	Horsewd	PalmerAm		
Rating Type						Control	Control	GndCovr	Control	Control		
Rating Unit						%	%	%	%	%		
Rating Date						05/24/16	05/24/16	05/24/16	06/17/16	06/17/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code					
1	High Rye Biomass							64.3 a	68.1 a	26.9 a	79.9 a	75.9 b
	1 30% UAN	3.25 L		60 lb ai/a	ESpring	A						
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B						
	2 2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
2	Low Rye Biomass							72.0 a	70.6 a	24.4 a	87.4 a	57.3 c
	2 Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B						
	2 2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
3	No Rye - NT							69.4 a	63.1 a	35.0 a	81.1 a	44.9 c
	2 Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B						
	2 2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
LSD P=.05						4.69	5.76	6.86	8.64	17.20		
Standard Deviation						4.61	5.66	6.74	8.50	16.90		
CV						6.59	8.35	21.94	10.24	21.49		
TABLE OF A (Rye cover) C (Brndwn Timing) MEANS												
1	High Rye Biomass							76.8 a	81.9 a	15.6 a	88.9 a	83.5 a
	1 30% UAN	3.25 L		60 lb ai/a	ESpring	A						
	1 20 Days Pre-Plant											
2	Low Rye Biomass							86.6 a	89.4 a	11.9 a	95.0 a	75.5 a
	1 20 Days Pre-Plant											
3	No Rye - NT							82.9 a	76.9 a	20.6 a	88.3 a	60.4 a
	1 20 Days Pre-Plant											
1	High Rye Biomass							53.8 a	53.8 a	45.6 a	74.3 a	90.5 a
	1 30% UAN	3.25 L		60 lb ai/a	ESpring	A						
	2 10 Days Pre-Plant											
2	Low Rye Biomass							63.5 a	55.0 a	40.6 a	84.0 a	79.0 a
	2 10 Days Pre-Plant											
3	No Rye - NT							56.3 a	50.0 a	50.0 a	67.5 a	83.1 a
	2 10 Days Pre-Plant											
LSD P=.05						4.69	5.76	6.86	8.64	17.20		
Standard Deviation						4.61	5.66	6.74	8.50	16.90		
CV						6.59	8.35	21.94	10.24	21.49		
TABLE OF B (Brndwn) C (Brndwn Timing) MEANS												
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B		83.8 a	84.2 a	17.1 a	88.5 a	97.7 a
	1 2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
	1 Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B						
	1 20 Days Pre-Plant											
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B		80.4 a	81.3 a	15.0 a	92.9 a	48.6 c
	2 2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
	1 20 Days Pre-Plant											
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B		59.0 a	52.5 a	48.3 a	77.8 a	98.3 a
	1 2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
	1 Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B						
	2 10 Days Pre-Plant											
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B		56.7 a	53.3 a	42.5 a	72.7 a	70.1 b
	2 2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
	2 10 Days Pre-Plant											
LSD P=.05						3.83	4.70	5.60	7.06	14.04		
Standard Deviation						4.61	5.66	6.74	8.50	16.90		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						IPOSS	DIGSA	ERICA	AMAPA	IPOSS		
Crop Type, Code						C -	C -	C -	C -	C -		
Description						morngrly	L.crbgrs	Horsewd	PalmerAm	morngrly		
Rating Type						Control	Control	Control	Control	Control		
Rating Unit						%	%	%	%	%		
Rating Date						06/17/16	06/17/16	06/29/16	06/29/16	06/29/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code					
1	High Rye Biomass							64.6 a	65.3 a	74.4 a	77.3 a	60.6 a
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A						
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B						
2	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
2	Low Rye Biomass							50.0 a	61.3 a	83.9 a	76.8 a	54.7 a
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B						
2	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
3	No Rye - NT							37.4 a	43.8 a	74.6 a	71.8 a	53.0 a
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B						
2	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
LSD	P=.05						20.60	24.94	7.81	7.09	11.89	
	Standard Deviation						20.26	24.49	7.68	6.96	11.62	
	CV						27.57	32.39	9.78	8.04	15.36	
TABLE OF A (Rye cover) C (Brndwn Timing) MEANS												
1	High Rye Biomass							77.0 a	82.6 a	83.1 a	86.6 a	73.4 a
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A						
1	20 Days Pre-Plant											
2	Low Rye Biomass							71.5 a	75.5 a	89.3 a	86.0 a	80.4 a
1	20 Days Pre-Plant											
3	No Rye - NT							57.6 a	59.3 a	81.5 a	83.3 a	69.2 a
1	20 Days Pre-Plant											
1	High Rye Biomass							84.9 a	79.9 a	69.8 a	89.1 a	82.9 a
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A						
2	10 Days Pre-Plant											
2	Low Rye Biomass							75.0 a	79.8 a	80.5 a	87.9 a	72.3 a
2	10 Days Pre-Plant											
3	No Rye - NT							74.8 a	76.6 a	66.6 a	86.6 a	75.7 a
2	10 Days Pre-Plant											
LSD	P=.05						20.60	24.94	7.81	7.09	11.89	
	Standard Deviation						20.26	24.49	7.68	6.96	11.62	
	CV						27.57	32.39	9.78	8.04	15.36	
TABLE OF B (Brndwn) C (Brndwn Timing) MEANS												
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B		94.9 a	92.0 a	85.2 a	98.2 a	94.7 a
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B						
1	20 Days Pre-Plant											
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B		42.5 a	52.9 a	84.1 a	72.5 a	54.0 a
2	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
1	20 Days Pre-Plant											
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B		97.6 a	96.9 a	73.4 a	97.6 a	95.8 a
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B						
2	10 Days Pre-Plant											
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B		58.8 a	60.6 a	71.2 a	78.1 a	58.2 a
2	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B						
2	10 Days Pre-Plant											
LSD	P=.05						16.82	20.37	6.38	5.79	9.70	
	Standard Deviation						20.26	24.49	7.68	6.96	11.62	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code	DIGSA					ERICA	AMAPA	IPOSS	
Crop Type, Code	C	C	GLXMA	C	C	C	C	C	
Description	L.crbgrs					Soybean	Horsewd	PalmerAm	morngrly
Rating Type	Control					Stunting	Control	Control	Control
Rating Unit	%					%	%	%	%
Rating Date	06/29/16					07/23/16	07/23/16	07/23/16	07/23/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
1	High Rye Biomass							61.9 a	12.3 a
1	30% UAN	3.25 L		60 lb ai/a		ESpring	A		
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a		20days	EPP B		
2	2,4-D ester	3.8 L		0.475 lb ae/a		20days	EPP B		
2	Low Rye Biomass							68.0 a	9.8 a
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a		20days	EPP B		
2	2,4-D ester	3.8 L		0.475 lb ae/a		20days	EPP B		
3	No Rye - NT							53.8 a	15.8 a
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a		20days	EPP B		
2	2,4-D ester	3.8 L		0.475 lb ae/a		20days	EPP B		
LSD P=.05								12.81	9.10
Standard Deviation								12.57	8.94
CV								16.32	102.73
TABLE OF A (Rye cover) C (Brndwn Timing) MEANS									
1	High Rye Biomass							78.9 a	17.9 a
1	30% UAN	3.25 L		60 lb ai/a		ESpring	A		
1	20 Days Pre-Plant								
2	Low Rye Biomass							78.8 a	7.4 a
1	20 Days Pre-Plant								
3	No Rye - NT							62.3 a	12.5 a
1	20 Days Pre-Plant								
1	High Rye Biomass							78.5 a	3.0 a
1	30% UAN	3.25 L		60 lb ai/a		ESpring	A		
2	10 Days Pre-Plant								
2	Low Rye Biomass							86.1 a	4.5 a
2	10 Days Pre-Plant								
3	No Rye - NT							77.9 a	6.9 a
2	10 Days Pre-Plant								
LSD P=.05								12.81	9.10
Standard Deviation								12.57	8.94
CV								16.32	102.73
TABLE OF B (Brndwn) C (Brndwn Timing) MEANS									
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a		20days	EPP B	88.0 a	8.4 a
1	2,4-D ester	3.8 L		0.475 lb ae/a		20days	EPP B		
1	Envive	41.3 WG		0.0774 lb ai/a		20days	EPP B		
1	20 Days Pre-Plant								
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a		20days	EPP B	58.6 a	16.8 a
2	2,4-D ester	3.8 L		0.475 lb ae/a		20days	EPP B		
1	20 Days Pre-Plant								
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a		20days	EPP B	97.8 a	1.2 a
1	2,4-D ester	3.8 L		0.475 lb ae/a		20days	EPP B		
1	Envive	41.3 WG		0.0774 lb ai/a		20days	EPP B		
2	10 Days Pre-Plant								
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a		20days	EPP B	63.8 a	8.4 a
2	2,4-D ester	3.8 L		0.475 lb ae/a		20days	EPP B		
2	10 Days Pre-Plant								
LSD P=.05								10.46	7.43
Standard Deviation								12.57	8.94

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						DIGSA	
Crop Type, Code						C - C	GLXMA
Description						L.crbgrs	Soybean
Rating Type						Control	Yield
Rating Unit						%	Bu/A
Rating Date						07/23/16	10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code	
1	High Rye Biomass						
1	30% UAN	3.25	L	60 lb ai/a	ESpring	A	99.3 a
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	36.4 a
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
2	Low Rye Biomass						
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	99.3 a
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	33.4 a
3	No Rye - NT						
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	98.1 a
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	32.6 a
LSD P=.05						1.05	5.14
Standard Deviation						1.03	5.05
CV						1.04	14.42
TABLE OF A (Rye cover) C (Brndwn Timing) MEANS							
1	High Rye Biomass						
1	30% UAN	3.25	L	60 lb ai/a	ESpring	A	99.6 a
1	20 Days Pre-Plant						36.2 a
2	Low Rye Biomass						
1	20 Days Pre-Plant						99.6 a
3	No Rye - NT						
1	20 Days Pre-Plant						98.5 a
1	High Rye Biomass						
1	30% UAN	3.25	L	60 lb ai/a	ESpring	A	99.6 a
2	10 Days Pre-Plant						37.0 a
2	Low Rye Biomass						
2	10 Days Pre-Plant						99.6 a
3	No Rye - NT						
2	10 Days Pre-Plant						99.3 a
LSD P=.05						1.05	5.14
Standard Deviation						1.03	5.05
CV						1.04	14.42
TABLE OF B (Brndwn) C (Brndwn Timing) MEANS							
1	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	99.8 a
1	Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B	37.1 a
1	20 Days Pre-Plant						
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	98.8 a
1	20 Days Pre-Plant						35.1 a
1	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	100.0 a
1	Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B	34.8 a
2	10 Days Pre-Plant						
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	99.0 a
2	10 Days Pre-Plant						33.1 a
LSD P=.05						0.86	4.20
Standard Deviation						1.03	5.05

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						ERICA			ERICA	AMAPA
Crop Type, Code						C -	C -	C -	C -	C -
Description						Horsewd	OvrallWd	OvrallWd	Horsewd	PalmerAm
Rating Type						Control	Control	GndCovr	Control	Control
Rating Unit						%	%	%	%	%
Rating Date						05/24/16	05/24/16	05/24/16	06/17/16	06/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
CV								6.59	8.35	21.94
TABLE OF A (Rye cover) B (Brndwn) C (Brndwn Timing) MEANS										
1	High Rye Biomass							77.5 a	82.5 a	18.8 a
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A				
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B				
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B				
1	20 Days Pre-Plant									
2	Low Rye Biomass							89.3 a	90.0 a	13.8 a
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B				
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B				
1	20 Days Pre-Plant									
3	No Rye - NT							84.5 a	80.0 a	18.8 a
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B				
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B				
1	20 Days Pre-Plant									
1	High Rye Biomass							76.0 a	81.3 a	12.5 a
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A				
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B				
2	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
1	20 Days Pre-Plant									
2	Low Rye Biomass							84.0 a	88.8 a	10.0 a
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B				
2	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
1	20 Days Pre-Plant									
3	No Rye - NT							81.3 a	73.8 a	22.5 a
2	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B				
2	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
1	20 Days Pre-Plant									
1	High Rye Biomass							55.0 a	52.5 a	50.0 a
1	30% UAN	3.25 L		60 lb ai/a	ESpring	A				
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B				
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B				
2	10 Days Pre-Plant									
2	Low Rye Biomass							67.0 a	57.5 a	42.5 a
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B				
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B				
2	10 Days Pre-Plant									
3	No Rye - NT							55.0 a	47.5 a	52.5 a
1	Roundup PowrMax	4.5 AS		1.13 lb ae/a	20days	EPP B				
1	2,4-D ester	3.8 L		0.475 lb ae/a	20days	EPP B				
1	Envive	41.3 WG		0.0774 lb ai/a	20days	EPP B				
2	10 Days Pre-Plant									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	University of Delaware					IPOSS	DIGSA	ERICA	AMAPA	IPOSS	
Crop Type, Code						C -	C -	C -	C -	C -	
Description						mornglry	L.crbgrs	Horsewd	PalmerAm	mornglry	
Rating Type						Control	Control	Control	Control	Control	
Rating Unit						%	%	%	%	%	
Rating Date						06/17/16	06/17/16	06/29/16	06/29/16	06/29/16	
Trt Treatment	Form	Form	Rate	Appl	Appl						
No. Name	Conc	Type	Rate	Unit	Timing	Code					
CV						27.57	32.39	9.78	8.04	15.36	
TABLE OF A (Rye cover) B (Brndwn) C (Brndwn Timing) MEANS											
1 High Rye Biomass											
1 30% UAN	3.25	L	60 lb ai/a	ESpring	A	96.5 a	96.5 a	83.8 a	99.5 a	94.3 a	
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B						
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B						
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B						
1 20 Days Pre-Plant											
2 Low Rye Biomass											
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	95.5 a	92.3 a	89.3 a	96.3 a	97.0 a	
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B						
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B						
1 20 Days Pre-Plant											
3 No Rye - NT											
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	92.8 a	87.3 a	82.5 a	98.8 a	92.8 a	
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B						
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B						
1 20 Days Pre-Plant											
1 High Rye Biomass											
1 30% UAN	3.25	L	60 lb ai/a	ESpring	A	57.5 a	68.8 a	82.5 a	73.8 a	52.5 a	
2 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B						
2 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B						
1 20 Days Pre-Plant											
2 Low Rye Biomass											
2 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	47.5 a	58.8 a	89.3 a	75.8 a	63.8 a	
2 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B						
1 20 Days Pre-Plant											
3 No Rye - NT											
2 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	22.5 a	31.3 a	80.5 a	67.9 a	45.6 a	
2 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B						
1 20 Days Pre-Plant											
1 High Rye Biomass											
1 30% UAN	3.25	L	60 lb ai/a	ESpring	A	98.0 a	98.0 a	73.3 a	97.3 a	97.3 a	
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B						
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B						
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B						
2 10 Days Pre-Plant											
2 Low Rye Biomass											
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	97.5 a	95.8 a	82.5 a	98.0 a	99.0 a	
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B						
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B						
2 10 Days Pre-Plant											
3 No Rye - NT											
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	97.3 a	97.0 a	64.5 a	97.5 a	91.0 a	
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B						
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B						
2 10 Days Pre-Plant											

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	DIGSA					ERICA	AMAPA	IPOSS		
Crop Type, Code	C	C	GLXMA	C	C	C	C	C		
Description	L.crbgrs					Soybean	Horsewd	PalmerAm	morngrly	
Rating Type	Control					Stunting	Control	Control	Control	
Rating Unit	%					%	%	%	%	
Rating Date	06/29/16					07/23/16	07/23/16	07/23/16	07/23/16	
Trt Treatment	Form	Form	Rate	Appl	Appl					
No. Name	Conc	Type	Unit	Timing	Code					
CV						16.32	102.73	12.57	5.31	4.65
TABLE OF A (Rye cover) B (Brndwn) C (Brndwn Timing) MEANS										
1 High Rye Biomass						93.3 a	17.3 a	85.8 a	100.0 a	94.3 a
1 30% UAN	3.25	L	60 lb ai/a	ESpring	A					
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B					
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B					
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B					
1 20 Days Pre-Plant										
2 Low Rye Biomass						95.0 a	4.3 a	95.0 a	100.0 a	96.3 a
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B					
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B					
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B					
1 20 Days Pre-Plant										
3 No Rye - NT						75.8 a	3.8 a	87.5 a	100.0 a	92.8 a
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B					
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B					
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B					
1 20 Days Pre-Plant										
1 High Rye Biomass						64.5 a	18.6 a	82.0 a	100.0 a	92.8 a
1 30% UAN	3.25	L	60 lb ai/a	ESpring	A					
2 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B					
2 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B					
1 20 Days Pre-Plant										
2 Low Rye Biomass						62.5 a	10.5 a	88.5 a	93.3 a	94.5 a
2 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B					
2 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B					
1 20 Days Pre-Plant										
3 No Rye - NT						48.8 a	21.3 a	81.5 a	94.3 a	87.5 a
2 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B					
2 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B					
1 20 Days Pre-Plant										
1 High Rye Biomass						97.8 a	0.0 a	82.0 a	100.0 a	99.8 a
1 30% UAN	3.25	L	60 lb ai/a	ESpring	A					
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B					
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B					
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B					
2 10 Days Pre-Plant										
2 Low Rye Biomass						98.8 a	0.0 a	84.5 a	100.0 a	99.8 a
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B					
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B					
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B					
2 10 Days Pre-Plant										
3 No Rye - NT						97.0 a	3.5 a	65.5 a	100.0 a	94.3 a
1 Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B					
1 2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B					
1 Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B					
2 10 Days Pre-Plant										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						DIGSA	
Crop Type, Code						C - C	GLXMA
Description						L.crbgrs	Soybean
Rating Type						Control	Yield
Rating Unit						%	Bu/A
Rating Date						07/23/16	10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
CV							
						1.04	14.42
TABLE OF A (Rye cover) B (Brndwn) C (Brndwn Timing) MEANS							
1 High Rye Biomass						100.0 a	36.3 a
1	30% UAN	3.25	L	60 lb ai/a	ESpring	A	
1	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
1	Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B	
1	20 Days Pre-Plant						
2 Low Rye Biomass						100.0 a	39.2 a
1	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
1	Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B	
1	20 Days Pre-Plant						
3 No Rye - NT						99.3 a	35.8 a
1	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
1	Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B	
1	20 Days Pre-Plant						
1 High Rye Biomass						99.3 a	36.1 a
1	30% UAN	3.25	L	60 lb ai/a	ESpring	A	
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
1	20 Days Pre-Plant						
2 Low Rye Biomass						99.3 a	36.8 a
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
1	20 Days Pre-Plant						
3 No Rye - NT						97.8 a	32.5 a
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
1	20 Days Pre-Plant						
1 High Rye Biomass						100.0 a	37.4 a
1	30% UAN	3.25	L	60 lb ai/a	ESpring	A	
1	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
1	Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B	
2	10 Days Pre-Plant						
2 Low Rye Biomass						100.0 a	35.5 a
1	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
1	Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B	
2	10 Days Pre-Plant						
3 No Rye - NT						100.0 a	31.7 a
1	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP B	
1	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP B	
1	Envive	41.3	WG	0.0774 lb ai/a	20days	EPP B	
2	10 Days Pre-Plant						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						ERICA			ERICA	AMAPA
Crop Type, Code						C -	C -	C -	C -	C -
Description						Horsewd	OvrallWd	OvrallWd	Horsewd	PalmerAm
Rating Type						Control	Control	GndCovr	Control	Control
Rating Unit						%	%	%	%	%
Rating Date						05/24/16	05/24/16	05/24/16	06/17/16	06/17/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
1	High Rye Biomass							52.5 a	55.0 a	41.3 a
1	30% UAN	3.25	L	60	lb ai/a	ESpring	A			
2	Roundup PowrMax	4.5	AS	1.13	lb ae/a	20days	EPP B			
2	2,4-D ester	3.8	L	0.475	lb ae/a	20days	EPP B			
2	10 Days Pre-Plant									
2	Low Rye Biomass							60.0 a	52.5 a	38.8 a
2	Roundup PowrMax	4.5	AS	1.13	lb ae/a	20days	EPP B			
2	2,4-D ester	3.8	L	0.475	lb ae/a	20days	EPP B			
2	10 Days Pre-Plant									
3	No Rye - NT							57.5 a	52.5 a	47.5 a
2	Roundup PowrMax	4.5	AS	1.13	lb ae/a	20days	EPP B			
2	2,4-D ester	3.8	L	0.475	lb ae/a	20days	EPP B			
2	10 Days Pre-Plant									
LSD P=.05						6.63	8.15	9.70	12.22	24.32
Standard Deviation						4.61	5.66	6.74	8.50	16.90
CV						6.59	8.35	21.94	10.24	21.49

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						IPOSS	DIGSA	ERICA	AMAPA	IPOSS		
Crop Type, Code						C -	C -	C -	C -	C -		
Description						mornglry	L.crbgrs	Horsewd	PalmerAm	mornglry		
Rating Type						Control	Control	Control	Control	Control		
Rating Unit						%	%	%	%	%		
Rating Date						06/17/16	06/17/16	06/29/16	06/29/16	06/29/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code					
1	High Rye Biomass							71.8 a	61.8 a	66.3 a	80.9 a	68.6 a
1	30% UAN	3.25	L	60 lb ai/a		ESpring	A					
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a		20days	EPP B					
2	2,4-D ester	3.8	L	0.475 lb ae/a		20days	EPP B					
2	10 Days Pre-Plant											
2	Low Rye Biomass							52.5 a	63.9 a	78.5 a	77.8 a	45.6 a
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a		20days	EPP B					
2	2,4-D ester	3.8	L	0.475 lb ae/a		20days	EPP B					
2	10 Days Pre-Plant											
3	No Rye - NT							52.3 a	56.3 a	68.8 a	75.8 a	60.4 a
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a		20days	EPP B					
2	2,4-D ester	3.8	L	0.475 lb ae/a		20days	EPP B					
2	10 Days Pre-Plant											
LSD P=.05						29.14	35.28	11.04	10.03	16.81		
Standard Deviation						20.26	24.49	7.68	6.96	11.62		
CV						27.57	32.39	9.78	8.04	15.36		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code	University of Delaware					DIGSA	ERICA	AMAPA	IPOSS			
Crop Type, Code						C - C	C -	C -	C -			
Description						L.crbgrs	Soybean	PalmerAm	mornnglry			
Rating Type						Control	Stunting	Control	Control			
Rating Unit						%	%	%	%			
Rating Date						06/29/16	07/23/16	07/23/16	07/23/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code					
1	High Rye Biomass							59.3 a	6.0 a	75.3 a	97.5 a	100.0 a
1	30% UAN	3.25	L	60 lb ai/a	E	Spring	A					
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP	B					
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP	B					
2	10 Days Pre-Plant											
2	Low Rye Biomass							73.5 a	9.0 a	73.3 a	98.3 a	99.5 a
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP	B					
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP	B					
2	10 Days Pre-Plant											
3	No Rye - NT							58.8 a	10.3 a	70.0 a	95.0 a	92.0 a
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a	20days	EPP	B					
2	2,4-D ester	3.8	L	0.475 lb ae/a	20days	EPP	B					
2	10 Days Pre-Plant											
LSD P=.05						18.11	12.87	14.62	7.49	6.38		
Standard Deviation						12.57	8.94	10.17	5.21	4.43		
CV						16.32	102.73	12.57	5.31	4.65		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						DIGSA	
Crop Type, Code						C - C	GLXMA
Description						L.crbgrs	Soybean
Rating Type						Control	Yield
Rating Unit						%	Bu/A
Rating Date						07/23/16	10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code
1	High Rye Biomass						
1	30% UAN	3.25	L	60 lb ai/a		ESpring	A
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a		20days EPP	B
2	2,4-D ester	3.8	L	0.475 lb ae/a		20days EPP	B
2	10 Days Pre-Plant						
							99.3 a
							36.7 a
2	Low Rye Biomass						
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a		20days EPP	B
2	2,4-D ester	3.8	L	0.475 lb ae/a		20days EPP	B
2	10 Days Pre-Plant						
							99.3 a
							30.0 a
3	No Rye - NT						
2	Roundup PowrMax	4.5	AS	1.13 lb ae/a		20days EPP	B
2	2,4-D ester	3.8	L	0.475 lb ae/a		20days EPP	B
2	10 Days Pre-Plant						
							98.5 a
							32.7 a
LSD P=.05						1.49	7.27
Standard Deviation						1.03	5.05
CV						1.04	14.42

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

FACTORIAL/POOLED ERROR AOV For ERICA C Horsewd Control % 05/24/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	8781.916667				
R	3	12.416667	4.138889	0.195	0.8992	
A	2	774.041667	387.020833	18.217	0.0001	3.3
B	1	96.333333	96.333333	4.534	0.0408	2.7
AB	2	70.291667	35.145833	1.654	0.2067	4.7
C	1	7056.750000	7056.750000	332.161	0.0001	2.7
AC	2	33.875000	16.937500	0.797	0.4591	4.7
BC	1	3.000000	3.000000	0.141	0.7095	3.8
ABC	2	34.125000	17.062500	0.803	0.4565	6.6
ERROR	33	701.083333	21.244949			

FACTORIAL/POOLED ERROR AOV For C OvrallWd Control % 05/24/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	12695.312500				
R	3	47.395833	15.798611	0.492	0.6900	
A	2	612.500000	306.250000	9.545	0.0005	4.1
B	1	13.020833	13.020833	0.406	0.5285	3.3
AB	2	29.166667	14.583333	0.455	0.6387	5.8
C	1	10650.520833	10650.520833	331.932	0.0001	3.3
AC	2	129.166667	64.583333	2.013	0.1497	5.8
BC	1	42.187500	42.187500	1.315	0.2598	4.7
ABC	2	112.500000	56.250000	1.753	0.1890	8.1
ERROR	33	1058.854167	32.086490			

FACTORIAL/POOLED ERROR AOV For C OvrallWd GndCovr % 05/24/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	12899.479167				
R	3	18.229167	6.076389	0.134	0.9393	
A	2	657.291667	328.645833	7.228	0.0025	4.9
B	1	188.020833	188.020833	4.135	0.0501	4.0
AB	2	94.791667	47.395833	1.042	0.3639	6.9
C	1	10354.687500	10354.687500	227.724	0.0001	4.0
AC	2	3.125000	1.562500	0.034	0.9663	6.9
BC	1	42.187500	42.187500	0.928	0.3424	5.6
ABC	2	40.625000	20.312500	0.447	0.6435	9.7
ERROR	33	1500.520833	45.470328			

FACTORIAL/POOLED ERROR AOV For ERICA C Horsewd Control % 06/17/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	7712.979167				
R	3	519.729167	173.243056	2.400	0.0855	
A	2	1129.291667	564.645833	7.822	0.0017	6.1
B	1	1.687500	1.687500	0.023	0.8794	5.0
AB	2	285.125000	142.562500	1.975	0.1548	8.6
C	1	2867.520833	2867.520833	39.726	0.0001	5.0
AC	2	194.291667	97.145833	1.346	0.2742	8.6
BC	1	275.520833	275.520833	3.817	0.0593	7.1
ABC	2	57.791667	28.895833	0.400	0.6733	12.2
ERROR	33	2382.020833	72.182449			

FACTORIAL/POOLED ERROR AOV For AMAPA C PalmerAm Control % 06/17/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	35806.666667				
R	3	54.833333	18.277778	0.064	0.9785	
A	2	1908.666667	954.333333	3.340	0.0478	12.2
B	1	17941.333333	17941.333333	62.791	0.0001	9.9
AB	2	1995.166667	997.583333	3.491	0.0421	17.2
C	1	1474.083333	1474.083333	5.159	0.0298	9.9
AC	2	841.166667	420.583333	1.472	0.2442	17.2
BC	1	1302.083333	1302.083333	4.557	0.0403	14.0
ABC	2	860.166667	430.083333	1.505	0.2368	24.3
ERROR	33	9429.166667	285.732323			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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FACTORIAL/POOLED ERROR AOV For IPOSS C mornglry Control % 06/17/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	45003.916667				
R	3	1254.916667	418.305556	1.020	0.3965	
A	2	1741.541667	870.770833	2.122	0.1358	14.6
B	1	24934.083333	24934.083333	60.774	0.0001	11.9
AB	2	1255.041667	627.520833	1.530	0.2316	20.6
C	1	1083.000000	1083.000000	2.640	0.1137	11.9
AC	2	387.125000	193.562500	0.472	0.6280	20.6
BC	1	560.333333	560.333333	1.366	0.2509	16.8
ABC	2	248.791667	124.395833	0.303	0.7405	29.1
ERROR	33	13539.083333	410.275253			

FACTORIAL/POOLED ERROR AOV For DIGSA C L.crbgrs Control % 06/17/16 Missing values in column 7 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	41567.744453				
R	3	1510.272559	503.424186	0.839	0.4824	
A	2	1518.925296	759.462648	1.266	0.2957	17.6
B	1	17034.026750	17034.026750	28.396	0.0001	14.4
AB	2	687.630424	343.815212	0.573	0.5694	24.9
C	1	479.872904	479.872904	0.800	0.3778	14.4
AC	2	833.495809	416.747904	0.695	0.5066	24.9
BC	1	23.757520	23.757520	0.040	0.8435	20.4
ABC	2	283.918886	141.959443	0.237	0.7906	35.3
ERROR	32	19195.844305	599.870135			

FACTORIAL/POOLED ERROR AOV For ERICA C Horsewd Control % 06/29/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	5519.916667				
R	3	458.416667	152.805556	2.594	0.0691	
A	2	1033.291667	516.645833	8.770	0.0009	5.5
B	1	33.333333	33.333333	0.566	0.4573	4.5
AB	2	55.791667	27.895833	0.474	0.6270	7.8
C	1	1825.333333	1825.333333	30.984	0.0001	4.5
AC	2	81.541667	40.770833	0.692	0.5077	7.8
BC	1	4.083333	4.083333	0.069	0.7940	6.4
ABC	2	84.041667	42.020833	0.713	0.4974	11.0
ERROR	33	1944.083333	58.911616			

FACTORIAL/POOLED ERROR AOV For AMAPA C PalmerAm Control % 06/29/16 Missing values in column 9 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	45	8118.166305				
R	3	91.166576	30.388859	0.628	0.6025	
A	2	69.135464	34.567732	0.714	0.4975	5.0
B	1	6120.082824	6120.082824	126.443	0.0001	4.1
AB	2	84.385443	42.192721	0.872	0.4282	7.1
C	1	77.520883	77.520883	1.602	0.2151	4.1
AC	2	4.197913	2.098957	0.043	0.9576	7.1
BC	1	117.187560	117.187560	2.421	0.1299	5.8
ABC	2	54.031280	27.015640	0.558	0.5779	10.0
ERROR	31	1500.458362	48.401883			

FACTORIAL/POOLED ERROR AOV For IPOSS C mornglry Control % 06/29/16 Missing values in column 10 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	43	24505.472230				
R	3	175.064760	58.354920	0.432	0.7317	
A	2	272.852006	136.426003	1.010	0.3767	8.4
B	1	18362.860484	18362.860484	135.941	0.0001	6.9
AB	2	132.428018	66.214009	0.490	0.6175	11.9
C	1	85.613838	85.613838	0.634	0.4324	6.9
AC	2	709.519956	354.759978	2.626	0.0895	11.9
BC	1	30.249977	30.249977	0.224	0.6396	9.7
ABC	2	819.567788	409.783894	3.034	0.0636	16.8
ERROR	29	3917.315403	135.079841			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

FACTORIAL/POOLED ERROR AOV For DIGSA C L.crbgrs Control % 06/29/16 Missing values in column 11 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	21276.924049				
R	3	1345.235741	448.411914	2.837	0.0536	
A	2	1287.948828	643.974414	4.074	0.0265	9.1
B	1	12066.646956	12066.646956	76.330	0.0001	7.4
AB	2	50.021477	25.010739	0.158	0.8543	12.8
C	1	682.134136	682.134136	4.315	0.0459	7.4
AC	2	512.175323	256.087662	1.620	0.2137	12.8
BC	1	63.138409	63.138409	0.399	0.5319	10.5
ABC	2	210.863357	105.431679	0.667	0.5203	18.1
ERROR	32	5058.759821	158.086244			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/23/16 Missing values in column 12 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	5135.146929				
R	3	320.523381	106.841127	1.338	0.2793	
A	2	187.805829	93.902915	1.176	0.3215	6.4
B	1	732.522039	732.522039	9.175	0.0048	5.3
AB	2	142.540872	71.270436	0.893	0.4195	9.1
C	1	732.522039	732.522039	9.175	0.0048	5.3
AC	2	319.810103	159.905052	2.003	0.1515	9.1
BC	1	3.804090	3.804090	0.048	0.8286	7.4
ABC	2	140.681898	70.340949	0.881	0.4242	12.9
ERROR	32	2554.936678	79.841771			

FACTORIAL/POOLED ERROR AOV For ERICA C Horsewd Control % 07/23/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	6630.479167				
R	3	77.229167	25.743056	0.249	0.8614	
A	2	678.291667	339.145833	3.282	0.0501	7.3
B	1	295.020833	295.020833	2.855	0.1005	6.0
AB	2	132.541667	66.270833	0.641	0.5330	10.3
C	1	1621.687500	1621.687500	15.694	0.0004	6.0
AC	2	273.875000	136.937500	1.325	0.2795	10.3
BC	1	2.520833	2.520833	0.024	0.8768	8.4
ABC	2	139.291667	69.645833	0.674	0.5165	14.6
ERROR	33	3410.020833	103.333965			

FACTORIAL/POOLED ERROR AOV For AMAPA C PalmerAm Control % 07/23/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1219.312500				
R	3	29.729167	9.909722	0.365	0.7786	
A	2	36.375000	18.187500	0.670	0.5184	3.7
B	1	157.687500	157.687500	5.811	0.0217	3.1
AB	2	36.375000	18.187500	0.670	0.5184	5.3
C	1	3.520833	3.520833	0.130	0.7210	3.1
AC	2	28.291667	14.145833	0.521	0.5986	5.3
BC	1	3.520833	3.520833	0.130	0.7210	4.3
ABC	2	28.291667	14.145833	0.521	0.5986	7.5
ERROR	33	895.520833	27.136995			

FACTORIAL/POOLED ERROR AOV For IPOSS C mornglry Control % 07/23/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1935.479167				
R	3	615.562500	205.187500	10.438	0.0001	
A	2	324.291667	162.145833	8.249	0.0012	3.2
B	1	38.520833	38.520833	1.960	0.1709	2.6
AB	2	23.291667	11.645833	0.592	0.5587	4.5
C	1	247.520833	247.520833	12.592	0.0012	2.6
AC	2	23.291667	11.645833	0.592	0.5587	4.5
BC	1	13.020833	13.020833	0.662	0.4215	3.7
ABC	2	1.291667	0.645833	0.033	0.9677	6.4
ERROR	33	648.687500	19.657197			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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FACTORIAL/POOLED ERROR AOV For DIGSA C L.crbgrs Control % 07/23/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	71.250000				
R	3	14.250000	4.750000	4.447	0.0099	
A	2	6.000000	3.000000	2.809	0.0748	0.7
B	1	12.000000	12.000000	11.234	0.0020	0.6
AB	2	1.500000	0.750000	0.702	0.5028	1.1
C	1	0.750000	0.750000	0.702	0.4081	0.6
AC	2	1.500000	0.750000	0.702	0.5028	1.1
BC	1	0.000000	0.000000	0.000	1.0000	0.9
ABC	2	0.000000	0.000000	0.000	1.0000	1.5
ERROR	33	35.250000	1.068182			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Yield Bu/A 10/27/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1390.458144				
R	3	220.984476	73.661492	2.884	0.0504	
A	2	98.386864	49.193432	1.926	0.1617	3.6
B	1	40.971424	40.971424	1.604	0.2142	3.0
AB	2	27.229079	13.614539	0.533	0.5917	5.1
C	1	55.325374	55.325374	2.166	0.1505	3.0
AC	2	75.737481	37.868740	1.483	0.2417	5.1
BC	1	0.228724	0.228724	0.009	0.9252	4.2
ABC	2	28.856485	14.428242	0.565	0.5738	7.3
ERROR	33	842.738239	25.537522			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Burndown for Double Cropped Soybeans Palmer Amaranth Management  
 Trial ID: DSB7-16 Location: Field #10 Trial Year: 2016  
 Protocol ID: DSB7-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Delaware Soybean Board

**Contacts**

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Cooperator/Landowner****Other Contacts****Pest Description**

Pest 1 Type: W Code: AMAPA Amaranthus palmeri  
 Common Name: Palmer amaranth  
 Pest 2 Type: W Code: MOLVE Mollugo verticillata  
 Common Name: Carpetweed  
 Pest 3 Type: W Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2 Treatments: 12 Tillage Type: NOTILL no-till  
 Replications: 3 Study Design: RACOB L Randomized Complete Block (RCB)

## Trial Initiation Comments:

Trial initiated 7-13-16.

## Field Prep./Maintenance:

Total POST Liberty 280 at 40 fl oz/A + AMS on 7-28-16.

**Soil Description**

% Sand: 79 % OM: 1.1 Texture: SL sandy loam  
 % Silt: 12 pH: 5.7  
 % Clay: 9 CEC: 4.2 Fert. Level: F fair  
 Soil Drainage: G good

**Application Description**

	A
Application Date	07/13/16
Appl. Stop Time	09:15 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	75 F
% Relative Humidity Start, Stop	85
Wind Velocity+Dir. Start	2 mph SE
Wet Leaves (Y/N)	Y yes
Soil Temperature	75 F
Soil Moisture	NORMAL
% Cloud Cover	30

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	AMAPA W
Stage Majority, Percent	veg 100
Height Average	10 in
Height Minimum, Maximum	8 14
Density Average	3 m2
Pest 2 Code, Type, Scale	MOLVE W
Stage Majority, Percent	flower 100
Height Average	9 in
Height Minimum, Maximum	6 12
Density Average	6 m2
Pest 3 Code, Type, Scale	DIGSA W
Stage Majority, Percent	5-6Tlr 40
Stage Minimum, Percent	3-4Tlr 30
Stage Maximum, Percent	7-8Tlr 30
Height Average	9 in
Height Minimum, Maximum	7 12
Density Average	15 m2

**Application Equipment**

	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	30 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

## Trial Comments

07/23/16: Plot 105 trt weak on primrose; plot 107 plot missing lambsquarter; plot 202 trt did not kill watermelon. Gramoxone killed grass seedlings but not plants that were well established including trts. with metribuzin.



University of Delaware

Burndown for Double Cropped Soybeans Palmer Amaranth Management  
 Trial ID: DSB7-16 Location: Field #10 Trial Year: 2016  
 Protocol ID: DSB7-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Delaware Soybean Board

Pest Code						AMAPA	DIGSA	AMAPA	DIGSA
Pest Name						PalmerAm	L.crbgrs	PalmerAm	L.crbgrs
Rating Type						Control	Control	Control	Control
Rating Unit						%	%	%	%
Rating Date						07/23/16	07/23/16	07/30/16	07/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code			
1	Untreated Check						0.0 d	0.0 e	0.0 c
2	Canopy Premix	75 DF		0.188 lb ai/a	PRE	A	100.0 a	76.7 ab	100.0 a
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a	PRE	A			
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A			
3	Valor XLT Premix	40.3 WG		0.091 lb ai/a	PRE	A	100.0 a	35.0 cd	100.0 a
	----flumioxazin	30		0.068					
	----chlorimuron	10.3		0.0233					
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a	PRE	A			
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A			
4	Authority XL Premix	70 DG		0.21 lb ai/a	PRE	A	100.0 a	53.3 bc	100.0 a
	----sulfentrazone	62.2		0.187					
	----chlorimuron	7.8		0.0234					
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a	PRE	A			
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A			
5	Liberty 280.....glufosinate	2.34 SL		0.66 lb ai/a	PRE	A	97.3 a	96.7 a	72.3 bc
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	A			
	Dry Ammonium Sulfate	100 D		1.2 % w/v	PRE	A			
6	Callisto.....mesotrione	4 SC		0.166 lb ai/a	PRE	A	99.0 a	58.3 bc	100.0 a
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a	PRE	A			
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A			
7	Canopy Premix	75 DF		0.188 lb ai/a	PRE	A	100.0 a	63.3 abc	95.7 ab
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Liberty 280.....glufosinate	2.34 SL		0.66 lb ai/a	PRE	A			
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A			
	Dry Ammonium Sulfate	100 D		1.2 % w/v	PRE	A			
8	Canopy Premix	75 DF		0.188 lb ai/a	PRE	A	53.3 b	95.0 a	62.7 c
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	A			
	Dry Ammonium Sulfate	100 D		1.2 % w/v	PRE	A			
9	Liberty 280.....glufosinate	2.34 SL		0.66 lb ai/a	PRE	A	97.3 a	75.7 ab	72.3 bc
	Dry Ammonium Sulfate	100 D		1.2 % w/v	PRE	A			
10	Tricor DF.....metribuzin	75 DF		0.188 lb ai/a	PRE	A	100.0 a	72.6 ab	100.0 a
	Valor SX.....flumioxazin	51 WG		0.094 lb ai/a	PRE	A			
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a	PRE	A			
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=1,2,4

Pest Code Pest Name						AMAPA PalmerAm	DIGSA L.crbgrs	AMAPA PalmerAm	DIGSA L.crbgrs
Rating Type Rating Unit Rating Date						Control %	Control %	Control %	Control %
						07/23/16	07/23/16	07/30/16	07/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
11	Tricor DF.....metribuzin	75 DF		0.188 lb ai/a		PRE	A	100.0 a	10.0 de
	Valor SX.....flumioxazin	51 WG		0.094 lb ai/a		PRE	A		92.3 ab
	Crop Oil Concentrate	100 L		1.25 % v/v		PRE	A		
	30% Urea Ammonium Nitrate	100 L		2 % v/v		PRE	A		31.7 b
12	Authority MTZ Premix	45 DF		0.338 lb ai/a		PRE	A	16.5 c	13.3 de
	----sulfentrazone	18		0.135					36.7 d
	----metribuzin	27		0.203					0.0 c
	Crop Oil Concentrate	100 L		1.25 % v/v		PRE	A		
	30% Urea Ammonium Nitrate	100 L		2 % v/v		PRE	A		
LSD P=.05						14.93	34.05	24.29	24.66
Standard Deviation						8.80	20.05	14.34	14.43
CV						10.95	37.02	18.47	29.1
Replicate F						1.274	0.002	2.754	0.388
Replicate Prob(F)						0.3006	0.9982	0.0857	0.6838
Treatment F						51.137	8.007	14.617	17.594
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=1,2,4

POST Weed Control in Double-Cropped Soybeans  
 Trial ID: DSB8-16      Location: Field #16      Trial Year: 2016  
 Protocol ID: DSB8-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Delaware Soybean Board

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C	GLXMA Glycine max	Soybean	BBCH Scale: BSOY
	Variety: AG4135		
	Attributes: Roundup Ready / STS		
	Planting Date: 07/12/16	Planting Rate: 180000	S/A
	Depth: 1 in		
	Row Spacing: 15 in	Planting Method: PLANTD	planted
		Planting Equipment: FE	Field Equipment
		Seed Bed: MEDTRA	medium/trashy
		Soil Moisture: NORMAL	normal, adequate
	Soil Temperature: 87 F		
	Emergence Date: 07/17/16		
	Harvest Date: 11/11/16	Harvest Equipment: Plot combine	
		Harvested Width: 6.25 FT	
		Harvested Length: 25 FT	
% Standard Moisture: 13.0			

**Pest Description**

Pest 1 Type: W      Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

Pest 2 Type: W      Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT	Site Type: FIELD	field
Treated Plot Length: 25 FT		
Treated Plot Area: 250 FT <sup>2</sup>	Treatments: 8	Tillage Type: NOTILL
Replications: 3		no-till
		Study Design: RACOB
		Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Total Early Preplant burndown Roundup PowerMax 1 qt/A + Liberty 280 1 qt/A + AMS on 7-13-16.

**Soil Description**

% Sand: 77      % OM: 1.6      Texture: SL sandy loam  
 % Silt: 12      pH: 6.4  
 % Clay: 11      CEC: 6.7      Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	08/10/16
Appl. Stop Time	10:30 AM
Application Method	SPRAY
Application Timing	POST
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	83 F
% Relative Humidity Start, Stop	85
Wind Velocity+Dir. Start	2 mph S
Wet Leaves (Y/N)	Y yes
Soil Temperature	82 F
Soil Moisture	NORMAL
% Cloud Cover	40

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY
Stage Scale Used	DESC
Stage Majority, Percent	5-trifol 55
Stage Minimum, Percent	4-trifol 45
Stage Maximum, Percent	5-trifol 55
Height Average	11 in
Height Minimum, Maximum	9 12

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	IPOSS W
Stage Majority, Percent	run 70
Stage Minimum, Percent	veg 30
Stage Maximum, Percent	run 70
Height Average	9 in
Height Minimum, Maximum	5 12
Density Average	2 m2
Pest 2 Code, Type, Scale	DIGSA W
Stage Majority, Percent	tiller 100
Height Average	10 in
Height Minimum, Maximum	8 12
Density Average	5 m2

<b>Application Equipment</b>	
	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	28 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

POST Weed Control in Double-Cropped Soybeans  
 Trial ID: DSB8-16      Location: Field #16      Trial Year: 2016  
 Protocol ID: DSB8-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Delaware Soybean Board

Pest Code					C	GLXMA	C	GLXMA	AMAPA	
Crop Type, Code									C -	
Pest Name									PalmerAm	
Crop Name					Soybean		Soybean			
Rating Type					Chloros		LeafBrn		Control	
Rating Unit					%		%		%	
Rating Date					08/14/16		08/14/16		08/30/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 b	0.0 c	0.0 b
2	Roundup PowerMax..glyphosate Dry Ammonium Sulfate	4.5 AS 100 D		1.13 lb ae/a 1.2 % w/v		POST A POST A		13.0 a	0.0 c	100.0 a
3	Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D		0.53 lb ai/a 1.2 % w/v		POST A POST A				95.0 a
4	Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D		0.66 lb ai/a 1.2 % w/v		POST A POST A				95.0 a
5	Ultra Blazer....acifluorfen Nonionic Surfactant	2 L 100 L		0.375 lb ai/a 0.25 % v/v		POST A POST A		0.0 b	25.0 a	99.0 a
6	Storm Premix ----bentazon ----acifluorfen Nonionic Surfactant	4 EC 2.67 1.33 100 L		0.75 lb ai/a 0.5 0.25 0.25 % v/v		POST A POST A		0.0 b	17.0 b	96.7 a
7	Raptor.....imazamox Crop Oil Concentrate 30% Urea Ammonium Nitrate	1 AS 100 L 100 L		0.039 lb ai/a 1.25 % v/v 2.5 % v/v		POST A POST A POST A		0.0 b	0.0 c	100.0 a
8	Synchrony XP Premix ----chlorimuron ----thifensulfuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	28.4 DG 21.5 6.9 100 L 100 L		0.0133 lb ai/a 0.0101 0.00323 1.25 % v/v 2.5 % v/v		POST A POST A POST A POST A		1.7 b	0.0 c	100.0 a
LSD P=.05								2.27	3.71	8.12
Standard Deviation								1.25	2.04	4.64
CV								51.02	29.16	5.41
Replicate F								2.286	1.000	1.664
Replicate Prob(F)								0.1522	0.4019	0.2247
Treatment F								52.429	89.280	167.955
Treatment Prob(F)								0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code		IPOSS	DIGSA	C	GLXMA					
Crop Type, Code		C -	C -							
Pest Name		Mornglry	L.crbgrs							
Crop Name					Soybean					
Rating Type		Control	Control		Yield					
Rating Unit		%	%		Bu/A					
Rating Date		08/30/16	08/30/16		11/11/16					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code			
1	Untreated Check							0.0 c	0.0 d	17.9 bc
2	Roundup PowerMax..glyphosate Dry Ammonium Sulfate	4.5 AS 100 D		1.13 lb ae/a 1.2 % w/v	POST POST	A A		83.0 ab	100.0 a	30.7 a
3	Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D		0.53 lb ai/a 1.2 % w/v	POST POST	A A		100.0 a	98.7 a	0.0 d
4	Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D		0.66 lb ai/a 1.2 % w/v	POST POST	A A		98.0 a	93.0 ab	0.0 d
5	Ultra Blazer....acifluorfen Nonionic Surfactant	2 L 100 L		0.375 lb ai/a 0.25 % v/v	POST POST	A A		85.0 ab	0.0 d	19.3 bc
6	Storm Premix ----bentazon ----acifluorfen Nonionic Surfactant	4 EC 2.67 1.33 100 L		0.75 lb ai/a 0.5 0.25 0.25 % v/v	POST POST	A A A		90.0 ab	0.0 d	23.2 ab
7	Raptor.....imazamox Crop Oil Concentrate 30% Urea Ammonium Nitrate	1 AS 100 L 100 L		0.039 lb ai/a 1.25 % v/v 2.5 % v/v	POST POST POST	A A A		74.3 b	84.3 b	21.3 bc
8	Synchrony XP Premix ----chlorimuron ----thifensulfuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	28.4 DG 21.5 6.9 100 L 100 L		0.0133 lb ai/a 0.0101 0.00323 1.25 % v/v 2.5 % v/v	POST POST POST	A A A A A		88.3 ab	20.0 c	14.6 c
LSD P=.05								19.71	13.12	8.49
Standard Deviation								11.26	7.49	4.85
CV								14.56	15.14	30.55
Replicate F								0.138	1.309	3.573
Replicate Prob(F)								0.8719	0.3013	0.0558
Treatment F								24.696	124.331	15.006
Treatment Prob(F)								0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Burndown for Double Cropped Soybeans Broad-Spectrum Control  
 Trial ID: DSB9-16 Location: Field #10 Trial Year: 2015  
 Protocol ID: DSB9-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Delaware Soybean Board

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C GLXMA Glycine max Soybean BBCH Scale: BSOY  
 Variety: AG4135  
 Attributes: Roundup Ready  
 Planting Date: 07/12/16 Planting Rate: 180000 S/A  
 Depth: 1 in  
 Row Spacing: 15 in Planting Method: PLANTD planted  
 Planting Equipment: FE Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 87 F Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 07/17/16

**Pest Description**

Pest 1 Type: W Code: ERICA Conyza canadensis  
 Common Name: Canada horseweed  
 Pest 2 Type: W Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 12 Tillage Type: NOTILL no-till  
 Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Total POST Touchdown Total at 30 fl oz/A + Reflex at 1.5 pt/A on 8-4-16.

**Soil Description**

% Sand: 80 % OM: 1.1 Texture: SL sandy loam  
 % Silt: 10 pH: 6.5  
 % Clay: 10 CEC: 4.2 Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	07/13/16
Appl. Stop Time	08:20 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	75 F
% Relative Humidity Start, Stop	85
Wind Velocity+Dir. Start	0 mph N/A
Wet Leaves (Y/N)	Y yes
Soil Temperature	75 F
Soil Moisture	NORMAL
% Cloud Cover	30



**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	ERICA W
Stage Majority, Percent	bolt 100
Height Average	12 in
Height Minimum, Maximum	4 16
Density Average	5 m2
Pest 2 Code, Type, Scale	DIGSA W
Stage Majority, Percent	veg 100
Height Average	7 in
Height Minimum, Maximum	6 8
Density Average	20 m2

**Application Equipment**

	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	32 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

**Trial Comments**

07/13/16: Some horseweed plants were cut with combine cutter bar, some were not.

07/23/16: Liberty rate did not control primrose as observed in noncrop trial which had higher rates. plots 108, 110 poor primrose control; Plot 206 trt weak on primrose.

08/02/16: Poor morningglory control with trts 2,4. Poor common ragweed and crabgrass control with trts 2,3,9,10. Excellent crabgrass control with 4,5,6,7,8,11,12.

Burndown for Double Cropped Soybeans Broad-Spectrum Control  
 Trial ID: DSB9-16 Location: Field #10 Trial Year: 2015  
 Protocol ID: DSB9-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Delaware Soybean Board

Pest Code						ERICA	DIGSA	ERICA
Pest Name						Horsewd	L.crbgrs	Horsewd
Rating Type						Control	Control	Control
Rating Unit						%	%	%
Rating Date						07/23/16	07/23/16	08/02/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 e 0.0 c 0.0 f
2	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	A	93.0 a 53.3 b 95.3 a
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	A	
3	Tricor DF.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	17.3 d 0.0 c 60.6 bc
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	A	
4	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	A	33.3 c 97.3 a 38.3 de
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	A	
5	Roundup PowerMax..glyphosate	4.5	AS	1.5	lb ae/a	PRE	A	40.0 bc 100.0 a 40.0 cde
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	A	
6	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	50.0 b 100.0 a 61.7 b
	----metribuzin	64.3		0.161				
	----chlorimuron	10.7		0.0268				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	A	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	A	
7	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	A	90.7 a 97.3 a 87.7 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	A	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	A	
8	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	A	98.3 a 98.3 a 95.3 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	A	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	A	
	Methylated Seed Oil	100	L	0.94	% v/v	PRE	A	
9	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	18.3 d 0.0 c 20.0 ef
	----sulfentrazone	18		0.135				
	----metribuzin	27		0.203				
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	A	
10	Anthem Premix	2.153	SE	0.101	lb ai/a	PRE	A	33.3 c 100.0 a 46.7 bcd
	----pyroxasulfone	2.09		0.098				
	----fluthiacet	0.06300001		0.00296				
	Aim.....carfentrazone	2	EC	0.0234	lb ai/a	PRE	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	A	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	A	
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A	
11	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	PRE	A	90.7 a 98.0 a 90.7 a
	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	A	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	A	
	Methylated Seed Oil	100	L	0.94	% v/v	PRE	A	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,3

University of Delaware							ERICA	DIGSA	ERICA	
							Horsewd	L.crbgrs	Horsewd	
							Control	Control	Control	
							%	%	%	
							07/23/16	07/23/16	08/02/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code			
12	Tricor DF.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	43.3 bc	99.0 a	65.0 b
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A			
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	A			
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	A			
LSD P=.05							10.55	7.95	20.95	
Standard Deviation							6.21	4.69	12.34	
CV							12.25	6.68	21.11	
Replicate F							5.772	2.180	0.430	
Replicate Prob(F)							0.0101	0.1368	0.6558	
Treatment F							90.199	267.417	18.727	
Treatment Prob(F)							0.0001	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,3

University of Delaware

Soil-Applied Herbicide Combinations for No-Till Soybeans  
 Trial ID: DSB15-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: DSB15-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Delaware Soybean Board

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      GLXMA Glycine max      Soybean      BBCH Scale: BSOY  
 Variety: S43RY95  
 Attributes: Roundup Ready  
 Planting Date: 06/01/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 81 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/07/16  
 Harvest Date: 11/03/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 13.0

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 12      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

Field Prep./Maintenance:  
 Early Preplant burndown application of Roundup PowerMax 1 qt/A + 2,4-D ester 1 pt/A applied to study area on 4-18-16 to kill existing vegetation. Total PRE application of Liberty 1 qt/A + UAN on 6-3-16.

**Soil Description**  
 % Sand: 79      % OM: 0.9      Texture: SL sandy loam  
 % Silt: 10      pH: 6.1  
 % Clay: 11      CEC: 4.7      Fert. Level: G good  
 Soil Drainage: F fair

**Application Description**

	A	B
Application Date	06/02/16	06/30/16
Appl. Stop Time	11:00 AM	09:30 AM
Interval to Prev. Appl.		28 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	POST
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	67 F	76 F
% Relative Humidity Start, Stop	93	61
Wind Velocity+Dir. Start	2 mph NE	0 mph N/A
Wet Leaves (Y/N)	Y yes	N no
Soil Temperature	67 F	75 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	100	0

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC
Stage Majority, Percent		4-trifol 100
Height Average		7 in

**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	24 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

## Trial Comments

06/30/16: Few weeds present (scattered mornglory and palmer).

Soil-Applied Herbicide Combinations for No-Till Soybeans		
Trial ID: DSB15-16	Location: Field #14	Trial Year: 2016
Protocol ID: DSB15-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact: Delaware Soybean Board	

Pest Code Pest Name	AMAPA PalmerAm	AMAPA PalmerAm	IPOSS Morngrly	CHEAL C.lmsqtr							
Crop Type, Code	C -	C -	C -	C -							
Crop Name	Density	Control	Control	Control							
Rating Type	#/0.25m2	%	%	%							
Rating Unit	06/29/16	06/29/16	06/29/16	06/29/16							
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code				
1	Untreated Check							3.7 a	0.0 c	0.0 c	0.0 b
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
2	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A		0.3 bc	89.3 a	90.0 ab	99.0 a
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
3	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A		2.0 ab	56.7 b	58.3 ab	100.0 a
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
4	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A		0.0 c	95.0 a	72.3 ab	99.0 a
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
5	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A		0.2 c	98.3 a	90.0 ab	100.0 a
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A					
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
6	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A		0.2 c	96.7 a	76.7 ab	97.7 a
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A					
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
7	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A		0.2 c	98.3 a	54.3 ab	100.0 a
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A					
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Excluded replicate 2 in column 1

Pest Code Pest Name					AMAPA PalmerAm		
Crop Type, Code	C	GLXMA	C	GLXMA	C -	C	GLXMA
Crop Name	Soybean		Soybean		Control		Soybean
Rating Type	Injury		LeafBrn		%		Injury
Rating Unit	%		%		%		%
Rating Date	07/07/16		07/07/16		07/07/16		07/14/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code
1	Untreated Check						
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B	15.0 a
	----fomesafen	0.66		0.372			7.0 a
	----glyphosate	2.64		1.49			95.0 a
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B	7.0 a
2	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A	10.0 d
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B	5.0 b
	----fomesafen	0.66		0.372			100.0 a
	----glyphosate	2.64		1.49			5.0 a
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B	
3	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A	10.7 cd
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B	5.7 b
	----fomesafen	0.66		0.372			97.7 a
	----glyphosate	2.64		1.49			5.0 a
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B	
4	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A	10.7 cd
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B	5.0 b
	----fomesafen	0.66		0.372			100.0 a
	----glyphosate	2.64		1.49			6.3 a
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B	
5	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A	10.0 d
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A	5.0 b
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B	100.0 a
	----fomesafen	0.66		0.372			7.0 a
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B	
6	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A	12.0 bcd
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A	5.7 b
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B	100.0 a
	----fomesafen	0.66		0.372			7.3 a
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B	
7	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A	11.3 bcd
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A	5.7 b
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B	100.0 a
	----fomesafen	0.66		0.372			8.7 a
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Excluded replicate 2 in column 1

Pest Code Pest Name	AMAPA PalmerAm		AMAPA PalmerAm		CHEAL C.lmsqtr		IPOSS Mornglry				
Crop Type, Code	C -		C -		C -		C -				
Crop Name	Density		Control		Control		Control				
Rating Type	#/0.25m2		%		%		%				
Rating Unit	07/14/16		07/14/16		07/14/16		07/14/16				
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	Untreated Check							0.6 a	75.7 a	98.7 b	71.7 a
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
2	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A		0.1 a	98.0 a	100.0 a	97.0 a
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
3	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A		0.6 a	91.7 a	100.0 a	71.0 a
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
4	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A		0.0 a	100.0 a	100.0 a	95.7 a
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
5	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A		0.0 a	100.0 a	100.0 a	98.0 a
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A					
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
6	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A		0.0 a	100.0 a	100.0 a	71.0 a
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A					
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					
7	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A		0.0 a	100.0 a	100.0 a	72.0 a
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A					
	Flexstar GT Premix	3.3 L		1.86 lb ai/a	POST	B					
	----fomesafen	0.66		0.372							
	----glyphosate	2.64		1.49							
	Dry Ammonium Sulfate	100 D		2.04 % w/v	POST	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Excluded replicate 2 in column 1



Pest Code							C GLXMA
Pest Name							
Crop Type, Code							
Crop Name							
Rating Type							
Rating Unit							
Rating Date							11/03/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code
1	Untreated Check						66.0 a
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST B	
	----fomesafen	0.66		0.372			
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST B	
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE A	71.9 a
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST B	
	----fomesafen	0.66		0.372			
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST B	
3	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE A	70.6 a
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST B	
	----fomesafen	0.66		0.372			
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST B	
4	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE A	69.0 a
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST B	
	----fomesafen	0.66		0.372			
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST B	
5	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE A	67.3 a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE A	
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST B	
	----fomesafen	0.66		0.372			
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST B	
6	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE A	68.2 a
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE A	
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST B	
	----fomesafen	0.66		0.372			
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST B	
7	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE A	64.0 a
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE A	
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST B	
	----fomesafen	0.66		0.372			
	----glyphosate	2.64		1.49			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Excluded replicate 2 in column 1

Pest Code Pest Name					AMAPA PalmerAm	AMAPA PalmerAm	IPOSS Morngrly	CHEAL C.lmsqtr
Crop Type, Code					C -	C -	C -	C -
Crop Name					Density #/0.25m2	Control %	Control %	Control %
Rating Type					06/29/16	06/29/16	06/29/16	06/29/16
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
8	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		0.0 c
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A		100.0 a
	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/a	PRE	A		92.0 ab
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B		100.0 a
	----fomesafen	0.66		0.372				
	----glyphosate	2.64		1.49				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B		
9	Spartan.....sulfentrazone	4	F	0.2 lb ai/a	PRE	A		0.8 bc
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B		93.3 a
	----fomesafen	0.66		0.372				86.7 ab
	----glyphosate	2.64		1.49				100.0 a
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B		
10	Spartan.....sulfentrazone	4	F	0.2 lb ai/a	PRE	A		0.0 c
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A		98.3 a
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B		95.0 a
	----fomesafen	0.66		0.372				100.0 a
	----glyphosate	2.64		1.49				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B		
11	Spartan.....sulfentrazone	4	F	0.2 lb ai/a	PRE	A		0.3 bc
	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/a	PRE	A		94.0 a
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B		48.7 b
	----fomesafen	0.66		0.372				100.0 a
	----glyphosate	2.64		1.49				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B		
12	Spartan.....sulfentrazone	4	F	0.2 lb ai/a	PRE	A		0.2 c
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A		96.7 a
	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/a	PRE	A		95.7 a
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B		100.0 a
	----fomesafen	0.66		0.372				
	----glyphosate	2.64		1.49				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B		
LSD P=.05					1.81	26.28	43.99	2.39
Standard Deviation					0.82	15.52	25.98	1.41
CV					126.14	18.32	36.26	1.54
Replicate F					0.553	1.483	0.238	0.223
Replicate Prob(F)					0.4727	0.2488	0.7899	0.8016
Treatment F					3.582	10.564	3.476	1247.253
Treatment Prob(F)					0.0224	0.0001	0.0062	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Excluded replicate 2 in column 1

Pest Code Pest Name				AMAPA PalmerAm											
Crop Type, Code	C	GLXMA	C	GLXMA	C - C GLXMA										
Crop Name	Soybean		Soybean		Soybean										
Rating Type	Injury		LeafBrn		Injury										
Rating Unit	%		%		%										
Rating Date	07/07/16		07/07/16		07/14/16										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code								
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	13.3	ab	5.0	b	100.0	a	8.7	a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A								
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A								
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST	B								
	----fomesafen	0.66		0.372											
	----glyphosate	2.64		1.49											
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST	B								
9	Spartan.....sulfentrazone	4	F	0.2	lb ai/a	PRE	A	12.3	bc	5.0	b	98.3	a	19.7	a
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST	B								
	----fomesafen	0.66		0.372											
	----glyphosate	2.64		1.49											
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST	B								
10	Spartan.....sulfentrazone	4	F	0.2	lb ai/a	PRE	A	11.3	bcd	7.0	a	100.0	a	31.0	a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A								
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST	B								
	----fomesafen	0.66		0.372											
	----glyphosate	2.64		1.49											
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST	B								
11	Spartan.....sulfentrazone	4	F	0.2	lb ai/a	PRE	A	10.7	cd	5.0	b	100.0	a	7.7	a
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A								
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST	B								
	----fomesafen	0.66		0.372											
	----glyphosate	2.64		1.49											
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST	B								
12	Spartan.....sulfentrazone	4	F	0.2	lb ai/a	PRE	A	10.7	cd	5.0	b	100.0	a	8.7	a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A								
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A								
	Flexstar GT Premix	3.3	L	1.86	lb ai/a	POST	B								
	----fomesafen	0.66		0.372											
	----glyphosate	2.64		1.49											
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST	B								
LSD P=.05								2.14		1.02		4.96		21.26	
Standard Deviation								1.26		0.60		2.93		12.56	
CV								10.99		10.96		2.95		123.52	
Replicate F								3.180		0.000		0.612		1.381	
Replicate Prob(F)								0.0612		1.0000		0.5514		0.2723	
Treatment F								4.076		4.750		0.841		1.096	
Treatment Prob(F)								0.0025		0.0009		0.6042		0.4085	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Excluded replicate 2 in column 1

Pest Code Pest Name					AMAPA PalmerAm	AMAPA PalmerAm	CHEAL C.lmsqtr	IPOSS Mornglry
Crop Type, Code					C -	C -	C -	C -
Crop Name Rating Type Rating Unit Rating Date					Density #/0.25m2 07/14/16	Control % 07/14/16	Control % 07/14/16	Control % 07/14/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
8	Valor SX.....flumioxazin	51	WG	0.064 lb	ai/a	PRE	A	0.0 a
	Metribuzin.....metribuzin	75	DF	0.188 lb	ai/a	PRE	A	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.106 lb	ai/a	PRE	A	100.0 a
	Flexstar GT Premix	3.3	L	1.86 lb	ai/a	POST	B	93.0 a
	----fomesafen	0.66		0.372				
	----glyphosate	2.64		1.49				
	Dry Ammonium Sulfate	100	D	2.04 %	w/v	POST	B	
9	Spartan.....sulfentrazone	4	F	0.2 lb	ai/a	PRE	A	0.0 a
	Flexstar GT Premix	3.3	L	1.86 lb	ai/a	POST	B	100.0 a
	----fomesafen	0.66		0.372				100.0 a
	----glyphosate	2.64		1.49				99.0 a
	Dry Ammonium Sulfate	100	D	2.04 %	w/v	POST	B	
10	Spartan.....sulfentrazone	4	F	0.2 lb	ai/a	PRE	A	0.0 a
	Metribuzin.....metribuzin	75	DF	0.188 lb	ai/a	PRE	A	100.0 a
	Flexstar GT Premix	3.3	L	1.86 lb	ai/a	POST	B	100.0 a
	----fomesafen	0.66		0.372				99.0 a
	----glyphosate	2.64		1.49				
	Dry Ammonium Sulfate	100	D	2.04 %	w/v	POST	B	
11	Spartan.....sulfentrazone	4	F	0.2 lb	ai/a	PRE	A	0.1 a
	Zidua.....pyroxasulfone	85	WG	0.106 lb	ai/a	PRE	A	98.3 a
	Flexstar GT Premix	3.3	L	1.86 lb	ai/a	POST	B	100.0 a
	----fomesafen	0.66		0.372				73.7 a
	----glyphosate	2.64		1.49				
	Dry Ammonium Sulfate	100	D	2.04 %	w/v	POST	B	
12	Spartan.....sulfentrazone	4	F	0.2 lb	ai/a	PRE	A	0.0 a
	Metribuzin.....metribuzin	75	DF	0.188 lb	ai/a	PRE	A	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.106 lb	ai/a	PRE	A	100.0 a
	Flexstar GT Premix	3.3	L	1.86 lb	ai/a	POST	B	100.0 a
	----fomesafen	0.66		0.372				
	----glyphosate	2.64		1.49				
	Dry Ammonium Sulfate	100	D	2.04 %	w/v	POST	B	
LSD P=.05					0.69	21.06	0.56	46.81
Standard Deviation					0.41	12.44	0.33	27.64
CV					364.63	12.83	0.33	31.86
Replicate F					0.733	0.605	1.000	0.095
Replicate Prob(F)					0.4917	0.5551	0.3840	0.9100
Treatment F					0.821	0.984	4.000	0.692
Treatment Prob(F)					0.6217	0.4884	0.0027	0.7325

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Excluded replicate 2 in column 1

Pest Code						C GLXMA
Pest Name						
Crop Type, Code						
Crop Name						
Rating Type						
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing Code
8	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A
	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/a	PRE	A
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B
	----fomesafen	0.66		0.372		
	----glyphosate	2.64		1.49		
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B
9	Spartan.....sulfentrazone	4	F	0.2 lb ai/a	PRE	A
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B
	----fomesafen	0.66		0.372		
	----glyphosate	2.64		1.49		
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B
10	Spartan.....sulfentrazone	4	F	0.2 lb ai/a	PRE	A
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B
	----fomesafen	0.66		0.372		
	----glyphosate	2.64		1.49		
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B
11	Spartan.....sulfentrazone	4	F	0.2 lb ai/a	PRE	A
	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/a	PRE	A
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B
	----fomesafen	0.66		0.372		
	----glyphosate	2.64		1.49		
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B
12	Spartan.....sulfentrazone	4	F	0.2 lb ai/a	PRE	A
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A
	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/a	PRE	A
	Flexstar GT Premix	3.3	L	1.86 lb ai/a	POST	B
	----fomesafen	0.66		0.372		
	----glyphosate	2.64		1.49		
	Dry Ammonium Sulfate	100	D	2.04 % w/v	POST	B
LSD P=.05						10.19
Standard Deviation						6.02
CV						8.59
Replicate F						3.111
Replicate Prob(F)						0.0646
Treatment F						1.282
Treatment Prob(F)						0.2974

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Excluded replicate 2 in column 1

## Scepter Tank Mixtures in Soybeans

Trial ID: Soy1-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Soy1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: AMVAC

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max      Soybean      BBCH Scale: BSOY  
 Variety: S43RY95  
 Attributes: Roundup Ready  
 Planting Date: 06/06/16      Planting Rate: 180000    S/A  
 Depth: 1    in  
 Row Spacing: 15    in      Planting Method: PLANTD    planted  
    Field Equipment  
    Seed Bed: SMOOTH    smooth  
 Soil Temperature: 86    F      Soil Moisture: NORMAL    normal, adequate  
 Emergence Date: 06/12/16  
 Harvest Date: 10/27/16      Harvest Equipment: Plot combine  
    Harvested Width: 6.25 FT  
    Harvested Length: 25    FT  
 % Standard Moisture: 13.0

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>    Treatments: 12    Tillage Type: CONTIL    conventional-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Total POST Roundup PowerMax 1 qt/A + Reflex 1.5 pt/A 7-5-16.

**Soil Description**

% Sand: 81    % OM: 1.4      Texture: LS loamy sand  
 % Silt: 12      pH: 6.7  
 % Clay: 7      CEC: 4.9      Fert. Level: G good  
 Soil Drainage: G    good

<b>Application Description</b>	
	A
Application Date	06/08/16
Appl. Stop Time	10:15 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	71 F
% Relative Humidity Start, Stop	49
Wind Velocity+Dir. Start	4 mph W
Wet Leaves (Y/N)	N no
Soil Temperature	71 F
Soil Moisture	NORMAL
% Cloud Cover	50

<b>Crop Stage At Each Application</b>	
	A
Crop 1 Code, BBCH Scale	GLXMA BSOY

<b>Application Equipment</b>	
	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

#### Trial Comments

07/14/16: Postemergence treatment of glyphosate plus Reflex provided over 99% control of all weeds present at time of application. Sporadic morningglory cotyledons are emerging.

Scepter Tank Mixtures in Soybeans											
Trial ID: Soy1-16		Location: Field #18		Trial Year: 2016							
Protocol ID: Soy1-16		Investigator: Mark VanGessel									
		Study Director:									
		Sponsor Contact: AMVAC									
Pest Code	Pest Name	Crop Type, Code	C	GLXMA	C	GLXMA	AMAPA PalmerAm C -	IPOSS Morngrly C -			
				Soybean Stunting %		Soybean Stunting %	Control %	Control %			
				06/22/16		07/04/16	07/04/16	07/04/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 b	0.0 e	0.0 c	0.0 d
2	Scepter.....imazaquin	70 DG		0.123 lb ai/a	PRE	A		1.7 b	7.3 bcd	100.0 a	73.3 bc
3	Boundary Premix ----s-metolachlor ----metribuzin	6.5 EC 5.25 1.25		1.22 lb ai/a 0.99 0.235	PRE	A		0.0 b	2.3 de	100.0 a	70.0 c
4	Dual Magnum.....s-metolachlor Scepter.....imazaquin	7.62 E 70 DG		0.95 lb ai/a 0.092 lb ai/a	PRE	A		5.7 a	8.7 abc	100.0 a	70.0 c
5	Dual Magnum.....s-metolachlor Scepter.....imazaquin	7.62 E 70 DG		0.95 lb ai/a 0.123 lb ai/a	PRE	A		5.7 a	12.3 ab	96.0 ab	83.3 ab
6	Canopy Premix ----metribuzin ----chlorimuron	75 DF 64.3 10.7		0.188 lb ai/a 0.161 0.0268	PRE	A		0.0 b	11.7 ab	92.0 b	82.7 ab
7	Metribuzin.....metribuzin Scepter.....imazaquin	75 DF 70 DG		0.188 lb ai/a 0.092 lb ai/a	PRE	A		1.7 b	4.7 cde	97.3 ab	76.7 bc
8	Metribuzin.....metribuzin Scepter.....imazaquin	75 DF 70 DG		0.188 lb ai/a 0.123 lb ai/a	PRE	A		5.7 a	9.0 abc	95.0 ab	79.3 abc
9	Dual Magnum.....s-metolachlor Canopy Premix ----metribuzin ----chlorimuron	7.62 E 75 DF 64.3 10.7		0.95 lb ai/a 0.188 lb ai/a 0.161 0.0268	PRE	A		2.3 ab	13.3 a	97.3 ab	87.3 a
10	Dual Magnum.....s-metolachlor Scepter.....imazaquin Metribuzin.....metribuzin	7.62 E 70 DG 75 DF		0.95 lb ai/a 0.092 lb ai/a 0.188 lb ai/a	PRE	A		2.3 ab	9.7 abc	100.0 a	80.0 abc
11	Dual Magnum.....s-metolachlor Scepter.....imazaquin Metribuzin.....metribuzin	7.62 E 70 DG 75 DF		0.95 lb ai/a 0.123 lb ai/a 0.188 lb ai/a	PRE	A		1.7 b	11.3 ab	100.0 a	80.0 abc
12	Metribuzin.....metribuzin Valor SX.....flumioxazin Classic.....chlorimuron	75 DF 51 WG 25 WG		0.188 lb ai/a 0.064 lb ai/a 0.0234 lb ai/a	PRE	A		0.0 b	12.3 ab	97.3 ab	81.3 ab
LSD P=.05								3.97	5.93	7.52	10.18
Standard Deviation								2.34	3.50	4.44	5.99
CV								105.51	40.92	4.96	8.33
Replicate F								0.217	1.430	0.926	0.720
Replicate Prob(F)								0.8064	0.2606	0.4110	0.4984
Treatment F								2.793	4.423	122.135	45.255
Treatment Prob(F)								0.0194	0.0015	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4



Pest Code						DIGSA				
Pest Name						L.crbgrs				
Crop Type, Code						C -	C GLXMA	C GLXMA		
Crop Name							Soybean	Soybean		
Rating Type						Control	Stunting	Yield		
Rating Unit						%	%	Bu/A		
Rating Date						07/04/16	07/14/16	10/27/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 d	0.0 e	56.0 a
2	Scepter.....imazaquin	70	DG	0.123	lb ai/a	PRE	A	68.3 c	2.3 e	55.2 a
3	Boundary Premix ----s-metolachlor ----metribuzin	6.5 5.25 1.25	EC	1.22 0.99 0.235	lb ai/a	PRE	A	83.3 ab	2.3 e	55.0 a
4	Dual Magnum.....s-metolachlor Scepter.....imazaquin	7.62 70	E DG	0.95 0.092	lb ai/a	PRE	A A	81.0 ab	0.0 e	55.0 a
5	Dual Magnum.....s-metolachlor Scepter.....imazaquin	7.62 70	E DG	0.95 0.123	lb ai/a	PRE	A A	83.7 ab	7.0 d	54.9 a
6	Canopy Premix ----metribuzin ----chlorimuron	75 64.3 10.7	DF	0.188 0.161 0.0268	lb ai/a	PRE	A	78.3 b	14.0 ab	51.6 a
7	Metribuzin.....metribuzin Scepter.....imazaquin	75 70	DF DG	0.188 0.092	lb ai/a	PRE	A A	79.7 b	0.0 e	53.4 a
8	Metribuzin.....metribuzin Scepter.....imazaquin	75 70	DF DG	0.188 0.123	lb ai/a	PRE	A A	83.3 ab	7.0 d	53.5 a
9	Dual Magnum.....s-metolachlor Canopy Premix ----metribuzin ----chlorimuron	7.62 75 64.3 10.7	E DF	0.95 0.188 0.161 0.0268	lb ai/a	PRE	A A	86.7 a	15.7 a	53.6 a
10	Dual Magnum.....s-metolachlor Scepter.....imazaquin Metribuzin.....metribuzin	7.62 70 75	E DG DF	0.95 0.092 0.188	lb ai/a	PRE	A A A	87.0 a	1.7 e	54.9 a
11	Dual Magnum.....s-metolachlor Scepter.....imazaquin Metribuzin.....metribuzin	7.62 70 75	E DG DF	0.95 0.123 0.188	lb ai/a	PRE	A A A	80.0 b	9.7 cd	53.3 a
12	Metribuzin.....metribuzin Valor SX.....flumioxazin Classic.....chlorimuron	75 51 25	DF WG	0.188 0.064 0.0234	lb ai/a	PRE	A A A	83.3 ab	11.7 bc	49.7 a
LSD P=.05						6.50	3.69	4.41		
Standard Deviation						3.84	2.18	2.60		
CV						5.15	36.68	4.83		
Replicate F						9.591	1.618	75.717		
Replicate Prob(F)						0.0010	0.2210	0.0001		
Treatment F						116.960	20.569	1.384		
Treatment Prob(F)						0.0001	0.0001	0.2479		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4

PRE and POST Programs in RR Soybeans  
 Trial ID: Soy2-16 Location: Field #14 Trial Year: 2016  
 Protocol ID: Soy2-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Dow, Syngenta

**General Trial Information**

Investigator: Mark VanGessel Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjbv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C GLXMA Glycine max Soybean BBCH Scale: BSOY  
 Variety: S43RY95  
 Attributes: Roundup Ready  
 Planting Date: 06/01/16 Planting Rate: 180000 S/A  
 Depth: 1 in  
 Row Spacing: 15 in Planting Method: PLANTD planted  
 Planting Equipment: FE Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 81 F Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/07/16  
 Harvest Date: 11/03/16 Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 Harvested Length: 25 FT  
 % Standard Moisture: 13.0

**Pest Description**

Pest 1 Type: W Code: AMAPA Amaranthus palmeri  
 Common Name: Palmer amaranth

Pest 2 Type: W Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

Pest 3 Type: W Code: SOLCA Solanum carolinense  
 Common Name: Horsenettle

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 14 Tillage Type: NOTILL no-till  
 Replications: 3 Study Design: RACOB L Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Early Preplant burndown application of Roundup PowerMax 1 qt/A + 2,4-D ester 1 pt/A applied to study area on 4-18-16 to kill existing vegetation. Total PRE application of Liberty 1 qt/A + UAN on 6-3-16.

**Soil Description**

% Sand: 79 % OM: 0.9 Texture: SL sandy loam  
 % Silt: 10 pH: 6.1  
 % Clay: 11 CEC: 4.7 Fert. Level: G good  
 Soil Drainage: F fair

<b>Application Description</b>		
	A	B
Application Date	06/02/16	07/06/16
Appl. Stop Time	12:30 PM	10:00 AM
Interval to Prev. Appl.		34 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	4-6"wds
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	67 F	84 F
% Relative Humidity Start, Stop	93	71
Wind Velocity+Dir. Start	2 mph NE	1 mph SE
Wet Leaves (Y/N)	Y yes	Y yes
Soil Temperature	67 F	83 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	100	50

<b>Crop Stage At Each Application</b>		
	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC
Stage Majority, Percent		5-trifol 100
Height Average		10 in
Height Minimum, Maximum		9 11

<b>Pest Stage At Each Application</b>		
	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent		veg 100
Height Average		12 in
Height Minimum, Maximum		6 16
Density Average		6 m2
Pest 2 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		run 80
Stage Minimum, Percent		veg 20
Stage Maximum, Percent		run 80
Height Average		9 in
Height Minimum, Maximum		6 12
Density Average		2 m2
Pest 3 Code, Type, Scale	SOLCA W	SOLCA W
Stage Majority, Percent		EaFlwr 70
Stage Minimum, Percent		veg 20
Stage Maximum, Percent		Flowr 10
Height Average		8 in
Height Minimum, Maximum		5 12
Density Average		4 m2

<b>Application Equipment</b>		
	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	32 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

Trial Comments

PRE and POST Programs in RR Soybeans									
Trial ID: Soy2-16		Location: Field #14		Trial Year: 2016					
Protocol ID: Soy2-16		Investigator: Mark VanGessel			Study Director:				
		Sponsor Contact: Dow, Syngenta							
Pest Code	Pest Name						AMAPA PalmerAm	IPOSS Mornglry	
Crop Type, Code							C -	C -	
Crop Name							Soybean		
Rating Type							Stunting	Control	
Rating Unit							%	%	
Rating Date							07/05/16	07/05/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 a	
2	Sonic Premix	70 DF		0.131 lb ai/a		PRE	A	0.0 a	
	----sulfentrazone	62.1		0.116					
	----cloransulam	7.9		0.0148					
	Durango DMA.....glyphosate	4 SL		0.75 lb ae/a		4-6"wds B			
	Dry Ammonium Sulfate	100 D		1.02 % w/v		4-6"wds B			
3	Sonic Premix	70 DF		0.197 lb ai/a		PRE	A	3.3 a	
	----sulfentrazone	62.1		0.175					
	----cloransulam	7.9		0.0222					
	Durango DMA.....glyphosate	4 SL		0.75 lb ae/a		4-6"wds B			
	Dry Ammonium Sulfate	100 D		1.02 % w/v		4-6"wds B			
4	Sonic Premix	70 DF		0.263 lb ai/a		PRE	A	1.7 a	
	----sulfentrazone	62.1		0.233					
	----cloransulam	7.9		0.0297					
	Durango DMA.....glyphosate	4 SL		0.75 lb ae/a		4-6"wds B			
	Dry Ammonium Sulfate	100 D		1.02 % w/v		4-6"wds B			
5	Sonic Premix	70 DF		0.131 lb ai/a		PRE	A	0.0 a	
	----sulfentrazone	62.1		0.116					
	----cloransulam	7.9		0.0148					
	Firstrate.....cloransulam	84 WG		0.0158 lb ai/a		4-6"wds B			
	Durango DMA.....glyphosate	4 SL		0.75 lb ae/a		4-6"wds B			
	Dry Ammonium Sulfate	100 D		1.02 % w/v		4-6"wds B			
6	Surveil Premix	48 WG		0.084 lb ai/a		PRE	A	1.7 a	
	----cloransulam	12		0.021					
	----flumioxazin	36		0.063					
	Durango DMA.....glyphosate	4 SL		0.75 lb ae/a		4-6"wds B			
	Dry Ammonium Sulfate	100 D		1.02 % w/v		4-6"wds B			
7	Surveil Premix	48 WG		0.126 lb ai/a		PRE	A	2.3 a	
	----cloransulam	12		0.0315					
	----flumioxazin	36		0.0945					
	Durango DMA.....glyphosate	4 SL		0.75 lb ae/a		4-6"wds B			
	Dry Ammonium Sulfate	100 D		1.02 % w/v		4-6"wds B			
8	Trivence Premix	61.3 WG		0.23 lb ai/a		PRE	A	3.3 a	
	----chlorimuron	3.9		0.0146					
	----metribuzin	44.6		0.167					
	----flumioxazin	12.8		0.048					
	Durango DMA.....glyphosate	4 SL		0.75 lb ae/a		4-6"wds B			
	Dry Ammonium Sulfate	100 D		1.02 % w/v		4-6"wds B			
9	BroadAxe Premix	7 SC		1.37 lb ai/a		PRE	A	1.7 a	
	----sulfentrazone	0.7		0.137					
	----s-metolachlor	6.3		1.23					
	Flexstar GT Premix	3.3 L		1.44 lb ai/a		4-6"wds B			
	----fomesafen	0.66		0.288					
	----glyphosate	2.64		1.15					
	Dry Ammonium Sulfate	100 D		1.02 % w/v		4-6"wds B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						AMAPA PalmerAm	IPOSS Morngrly			
Crop Type, Code						C GLXMA	C -	C -		
Crop Name						Soybean	Control	Control		
Rating Type						Injury	%	%		
Rating Unit						%	%	%		
Rating Date						07/12/16	07/12/16	07/12/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 f	0.0 b	0.0 c
2	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A	4.3 e	90.0 a	100.0 a
	----sulfentrazone	62.1		0.116						
	----cloransulam	7.9		0.0148						
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
3	Sonic Premix	70	DF	0.197	lb ai/a	PRE	A	4.3 e	94.0 a	93.3 b
	----sulfentrazone	62.1		0.175						
	----cloransulam	7.9		0.0222						
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
4	Sonic Premix	70	DF	0.263	lb ai/a	PRE	A	5.0 de	99.0 a	100.0 a
	----sulfentrazone	62.1		0.233						
	----cloransulam	7.9		0.0297						
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
5	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A	5.0 de	98.0 a	96.7 ab
	----sulfentrazone	62.1		0.116						
	----cloransulam	7.9		0.0148						
	Firstrate.....cloransulam	84	WG	0.0158	lb ai/a	4-6"wds	B			
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
6	Surveil Premix	48	WG	0.084	lb ai/a	PRE	A	4.3 e	100.0 a	96.7 ab
	----cloransulam	12		0.021						
	----flumioxazin	36		0.063						
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
7	Surveil Premix	48	WG	0.126	lb ai/a	PRE	A	4.0 e	100.0 a	95.7 ab
	----cloransulam	12		0.0315						
	----flumioxazin	36		0.0945						
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
8	Trivence Premix	61.3	WG	0.23	lb ai/a	PRE	A	7.3 cd	98.3 a	96.7 ab
	----chlorimuron	3.9		0.0146						
	----metribuzin	44.6		0.167						
	----flumioxazin	12.8		0.048						
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
9	BroadAxe Premix	7	SC	1.37	lb ai/a	PRE	A	7.7 bcd	99.0 a	100.0 a
	----sulfentrazone	0.7		0.137						
	----s-metolachlor	6.3		1.23						
	Flexstar GT Premix	3.3	L	1.44	lb ai/a	4-6"wds	B			
	----fomesafen	0.66		0.288						
	----glyphosate	2.64		1.15						
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code								
Pest Name								
Crop Type, Code						C	GLXMA	
Crop Name							Soybean	
Rating Type							Yield	
Rating Unit							Bu/A	
Rating Date							11/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							59.1 a
2	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A	72.1 a
	----sulfentrazone	62.1		0.116				
	----cloransulam	7.9		0.0148				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
3	Sonic Premix	70	DF	0.197	lb ai/a	PRE	A	69.1 a
	----sulfentrazone	62.1		0.175				
	----cloransulam	7.9		0.0222				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
4	Sonic Premix	70	DF	0.263	lb ai/a	PRE	A	80.3 a
	----sulfentrazone	62.1		0.233				
	----cloransulam	7.9		0.0297				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
5	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A	73.5 a
	----sulfentrazone	62.1		0.116				
	----cloransulam	7.9		0.0148				
	Firstate.....cloransulam	84	WG	0.0158	lb ai/a	4-6"wds	B	
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
6	Surveil Premix	48	WG	0.084	lb ai/a	PRE	A	72.7 a
	----cloransulam	12		0.021				
	----flumioxazin	36		0.063				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
7	Surveil Premix	48	WG	0.126	lb ai/a	PRE	A	70.0 a
	----cloransulam	12		0.0315				
	----flumioxazin	36		0.0945				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
8	Trivence Premix	61.3	WG	0.23	lb ai/a	PRE	A	67.1 a
	----chlorimuron	3.9		0.0146				
	----metribuzin	44.6		0.167				
	----flumioxazin	12.8		0.048				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	4-6"wds	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
9	BroadAxe Premix	7	SC	1.37	lb ai/a	PRE	A	74.2 a
	----sulfentrazone	0.7		0.137				
	----s-metolachlor	6.3		1.23				
	Flexstar GT Premix	3.3	L	1.44	lb ai/a	4-6"wds	B	
	----fomesafen	0.66		0.288				
	----glyphosate	2.64		1.15				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name							AMAPA PalmerAm	IPOSS Morngrly	
Crop Type, Code	C GLXMA						C -	C -	
Crop Name	Soybean						Control	Control	
Rating Type	Stunting						%	%	
Rating Unit							%	%	
Rating Date	07/05/16						07/05/16	07/05/16	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code			
10 BroadAxe Premix	7	SC	1.37	lb ai/a	PRE	A	0.0 a	85.3 ab	92.7 abc
----sulfentrazone	0.7		0.137						
----s-metolachlor	6.3		1.23						
Metribuzin.....metribuzin	75	DF	0.234	lb ai/a	PRE	A			
Flexstar GT Premix	3.3	L	1.44	lb ai/a	4-6"wds	B			
----fomesafen	0.66		0.288						
----glyphosate	2.64		1.15						
Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
11 Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	1.7 a	78.3 ab	83.3 b-e
----s-metolachlor	5.25		0.99						
----metribuzin	1.25		0.235						
Flexstar GT Premix	3.3	L	1.44	lb ai/a	4-6"wds	B			
----fomesafen	0.66		0.288						
----glyphosate	2.64		1.15						
Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
12 Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	0.0 a	93.3 a	80.0 de
----s-metolachlor	5.25		0.99						
----metribuzin	1.25		0.235						
Sequence Premix	5.25	EW	1.97	lb ai/a	4-6"wds	B			
----glyphosate	2.25		0.844						
----s-metolachlor	3		1.13						
Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
13 Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	3.3 a	84.7 ab	73.7 e
----s-metolachlor	5.25		0.99						
----metribuzin	1.25		0.235						
Prefix Premix	5.3	E	1.33	lb ai/a	4-6"wds	B			
----s-metolachlor	4.35		1.09						
----fomesafen	0.95		0.238						
Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4-6"wds	B			
Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
14 Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	1.7 a	85.7 ab	81.7 cde
----s-metolachlor	4.35		1.09						
----fomesafen	0.95		0.238						
Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4-6"wds	B			
Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
LSD P=.05							5.22	33.73	12.02
Standard Deviation							3.11	20.10	7.16
CV							210.76	26.52	8.66
Replicate F							1.154	0.305	0.705
Replicate Prob(F)							0.3311	0.7399	0.5033
Treatment F							0.528	4.402	36.321
Treatment Prob(F)							0.8857	0.0006	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code							AMAPA	IPOSS		
Pest Name							PalmerAm	Mornglry		
Crop Type, Code	C GLXMA						C -	C -		
Crop Name	Soybean						Control	Control		
Rating Type	Injury						%	%		
Rating Unit							%	%		
Rating Date	07/12/16						07/12/16	07/12/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
10	BroadAxe Premix	7	SC	1.37	lb ai/a	PRE	A	9.3 bc	95.0 a	100.0 a
	----sulfentrazone	0.7		0.137						
	----s-metolachlor	6.3		1.23						
	Metribuzin.....metribuzin	75	DF	0.234	lb ai/a	PRE	A			
	Flexstar GT Premix	3.3	L	1.44	lb ai/a	4-6"wds	B			
	----fomesafen	0.66		0.288						
	----glyphosate	2.64		1.15						
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
11	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	10.3 b	95.0 a	100.0 a
	----s-metolachlor	5.25		0.99						
	----metribuzin	1.25		0.235						
	Flexstar GT Premix	3.3	L	1.44	lb ai/a	4-6"wds	B			
	----fomesafen	0.66		0.288						
	----glyphosate	2.64		1.15						
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
12	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	10.3 b	100.0 a	97.3 ab
	----s-metolachlor	5.25		0.99						
	----metribuzin	1.25		0.235						
	Sequence Premix	5.25	EW	1.97	lb ai/a	4-6"wds	B			
	----glyphosate	2.25		0.844						
	----s-metolachlor	3		1.13						
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
13	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	14.0 a	99.0 a	100.0 a
	----s-metolachlor	5.25		0.99						
	----metribuzin	1.25		0.235						
	Prefix Premix	5.3	E	1.33	lb ai/a	4-6"wds	B			
	----s-metolachlor	4.35		1.09						
	----fomesafen	0.95		0.238						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4-6"wds	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
14	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	6.3 de	100.0 a	96.7 ab
	----s-metolachlor	4.35		1.09						
	----fomesafen	0.95		0.238						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4-6"wds	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B			
LSD P=.05							2.81	10.71	6.54	
Standard Deviation							1.67	6.38	3.90	
CV							25.37	7.05	4.28	
Replicate F							1.284	0.101	0.132	
Replicate Prob(F)							0.2940	0.9047	0.8771	
Treatment F							13.408	50.669	136.257	
Treatment Prob(F)							0.0001	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code								
Pest Name								
Crop Type, Code						C	GLXMA	
Crop Name							Soybean	
Rating Type							Yield	
Rating Unit							Bu/A	
Rating Date							11/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	
10	BroadAxe Premix	7	SC	1.37	lb ai/a	PRE	A	70.5 a
	----sulfentrazone	0.7		0.137				
	----s-metolachlor	6.3		1.23				
	Metribuzin.....metribuzin	75	DF	0.234	lb ai/a	PRE	A	
	Flexstar GT Premix	3.3	L	1.44	lb ai/a	4-6"wds	B	
	----fomesafen	0.66		0.288				
	----glyphosate	2.64		1.15				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
11	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	73.1 a
	----s-metolachlor	5.25		0.99				
	----metribuzin	1.25		0.235				
	Flexstar GT Premix	3.3	L	1.44	lb ai/a	4-6"wds	B	
	----fomesafen	0.66		0.288				
	----glyphosate	2.64		1.15				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
12	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	73.9 a
	----s-metolachlor	5.25		0.99				
	----metribuzin	1.25		0.235				
	Sequence Premix	5.25	EW	1.97	lb ai/a	4-6"wds	B	
	----glyphosate	2.25		0.844				
	----s-metolachlor	3		1.13				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
13	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	67.7 a
	----s-metolachlor	5.25		0.99				
	----metribuzin	1.25		0.235				
	Prefix Premix	5.3	E	1.33	lb ai/a	4-6"wds	B	
	----s-metolachlor	4.35		1.09				
	----fomesafen	0.95		0.238				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4-6"wds	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
14	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	77.6 a
	----s-metolachlor	4.35		1.09				
	----fomesafen	0.95		0.238				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4-6"wds	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	4-6"wds	B	
	LSD P=.05							11.83
	Standard Deviation							7.05
	CV							9.86
	Replicate F							6.006
	Replicate Prob(F)							0.0072
	Treatment F							1.546
	Treatment Prob(F)							0.1667

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Herbicide Programs for Bolt Technology in Soybean  
 Trial ID: Soy3-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Soy3-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: P38t61br  
 Attributes: Bolt  
 Planting Date: 06/06/16      Planting Rate: 180000    S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD    planted  
    Planting Equipment: FE      Field Equipment  
    Seed Bed: SMOOTH      smooth  
 Soil Temperature: 86 F      Soil Moisture: NORMAL    normal, adequate  
 Emergence Date: 06/12/16  
 Harvest Date: 10/27/16      Harvest Equipment: Plot combine  
    Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25    FT

**Pest Description**

Pest 1 Type: W    Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

Pest 2 Type: W    Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 10    Tillage Type: CONTIL    conventional-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)

**Soil Description**

% Sand: 81    % OM: 1.4    Texture: LS loamy sand  
 % Silt: 12    pH: 6.7  
 % Clay: 7    CEC: 4.9    Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B
Application Date	06/08/16	07/06/16
Appl. Stop Time	09:45 AM	09:30 AM
Interval to Prev. Appl.		28 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	2-4"wds
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	71 F	84 F
% Relative Humidity Start, Stop	49	71
Wind Velocity+Dir. Start	4 mph W	1 mph SE
Wet Leaves (Y/N)	N no	Y yes
Soil Temperature	71 F	83 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	50	55

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC
Stage Majority, Percent		4-trifol 70
Stage Minimum, Percent		3-trifol 30
Stage Maximum, Percent		4-trifol 70
Height Average		6 in
Height Minimum, Maximum		5 6

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		run 80
Stage Minimum, Percent		veg 20
Stage Maximum, Percent		run 80
Height Average		5 in
Height Minimum, Maximum		4 10
Density Average		5 m2
Pest 2 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent		1-tilr 60
Stage Minimum, Percent		4-leaf 20
Stage Maximum, Percent		2-tilr 20
Height Average		5 in
Height Minimum, Maximum		3 7
Density Average		10 m2

<b>Application Equipment</b>		
	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	23 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

#### Trial Comments

06/22/16 Soybeans are at unifoliate stage.

07/12/16: Ratings are based on weeds present at time of application. If newly emerged morningglory seedlings were present, not rated. Treatments 2, 6, 7, and 8 had no morningglory seedlings observed. Large crabgrass and Palmer amaranth are in untreated checks, but all treated plots were 100% control of these species. Soybeans were injured from dicamba contaminated spray tank, but also significant leaf burn was observed from Synchrony + Reflex + Roundup.

07/24/16: Stunting is difficult to rate due to dicamba injury; treatment 5 in particular was variable across reps. Ratings are based on weeds present at time of application. Only treatment 2 had seedling morningglory plants in all reps.

Herbicide Programs for Bolt Technology in Soybean  
 Trial ID: Soy3-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Soy3-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

Pest Code									AMAPA	
Pest Name									PalmerAm	
Crop Type, Code							C GLXMA	C GLXMA	C -	
Crop Name							Soybean	Soybean		
Rating Type							Stunting	Stunting	Control	
Rating Unit							%	%	%	
Rating Date							06/22/16	07/03/16	07/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	1.7 a	3.3 b	96.0 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
2	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	4.0 a	2.3 b	96.7 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
3	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	2.3 a	10.7 a	100.0 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A			
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=5,6,8  
 Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Pest Code Pest Name							IPOSS Morngrly	DIGSA L.crbgrs		
Crop Type, Code							C -	C -	C GLXMA	
Crop Name							Control	Control	Soybean	
Rating Type							%	%	Stunting	
Rating Unit									%	
Rating Date							07/03/16	07/03/16	07/12/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	74.3 c	83.3 ab	5.3 cd
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
2	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	73.3 c	81.2 b	9.0 bc
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
3	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	90.7 a	88.7 a	13.7 ab
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A			
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8

Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Pest Code Pest Name							IPOSS Morngrly		AMAPA PalmerAm	
Crop Type, Code							C - C	GLXMA	C -	
Crop Name							Control	Soybean	Control	
Rating Type							%	Stunting	%	
Rating Unit							07/12/16	07/24/16	07/24/16	
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	93.0 d	0.0 c	100.0 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
2	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	95.0 cd	2.3 c	100.0 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
3	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	99.7 a	13.0 a	100.0 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A			
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=5,6,8

Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.



Pest Code Pest Name Crop Type, Code							IPOSS Mornngly C -	DIGSA L.crbgrs C -	C	GLXMA
Crop Name Rating Type Rating Unit Rating Date							Control %	Control %	Soybean Yield Bu/A	
Trt Treatment No. Name							07/24/16	07/24/16	10/27/16	
	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1 Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	95.3 a	100.0 a	53.8 a	
----rimsulfuron	20		0.0156							
----thifensulfuron	10		0.0078							
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B				
Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B				
Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B				
----chlorimuron	21.5		0.0148							
----thifensulfuron	6.9		0.00474							
Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B				
2 Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	99.0 a	100.0 a	57.2 a	
----rimsulfuron	20		0.0156							
----thifensulfuron	10		0.0078							
Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A				
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B				
Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B				
Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B				
----chlorimuron	21.5		0.0148							
----thifensulfuron	6.9		0.00474							
Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B				
3 Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	100.0 a	100.0 a	75.9 a	
----rimsulfuron	20		0.0156							
----thifensulfuron	10		0.0078							
Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A				
----chlorimuron	9.199999		0.02							
----flumioxazin	29.2		.0636							
----thifensulfuron	2.9		0.0063							
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B				
Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B				
Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B				
----chlorimuron	21.5		0.0148							
----thifensulfuron	6.9		0.00474							
Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=5,6,8

Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Pest Code Pest Name							C GLXMA	C GLXMA	AMAPA PalmerAm	
Crop Type, Code									C -	
Crop Name							Soybean	Soybean		
Rating Type							Stunting	Stunting	Control	
Rating Unit							%	%	%	
Rating Date							06/22/16	07/03/16	07/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
4	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	4.0 a	11.3 a	96.7 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Canopy Blend Premix	58.3	DF	0.255	lb ai/a	PRE	A			
	----metribuzin	50		0.219						
	----chlorimuron	8.3		0.0363						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
5	Diligent Premix	37.9	WG	0.095	lb ai/a	PRE	A	2.3 a	10.3 a	100.0 a
	----flumioxazin	25.28		0.0634						
	----rimsulfuron	6.31		0.0158						
	----chlorimuron	6.31		0.0158						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
6	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	4.7 a	11.3 a	100.0 a
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
7	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	2.3 a	0.0 b	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
8	Trivence Premix	61.3	WG	0.257	lb ai/a	PRE	A	1.7 a	8.7 a	96.0 a
	----chlorimuron	3.9		0.0164						
	----metribuzin	44.6		0.187						
	----flumioxazin	12.8		0.0537						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
9	Untreated Check							0.0 a	0.0 b	0.0 b

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8

Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Pest Code Pest Name							IPOSS Morngrly	DIGSA L.crbgrs					
Crop Type, Code							C -	C -	C	GLXMA			
Crop Name							Control	Control	Soybean				
Rating Type							%	%	Stunting				
Rating Unit									%				
Rating Date							07/03/16	07/03/16	07/12/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code						
4	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	90.0	ab	87.7	a	17.0	a
	----rimsulfuron	20		0.0156									
	----thifensulfuron	10		0.0078									
	Canopy Blend Premix	58.3	DF	0.255	lb ai/a	PRE	A						
	----metribuzin	50		0.219									
	----chlorimuron	8.3		0.0363									
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B						
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B						
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B						
	----chlorimuron	21.5		0.0148									
	----thifensulfuron	6.9		0.00474									
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B						
5	Diligent Premix	37.9	WG	0.095	lb ai/a	PRE	A	82.0	abc	86.0	ab	12.3	abc
	----flumioxazin	25.28		0.0634									
	----rimsulfuron	6.31		0.0158									
	----chlorimuron	6.31		0.0158									
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B						
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B						
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B						
	----chlorimuron	21.5		0.0148									
	----thifensulfuron	6.9		0.00474									
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B						
6	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	87.7	ab	81.0	b	13.7	ab
	----chlorimuron	9.199999		0.02									
	----flumioxazin	29.2		.0636									
	----thifensulfuron	2.9		0.0063									
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B						
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B						
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B						
	----chlorimuron	21.5		0.0148									
	----thifensulfuron	6.9		0.00474									
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B						
7	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	75.0	c	71.7	c	16.7	a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B						
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B						
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B						
	----chlorimuron	21.5		0.0148									
	----thifensulfuron	6.9		0.00474									
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B						
8	Trivence Premix	61.3	WG	0.257	lb ai/a	PRE	A	84.3	abc	81.7	b	15.7	ab
	----chlorimuron	3.9		0.0164									
	----metribuzin	44.6		0.187									
	----flumioxazin	12.8		0.0537									
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B						
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B						
9	Untreated Check							0.0	d	0.0	d	0.0	d

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8

Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Pest Code Pest Name							IPOSS Morngrly		AMAPA PalmerAm	
Crop Type, Code							C - C	GLXMA	C -	
Crop Name							Control	Soybean	Control	
Rating Type							%	Stunting	%	
Rating Unit							07/12/16	07/24/16	07/24/16	
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
4	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	99.7 a	11.7 a	100.0 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Canopy Blend Premix	58.3	DF	0.255	lb ai/a	PRE	A			
	----metribuzin	50		0.219						
	----chlorimuron	8.3		0.0363						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
5	Diligent Premix	37.9	WG	0.095	lb ai/a	PRE	A	99.7 a	10.0 ab	100.0 a
	----flumioxazin	25.28		0.0634						
	----rimsulfuron	6.31		0.0158						
	----chlorimuron	6.31		0.0158						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
6	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	95.7 bcd	4.7 bc	100.0 a
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
7	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	96.7 a-d	0.2 c	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
8	Trivence Premix	61.3	WG	0.257	lb ai/a	PRE	A	99.3 ab	3.7 c	100.0 a
	----chlorimuron	3.9		0.0164						
	----metribuzin	44.6		0.187						
	----flumioxazin	12.8		0.0537						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
9	Untreated Check							0.0 e	0.0 c	0.0 b

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8

Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Pest Code Pest Name Crop Type, Code  Crop Name Rating Type Rating Unit Rating Date							IPOSS Mornnglry C -	DIGSA L.crbgrs C -	C GLXMA  Soybean Yield Bu/A 10/27/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code			
4	Basis Blend Premix	30	SG	0.0234	lb ai/a	PRE	A	100.0 a	100.0 a	53.3 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Canopy Blend Premix	58.3	DF	0.255	lb ai/a	PRE	A			
	----metribuzin	50		0.219						
	----chlorimuron	8.3		0.0363						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
5	Diligent Premix	37.9	WG	0.095	lb ai/a	PRE	A	99.0 a	100.0 a	51.5 a
	----flumioxazin	25.28		0.0634						
	----rimsulfuron	6.31		0.0158						
	----chlorimuron	6.31		0.0158						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
6	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	97.3 a	100.0 a	56.5 a
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
7	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	96.7 a	100.0 a	58.1 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
8	Trivence Premix	61.3	WG	0.257	lb ai/a	PRE	A	95.7 a	100.0 a	35.1 a
	----chlorimuron	3.9		0.0164						
	----metribuzin	44.6		0.187						
	----flumioxazin	12.8		0.0537						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
9	Untreated Check							0.0 b	0.0 b	28.9 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=5,6,8

Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Pest Code Pest Name									AMAPA PalmerAm	
Crop Type, Code							C GLXMA	C GLXMA	C -	
Crop Name							Soybean	Soybean	Control	
Rating Type							Stunting	Stunting	Control	
Rating Unit							%	%	%	
Rating Date							06/22/16	07/03/16	07/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
10	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	3.3 a	9.0 a	100.0 a
	----rimsulfuron	20		0.0313						
	----thifensulfuron	10		0.0157						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
	LSD P=.05							6.11	4.80	6.92
	Standard Deviation							3.56	2.80	4.04
	CV							135.33	41.75	4.56
	Replicate F							0.160	2.926	0.991
	Replicate Prob(F)							0.8533	0.0794	0.3906
	Treatment F							0.458	8.570	178.923
	Treatment Prob(F)							0.8842	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=5,6,8

Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Pest Code							IPOSS	DIGSA	
Pest Name							Morninglry	L.crbgrs	
Crop Type, Code							C -	C -	C GLXMA
Crop Name							Control	Control	Soybean
Rating Type							%	%	Stunting
Rating Unit									%
Rating Date							07/03/16	07/03/16	07/12/16
Trt No.	Treatment Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing	Appl Code			
	10 Basis Blend Premix	30 SG	0.047	lb ai/a	PRE	A	77.7 bc	85.3 ab	16.3 a
	----rimsulfuron	20	0.0313						
	----thifensulfuron	10	0.0157						
	Roundup PowerMax..glyphosate	4.5 AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2 L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4 DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5	0.0148						
	----thifensulfuron	6.9	0.00474						
	Dry Ammonium Sulfate	100 D	2.04	% w/v	2-4"wds	B			
	LSD P=.05						12.38	5.61	7.14
	Standard Deviation						7.22	3.26	4.15
	CV						9.82	4.36	34.65
	Replicate F						0.889	4.623	2.811
	Replicate Prob(F)						0.4283	0.0249	0.0882
	Treatment F						40.835	200.859	5.476
	Treatment Prob(F)						0.0001	0.0001	0.0013

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=5,6,8  
Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Pest Code Pest Name							IPOSS Mornglry		AMAPA PalmerAm	
Crop Type, Code							C - C	GLXMA	C -	
Crop Name							Control	Soybean	Control	
Rating Type							%	Stunting	%	
Rating Unit							07/12/16	07/24/16	07/24/16	
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
10	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	98.3 abc	0.1 c	100.0 a
	----rimsulfuron	20		0.0313						
	----thifensulfuron	10		0.0157						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B			
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B			
	----chlorimuron	21.5		0.0148						
	----thifensulfuron	6.9		0.00474						
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B			
	LSD P=.05							3.95	5.91	.
	Standard Deviation							2.30	3.38	0.00
	CV							2.62	74.09	0.0
	Replicate F							2.211	0.141	0.000
	Replicate Prob(F)							0.1385	0.8701	1.0000
	Treatment F							541.294	6.958	0.000
	Treatment Prob(F)							0.0001	0.0008	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=5,6,8

Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.



Pest Code							IPOSS	DIGSA	
Pest Name							Mornglry	L.crbgrs	
Crop Type, Code							C -	C -	C GLXMA
Crop Name									Soybean
Rating Type							Control	Control	Yield
Rating Unit							%	%	Bu/A
Rating Date							07/24/16	07/24/16	10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
	10 Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	99.7 a	100.0 a
	----rimsulfuron	20		0.0313					
	----thifensulfuron	10		0.0157					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B		
	Reflex.....fomesafen	2	L	0.313	lb ai/a	2-4"wds	B		
	Synchrony XP Premix	28.4	DG	0.0195	lb ai/a	2-4"wds	B		
	----chlorimuron	21.5		0.0148					
	----thifensulfuron	6.9		0.00474					
	Dry Ammonium Sulfate	100	D	2.04	% w/v	2-4"wds	B		
	LSD P=.05							6.20	. 29.25
	Standard Deviation							3.62	0.00 17.05
	CV							4.1	0.0 32.52
	Replicate F							0.071	0.000 1.586
	Replicate Prob(F)							0.9314	1.0000 0.2321
	Treatment F							221.284	0.000 1.699
	Treatment Prob(F)							0.0001	1.0000 0.1618

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=5,6,8  
Could not calculate LSD (% mean diff) for columns 9,11 because error mean square = 0.

Control of Horseweed for NT Soybeans  
 Trial ID: Soy4-16      Location: Field #32      Trial Year: 2016  
 Protocol ID: Soy4-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**

Investigator: Mark VanGessel    Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C GLXMA Glycine max      Soybean      BBCH Scale: BSOY  
 Variety: S43RY95  
 Attributes: Roundup Ready  
 Planting Date: 05/24/16      Planting Rate: 180000    S/A  
 Depth: 1    in  
 Row Spacing: 15    in      Planting Method: PLANTD    planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 81    F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/31/16

**Pest Description**

Pest 1 Type: W    Code: ERICA Conyza canadensis  
 Common Name: Canada horseweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 9      Tillage Type: NOTILL    no-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)

Trial Initiation Comments:  
 Rye cover crop was drilled into the study area at 2 bu/A in the fall.

**Field Prep./Maintenance:**

Total POST Roundup PowerMax 1 qt/A + Ourlook 12 fl oz/A on 6-14-16. Total POST Reflex 1.5 pt/A + NIS 0.25 %v/v on 7-11-16.

**Soil Description**

% Sand: 77    % OM: 1.5      Texture: SL    sandy loam  
 % Silt: 12      pH: 6.5  
 % Clay: 11      CEC: 5.2      Fert. Level: G good  
 Soil Drainage: G    good

**Application Description**

	A	B
Application Date	05/18/16	05/24/16
Appl. Stop Time	03:00 PM	03:50 PM
Interval to Prev. Appl.		6 DAYS
Application Method	SPRAY	SPRAY
Application Timing	7 DPP	PRE
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	62 F	78 F
% Relative Humidity Start, Stop	60	37
Wind Velocity+Dir. Start	4 mph E	2 mph W
Wet Leaves (Y/N)	N no	N no
Soil Temperature	62 F	78 F
Soil Moisture	WET	NORMAL
% Cloud Cover	90	40

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	ERICA W	ERICA W
Stage Majority, Percent	bolt 100	bolt 100
Height Average	8 in	9 in
Height Minimum, Maximum	2 12	6 12
Density Average	10 m2	4 m2

**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	68 in	68 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

**Trial Comments**

05-18-16: The rye cover crop is flowering, 40-56 inches tall, 7-50/m2.  
 6-13-16: Presence of rye may have caused the lack of consistency in the results.

Control of Horseweed for NT Soybeans		
Trial ID: Soy4-16	Location: Field #32	Trial Year: 2016
Protocol ID: Soy4-16	Investigator: Mark VanGessel	
Study Director:		
Sponsor Contact:		

Pest Code	ERICA	ERICA	ERICA							
Description	C.Horswd	C.Horswd	C.Horswd							
Rating Type	Control	Control	Control							
Rating Unit	%	%	%							
Rating Date	05/24/16	06/13/16	07/07/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 e	0.0 d	0.0 c
2	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		7 DPP A		50.0 d	76.7 c	75.0 b
	Dry Ammonium Sulfate	100 D		1.2 % w/v		7 DPP A				
3	2,4-D ester	3.8 L		0.475 lb ae/a		7 DPP A		61.7 c	100.0 a	91.7 ab
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		7 DPP A				
	Dry Ammonium Sulfate	100 D		1.2 % w/v		7 DPP A				
4	2,4-D ester	3.8 L		0.95 lb ae/a		7 DPP A		65.0 abc	99.7 a	90.0 ab
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		7 DPP A				
	Dry Ammonium Sulfate	100 D		1.2 % w/v		7 DPP A				
5	Sharpen.....saflufenacil	2.85 SC		0.0223 lb ai/a		7 DPP A		74.3 a	95.0 ab	96.7 a
	Methylated Seed Oil	100 L		1 % v/v		7 DPP A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		7 DPP A				
	Dry Ammonium Sulfate	100 D		1.2 % w/v		7 DPP A				
6	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		7 DPP A		66.7 abc	100.0 a	97.3 a
	Clarity.....dicamba	4 L		0.5 lb ai/a		7 DPP A				
	Dry Ammonium Sulfate	100 D		1.2 % w/v		7 DPP A				
7	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		7 DPP A		71.7 ab	90.0 abc	90.0 ab
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a		7 DPP A				
	Dry Ammonium Sulfate	100 D		1.2 % w/v		7 DPP A				
8	2,4-D ester	3.8 L		0.475 lb ae/a		7 DPP A		63.3 bc	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		7 DPP A				
	Dry Ammonium Sulfate	100 D		1.2 % w/v		7 DPP A				
	Gramoxone SL.....paraquat	2 SL		1 lb ai/a		PRE B				
	Canopy Premix	75 DF		0.21 lb ai/a		PRE B				
	----metribuzin	64.3		0.18						
	----chlorimuron	10.7		0.03						
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a		PRE B				
	Crop Oil Concentrate	100 L		1.25 % v/v		PRE B				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		PRE B				
9	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		7 DPP A		61.4 c	84.0 bc	75.6 b
	Canopy Premix	75 DF		0.21 lb ai/a		7 DPP A				
	----metribuzin	64.3		0.18						
	----chlorimuron	10.7		0.03						
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a		7 DPP A				
	Crop Oil Concentrate	100 L		1.25 % v/v		7 DPP A				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v		7 DPP A				
LSD P=.05								9.90	14.16	17.50
Standard Deviation								5.69	8.14	9.99
CV								9.96	9.82	12.55
Replicate F								2.252	0.610	0.057
Replicate Prob(F)								0.1396	0.5562	0.9447
Treatment F								46.966	46.842	29.141
Treatment Prob(F)								0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=1,2,3

Evaluation of Residual Herbicides for Soybeans - Coarse Textured Soils  
 Trial ID: Soy5a-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Soy5a-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**General Trial Information**  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      GLXMA Glycine max      Soybean      BBCH Scale: BSOY  
 Variety: S43RY95  
 Attributes: Roundup Ready  
 Planting Date: 06/01/16      Planting Rate: 180000    S/A  
 Depth: 1    in  
  
 Row Spacing: 15    in      Planting Method: PLANTD    planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 81    F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/07/16  
 Harvest Date: 11/03/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 Harvested Length: 25    FT  
 % Standard Moisture: 13.0

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 14    Tillage Type: NOTILL    no-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)

Field Prep./Maintenance:  
 Early Preplant burndown application of Roundup PowerMax 1 qt/A + 2,4-D ester 1 pt/A applied to study area on 4-18-16 to kill existing vegetation. Total PRE burndown application of Liberty 1 qt/A + UAN on 6-3-16. Total POST application of Roundup 1qt/A + Reflex 1.5 pt/A on 7-5-16.

**Soil Description**  
 % Sand: 79    % OM: 0.9    Texture: SL    sandy loam  
 % Silt: 10      pH: 6.1  
 % Clay: 11    CEC: 4.7    Fert. Level: G good  
 Soil Drainage: F    fair

**Moisture and Weather Conditions**  
 Overall Moisture Conditions: NORMAL normal  
 Closest Weather Station: UD REC      Distance: 0.25 mi

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY

<b>Application Equipment</b>	
	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

Trial Comments

07/15/16: All plots had >95% weed control (including untreated check plots). Plot 107 has dicamba injury.

Evaluation of Residual Herbicides for Soybeans - Coarse Textured Soils									
Trial ID: Soy5a-16		Location: Field #14			Trial Year: 2016				
Protocol ID: Soy5a-16		Investigator: Mark VanGessel			Study Director:				
		Sponsor Contact:							
Pest Code	Pest Name	Crop Type, Code	C	GLXMA	C	GLXMA	AMAPA PalmerAm C -	IPOSS Mornngly C -	
Crop Name	Rating Type	Rating Unit	Rating Date	Soybean Stunting %	Soybean Stunting %	Control %	Control %		
				06/22/16	07/04/16	07/04/16	07/04/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code		
1	Untreated Check							0.0 e	0.0 e
2	Authority First Premix	70 DF		0.236 lb ai/a	PRE	A		4.0 bcd	2.3 cde
	----sulfentrazone	62.1		0.21					
	----cloransulam	7.9		0.0266					
3	Authority MTZ Premix	45 DF		0.338 lb ai/a	PRE	A		0.0 e	0.0 e
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
4	Authority XL Premix	70 DG		0.232 lb ai/a	PRE	A		2.3 de	0.0 e
	----sulfentrazone	62.2		0.206					
	----chlorimuron	7.8		0.0259					
5	Canopy Premix	75 DF		0.188 lb ai/a	PRE	A		1.7 de	0.0 e
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
6	Fierce Premix	76 WG		0.178 lb ai/a	PRE	A		7.0 ab	4.7 bcd
	----flumioxazin	33.5		0.0785					
	----pyroxasulfone	42.5		0.1					
7	Prefix Premix	5.3 E		1.33 lb ai/a	PRE	A		0.0 e	0.0 e
	----s-metolachlor	4.35		1.09					
	----fomesafen	0.95		0.238					
8	Valor SX.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A		3.3 cd	4.7 bcd
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	A			
9	Valor XLT Premix	40.3 WG		0.088 lb ai/a	PRE	A		6.3 bc	6.3 abc
	----flumioxazin	30		0.0655					
	----chlorimuron	10.3		0.0225					
10	Trivence Premix	61.3 WG		0.257 lb ai/a	PRE	A		4.0 bcd	7.0 ab
	----chlorimuron	3.9		0.0164					
	----metribuzin	44.6		0.187					
	----flumioxazin	12.8		0.0537					
11	Fierce XLT Premix	62.4 WG		0.146 lb ai/a	PRE	A		10.0 a	9.7 a
	----flumioxazin	24.57		0.0575					
	----pyroxasulfone	31.16		0.073					
	----chlorimuron	6.67		0.0156					
12	---Gangster/Surveil Co-Pack							0.0 e	0.0 e
	_Valor SX.....flumioxazin	51 WG		0.08 lb ai/a	PRE	A			
	_Firstrate.....cloransulam	84 WG		0.0263 lb ai/a	PRE	A			
13	Boundary Premix	6.5 EC		1.02 lb ai/a	PRE	A		0.0 e	1.7 de
	----s-metolachlor	5.25		0.82					
	----metribuzin	1.25		0.196					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,4,5,8

Pest Code	Pest Name	Crop Type, Code	C	GLXMA	C	GLXMA			
				Soybean		Soybean			
				Stunting		Yield			
				%		Bu/A			
				07/15/16		11/03/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code		
1	Untreated Check							0.0 a	80.6 a
2	Authority First Premix	70	DF	0.236	lb ai/a	PRE	A	8.0 a	71.8 abc
	----sulfentrazone	62.1		0.21					
	----cloransulam	7.9		0.0266					
3	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	6.7 a	65.0 bcd
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
4	Authority XL Premix	70	DG	0.232	lb ai/a	PRE	A	10.7 a	63.7 bcd
	----sulfentrazone	62.2		0.206					
	----chlorimuron	7.8		0.0259					
5	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	11.0 a	71.1 abc
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
6	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	9.0 a	77.8 a
	----flumioxazin	33.5		0.0785					
	----pyroxasulfone	42.5		0.1					
7	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	6.0 a	73.0 ab
	----s-metolachlor	4.35		1.09					
	----fomesafen	0.95		0.238					
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	9.7 a	63.9 bcd
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A		
9	Valor XLT Premix	40.3	WG	0.088	lb ai/a	PRE	A	7.3 a	55.5 d
	----flumioxazin	30		0.0655					
	----chlorimuron	10.3		0.0225					
10	Trivence Premix	61.3	WG	0.257	lb ai/a	PRE	A	8.0 a	64.6 bcd
	----chlorimuron	3.9		0.0164					
	----metribuzin	44.6		0.187					
	----flumioxazin	12.8		0.0537					
11	Fierce XLT Premix	62.4	WG	0.146	lb ai/a	PRE	A	12.3 a	62.0 cd
	----flumioxazin	24.57		0.0575					
	----pyroxasulfone	31.16		0.073					
	----chlorimuron	6.67		0.0156					
12	---Gangster/Surveil Co-Pack							4.7 a	70.8 abc
	_Valor SX.....flumioxazin	51	WG	0.08	lb ai/a	PRE	A		
	_Firstrate.....cloransulam	84	WG	0.0263	lb ai/a	PRE	A		
13	Boundary Premix	6.5	EC	1.02	lb ai/a	PRE	A	4.7 a	66.0 bcd
	----s-metolachlor	5.25		0.82					
	----metribuzin	1.25		0.196					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,4,5,8



Pest Code						C	GLXMA	C	GLXMA	AMAPA	IPOSS
Pest Name										PalmerAm	Morninglry
Crop Type, Code										C -	C -
Crop Name						Soybean	Soybean	Soybean	Soybean		
Rating Type						Stunting	Stunting	Stunting	Stunting	Control	Control
Rating Unit						%	%	%	%	%	%
Rating Date						06/22/16	07/04/16	07/04/16	07/04/16	07/04/16	07/04/16
Trt Treatment No. Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing Code						
14 Zidua.....pyroxasulfone	85	WG	0.106 lb ai/a	PRE	A	7.0 ab	4.7 bcd	90.7 ab	73.3 ef		
Tricor DF.....metribuzin	75	DF	0.188 lb ai/a	PRE	A						
LSD P=.05						3.15	4.03	11.15	8.23		
Standard Deviation						1.88	2.40	6.60	4.83		
CV						57.59	81.93	7.69	6.45		
Replicate F						4.095	1.129	0.464	0.064		
Replicate Prob(F)						0.0284	0.3386	0.6347	0.9384		
Treatment F						9.186	5.454	46.258	66.993		
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,4,5,8

Pest Code						C	GLXMA	C	GLXMA
Pest Name									
Crop Type, Code									
Crop Name						Soybean		Soybean	
Rating Type						Stunting		Yield	
Rating Unit						%		Bu/A	
Rating Date						07/15/16		11/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code		
14	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/a	PRE	A		7.3 a	64.0 bcd
	Tricor DF.....metribuzin	75	DF	0.188 lb ai/a	PRE	A			
LSD	P=.05							6.83	10.59
Standard Deviation								4.05	6.27
CV								53.84	9.24
Replicate F								1.919	0.199
Replicate Prob(F)								0.1685	0.8212
Treatment F								1.805	3.396
Treatment Prob(F)								0.1018	0.0051

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,4,5,8

Travallas and Sentrallas Recropping to Soybean  
 Trial ID: Soy7-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Soy7-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

**General Trial Information**  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: P38T61BR  
 Attributes: Bolt  
 Planting Date: 06/15/16      Planting Rate: 180000    S/A  
 Depth: 1 in  
  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 76 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/20/16  
  
 Harvest Equipment: Plot combine  
 Harvested Width: 3.75 ft  
 Harvested Length: 25 ft  
  
 % Standard Moisture: 13.0

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 30 FT  
 Treated Plot Area: 300 FT2    Treatments: 12    Tillage Type: NOTILL no-till  
 Replications: 4      Study Design: FACTOR Factorial

**Maintenance**

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/14/16	Roundup	4.5	AS	1	QT/A
2.	06/14/16	Liberty 280	2.34	SL	1	QT/A
3.	06/21/16	Roundup	4.5	AS	1	QT/A
4.	06/21/16	Dual II Mag	7.64	E	1.25	PT/A
5.	07/18/16	Roundup	4.5	AS	1	QT/A

Comment: Total early preplant burndown 6-14-16; total PRE 6-21-16; total POST 7-18-16.

**Soil Description**  
 % Sand: 79    % OM: 0.9    Texture: SL sandy loam  
 % Silt: 10    pH: 6.1  
 % Clay: 11    CEC: 4.7    Fert. Level: G good  
 Soil Drainage: F fair

<b>Application Description</b>		
	A	B
Application Date	03/24/16	05/24/16
Appl. Stop Time	10:40 AM	03:30 PM
Interval to Prev. Appl.		61 DAYS
Application Method	SPRAY	SPRAY
Application Timing	Spring	30EPP
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	66 F	78 F
% Relative Humidity Start, Stop	48	37
Wind Velocity+Dir. Start	6 mph SW	2 mph W
Wet Leaves (Y/N)	N no	N no
Soil Temperature	66 F	78 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	15	40

<b>Crop Stage At Each Application</b>		
	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY

<b>Application Equipment</b>		
	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	20 in	20 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

#### Trial Comments

06/09/16: Poor control of horseweed was observed with Harmony+metsulfuron and both rates of Travallas; good control was observed with Sentrallas. Field pansy control was poor with both rates of Travallas, Sentrallas, and Harmony+metsulfuron.

07/01/16: Beans at unifoliate stage (1st trifoliate not visible). Some standing water occurred in parts of the field, so ratings were difficult to access - may need to disregard these if they seem contradictory with later ratings.

07/13/16: Stunted are number of plants that had not reach 1st trifoliate stage yet.

Travallas and Sentrallas Recropping to Soybean		
Trial ID: Soy7-16	Location: Field #14	Trial Year: 2016
Protocol ID: Soy7-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact: DuPont	

Crop Type, Code	C	GLXMA	C	GLXMA	C	GLXMA				
Crop Name		Soybean		Soybean		Soybean				
Rating Type		StandCts		StandCts		Stunted				
Rating Unit		#/10 ft		#/ 10 ft		#/10 ft				
Rating Date		07/13/16		07/13/16		07/13/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code			
1	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	30.3 a	27.8 a	0.0 a
	----metsulfuron	.025		0.00137						
	----thifensulfuron	0.25		0.0137						
	----fluroxypyr	1.3		0.071						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A			
	Bolt Soybean									
2	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	32.5 a	27.3 a	0.3 a
	----metsulfuron	.025		0.00137						
	----thifensulfuron	0.25		0.0137						
	----fluroxypyr	1.3		0.071						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A			
	Non-STS Soybean									
3	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	29.5 a	25.0 a	0.3 a
	----metsulfuron	.025		0.00273						
	----thifensulfuron	0.25		0.0273						
	----fluroxypyr	1.3		0.142						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A			
	Bolt Soybean									
4	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	28.8 a	29.8 a	0.3 a
	----metsulfuron	.025		0.00273						
	----thifensulfuron	0.25		0.0273						
	----fluroxypyr	1.3		0.142						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A			
	Non-STS Soybean									
5	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	28.3 a	24.5 a	0.0 a
	----thifensulfuron	0.25		0.0274						
	----fluroxypyr	1.3		0.143						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A			
	Bolt Soybean									
6	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	27.3 a	25.5 a	0.3 a
	----thifensulfuron	0.25		0.0274						
	----fluroxypyr	1.3		0.143						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A			
	Non-STS Soybean									
7	Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring	A	29.0 a	29.0 a	0.3 a
	Metsulfuron	60	WG	0.00138	lb ai/a	Spring	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A			
	Bolt Soybean									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=9,11

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunted		Stunting		Stunting	
Rating Unit						#/ 10 ft		%		%	
Rating Date						07/13/16		07/01/16		07/01/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	0.0 a	12.8 a	8.0	abc
	----metsulfuron	.025		0.00137							
	----thifensulfuron	0.25		0.0137							
	----fluroxypyr	1.3		0.071							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Bolt Soybean										
2	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	0.0 a	12.8 a	7.8	abc
	----metsulfuron	.025		0.00137							
	----thifensulfuron	0.25		0.0137							
	----fluroxypyr	1.3		0.071							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Non-STS Soybean										
3	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	0.8 a	10.8 a	5.5	bc
	----metsulfuron	.025		0.00273							
	----thifensulfuron	0.25		0.0273							
	----fluroxypyr	1.3		0.142							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Bolt Soybean										
4	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	0.0 a	13.0 a	9.0	ab
	----metsulfuron	.025		0.00273							
	----thifensulfuron	0.25		0.0273							
	----fluroxypyr	1.3		0.142							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Non-STS Soybean										
5	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	0.0 a	14.8 a	7.3	abc
	----thifensulfuron	0.25		0.0274							
	----fluroxypyr	1.3		0.143							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Bolt Soybean										
6	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	0.3 a	11.0 a	11.0	a
	----thifensulfuron	0.25		0.0274							
	----fluroxypyr	1.3		0.143							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Non-STS Soybean										
7	Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring	A	0.5 a	15.5 a	7.0	abc
	Metsulfuron	60	WG	0.00138	lb ai/a	Spring	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Bolt Soybean										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=9,11

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA		
Crop Name						Soybean		Soybean		Soybean			
Rating Type						Stunting		Stunting		Stunting			
Rating Unit						%		%		%			
Rating Date						07/12/16		07/12/16		07/21/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code						
1	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	10.3	c	5.5	ab	6.0	c
	----metsulfuron	.025		0.00137									
	----thifensulfuron	0.25		0.0137									
	----fluroxypyr	1.3		0.071									
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Bolt Soybean												
2	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	12.5	abc	7.3	ab	7.3	bc
	----metsulfuron	.025		0.00137									
	----thifensulfuron	0.25		0.0137									
	----fluroxypyr	1.3		0.071									
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Non-STS Soybean												
3	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	13.8	ab	4.3	b	11.0	abc
	----metsulfuron	.025		0.00273									
	----thifensulfuron	0.25		0.0273									
	----fluroxypyr	1.3		0.142									
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Bolt Soybean												
4	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	12.8	abc	8.5	a	11.5	ab
	----metsulfuron	.025		0.00273									
	----thifensulfuron	0.25		0.0273									
	----fluroxypyr	1.3		0.142									
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Non-STS Soybean												
5	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	14.8	a	8.3	a	12.3	ab
	----thifensulfuron	0.25		0.0274									
	----fluroxypyr	1.3		0.143									
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Bolt Soybean												
6	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	14.3	a	7.3	ab	12.3	ab
	----thifensulfuron	0.25		0.0274									
	----fluroxypyr	1.3		0.143									
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Non-STS Soybean												
7	Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring	A	13.5	ab	7.0	ab	11.5	ab
	Metsulfuron	60	WG	0.00138	lb ai/a	Spring	A						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Bolt Soybean												

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=9,11

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunting		Stunting		Stunting	
Rating Unit						%		%		%	
Rating Date						07/21/16		07/30/16		07/30/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	4.3 a	10.5 c	4.3 ab	
	----metsulfuron	.025		0.00137							
	----thifensulfuron	0.25		0.0137							
	----fluroxypyr	1.3		0.071							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Bolt Soybean										
2	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	3.5 a	11.0 bc	4.3 ab	
	----metsulfuron	.025		0.00137							
	----thifensulfuron	0.25		0.0137							
	----fluroxypyr	1.3		0.071							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Non-STS Soybean										
3	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	3.0 a	15.3 abc	5.0 ab	
	----metsulfuron	.025		0.00273							
	----thifensulfuron	0.25		0.0273							
	----fluroxypyr	1.3		0.142							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Bolt Soybean										
4	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	1.8 a	13.5 bc	7.8 a	
	----metsulfuron	.025		0.00273							
	----thifensulfuron	0.25		0.0273							
	----fluroxypyr	1.3		0.142							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Non-STS Soybean										
5	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	3.0 a	16.0 ab	7.3 a	
	----thifensulfuron	0.25		0.0274							
	----fluroxypyr	1.3		0.143							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Bolt Soybean										
6	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	6.0 a	15.3 abc	9.0 a	
	----thifensulfuron	0.25		0.0274							
	----fluroxypyr	1.3		0.143							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Non-STS Soybean										
7	Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring	A	0.0 a	13.5 bc	4.3 ab	
	Metsulfuron	60	WG	0.00138	lb ai/a	Spring	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Bolt Soybean										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=9,11



Crop Type, Code						C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean	
Rating Type						Stunting		Stunting	
Rating Unit						%		%	
Rating Date						08/10/16		08/10/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
1	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	8.3 a	0.0 c
	----metsulfuron	.025		0.00137					
	----thifensulfuron	0.25		0.0137					
	----fluroxypyr	1.3		0.071					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Bolt Soybean								
2	Travallas Premix	1.575	OD	0.086	lb ai/a	Spring	A	7.8 a	1.8 c
	----metsulfuron	.025		0.00137					
	----thifensulfuron	0.25		0.0137					
	----fluroxypyr	1.3		0.071					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Non-STS Soybean								
3	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	7.8 a	2.5 bc
	----metsulfuron	.025		0.00273					
	----thifensulfuron	0.25		0.0273					
	----fluroxypyr	1.3		0.142					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Bolt Soybean								
4	Travallas Premix	1.575	OD	0.172	lb ai/a	Spring	A	9.5 a	3.5 abc
	----metsulfuron	.025		0.00273					
	----thifensulfuron	0.25		0.0273					
	----fluroxypyr	1.3		0.142					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Non-STS Soybean								
5	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	9.8 a	6.8 ab
	----thifensulfuron	0.25		0.0274					
	----fluroxypyr	1.3		0.143					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Bolt Soybean								
6	Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring	A	12.3 a	7.8 a
	----thifensulfuron	0.25		0.0274					
	----fluroxypyr	1.3		0.143					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Non-STS Soybean								
7	Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring	A	10.3 a	3.5 abc
	Metsulfuron	60	WG	0.00138	lb ai/a	Spring	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Bolt Soybean								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9,11

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						StandCts		StandCts		Stunted	
Rating Unit						#/10 ft		#/ 10 ft		#/10 ft	
Rating Date						07/13/16		07/13/16		07/13/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
8	Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring	A	28.0	a	30.3	a
	Metsulfuron	60	WG	0.00138	lb ai/a	Spring	A				0.0
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Non-STS Soybean										
9	Untreated Check							34.8	a	27.8	a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Bolt Soybean										
10	Untreated Check							32.3	a	30.3	a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Non-STS Soybean										
11	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A	27.3	a	27.5	a
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Sentrallas Premix	1.55	OD	0.17	lb ai/a	30EPP	B				
	----thifensulfuron	0.25		0.0274							
	----fluroxypyr	1.3		0.143							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	30EPP	B				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	30EPP	B				
	Bolt Soybean										
12	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A	26.5	a	28.3	a
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	Sentrallas Premix	1.55	OD	0.17	lb ai/a	30EPP	B				
	----thifensulfuron	0.25		0.0274							
	----fluroxypyr	1.3		0.143							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	30EPP	B				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	30EPP	B				
	Non-STS Soybean										
LSD P=.05						7.35		5.65		0.45	
Standard Deviation						5.11		3.93		0.31	
CV						17.31		14.16		298.36	
Replicate F						3.241		3.484		1.941	
Replicate Prob(F)						0.0344		0.0266		0.1421	
Treatment F						0.952		0.986		0.686	
Treatment Prob(F)						0.5058		0.4786		0.7414	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=9,11

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunted		Stunting		Stunting	
Rating Unit						#/ 10 ft		%		%	
Rating Date						07/13/16		07/01/16		07/01/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
8	Harmony SG.....thifensulfuron Metsulfuron Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Non-STS Soybean	50 60 4.5 100	SG WG AS L	0.0138 0.00138 1.13 0.25	lb ai/a lb ai/a lb ae/a % v/v	Spring Spring Spring Spring	A A A A	0.0 a	14.0 a	4.3	cd
9	Untreated Check Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Bolt Soybean	4.5 100	AS L	1.13 0.25	lb ae/a % v/v	Spring Spring	A A	0.0 a	0.0 b	0.0	d
10	Untreated Check Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Non-STS Soybean	4.5 100	AS L	1.13 0.25	lb ae/a % v/v	Spring Spring	A A	0.0 a	0.0 b	0.0	d
11	Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Sentrallas Premix ----thifensulfuron ----fluroxypyr Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Bolt Soybean	4.5 100 1.55 0.25 1.3 4.5 100	AS L OD  OD AS L	1.13 0.25 0.17 0.0274 0.143 1.13 0.25	lb ae/a % v/v lb ai/a   lb ae/a % v/v	Spring Spring 30EPP  30EPP 30EPP	A A B  B B	0.0 a	12.3 a	9.0	ab
12	Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Sentrallas Premix ----thifensulfuron ----fluroxypyr Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Non-STS Soybean	4.5 100 1.55 0.25 1.3 4.5 100	AS L OD  OD AS L	1.13 0.25 0.17 0.0274 0.143 1.13 0.25	lb ae/a % v/v lb ai/a   lb ae/a % v/v	Spring Spring 30EPP  30EPP 30EPP	A A B  B B	0.0 a	12.5 a	9.0	ab
LSD P=.05						0.51		4.92		4.54	
Standard Deviation						0.35		3.42		3.16	
CV						281.41		31.77		48.75	
Replicate F						1.122		0.263		0.203	
Replicate Prob(F)						0.3541		0.8518		0.8939	
Treatment F						2.020		9.273		4.891	
Treatment Prob(F)						0.0586		0.0001		0.0002	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9,11

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunting		Stunting		Stunting	
Rating Unit						%		%		%	
Rating Date						07/12/16		07/12/16		07/21/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
8	Harmony SG.....thifensulfuron Metsulfuron Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Non-STS Soybean	50 60 4.5 100	SG WG AS L	0.0138 0.00138 1.13 0.25	lb ai/a lb ai/a lb ae/a % v/v	Spring Spring Spring Spring	A A A A	11.0 bc	5.0 ab	10.8 abc	
9	Untreated Check Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Bolt Soybean	4.5 100	AS L	1.13 0.25	lb ae/a % v/v	Spring Spring	A A	0.0 d	0.0 c	0.0 d	
10	Untreated Check Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Non-STS Soybean	4.5 100	AS L	1.13 0.25	lb ae/a % v/v	Spring Spring	A A	0.0 d	0.0 c	0.0 d	
11	Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Sentrallas Premix ----thifensulfuron ----fluroxypyr Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Bolt Soybean	4.5 100 1.55 0.25 1.3 4.5 100	AS L OD  OD AS L	1.13 0.25 0.17 0.0274 0.143 1.13 0.25	lb ae/a % v/v lb ai/a   lb ae/a % v/v	Spring Spring 30EPP  30EPP 30EPP	A A B  B B	14.3 a	8.0 a	13.5 a	
12	Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Sentrallas Premix ----thifensulfuron ----fluroxypyr Roundup PowerMax..glyphosate Scanner Nonionic Surfactant Non-STS Soybean	4.5 100 1.55 0.25 1.3 4.5 100	AS L OD  OD AS L	1.13 0.25 0.17 0.0274 0.143 1.13 0.25	lb ae/a % v/v lb ai/a   lb ae/a % v/v	Spring Spring 30EPP  30EPP 30EPP	A A B  B B	12.8 abc	6.5 ab	13.5 a	
LSD P=.05						2.86		3.56		5.37	
Standard Deviation						1.98		2.47		3.73	
CV						18.36		43.98		40.88	
Replicate F						1.119		2.837		0.279	
Replicate Prob(F)						0.3554		0.0530		0.8401	
Treatment F						27.643		5.605		6.667	
Treatment Prob(F)						0.0001		0.0001		0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=9,11

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA		
Crop Name						Soybean		Soybean		Soybean			
Rating Type						Stunting		Stunting		Stunting			
Rating Unit						%		%		%			
Rating Date						07/21/16		07/30/16		07/30/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code						
8	Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring	A	1.8	a	13.5	bc	5.3	a
	Metsulfuron	60	WG	0.00138	lb ai/a	Spring	A						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Non-STS Soybean												
9	Untreated Check							0.0	a	0.0	d	0.0	b
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Bolt Soybean												
10	Untreated Check							0.0	a	0.0	d	0.0	b
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Non-STS Soybean												
11	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A	3.5	a	15.0	abc	7.8	a
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Sentrallas Premix	1.55	OD	0.17	lb ai/a	30EPP	B						
	----thifensulfuron	0.25		0.0274									
	----fluroxypyr	1.3		0.143									
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	30EPP	B						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	30EPP	B						
	Bolt Soybean												
12	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A	3.5	a	19.0	a	9.0	a
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A						
	Sentrallas Premix	1.55	OD	0.17	lb ai/a	30EPP	B						
	----thifensulfuron	0.25		0.0274									
	----fluroxypyr	1.3		0.143									
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	30EPP	B						
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	30EPP	B						
	Non-STS Soybean												
LSD P=.05						4.13		5.18		5.10			
Standard Deviation						2.87		3.60		3.54			
CV						114.0		30.3		66.73			
Replicate F						2.209		0.848		2.243			
Replicate Prob(F)						0.1055		0.4778		0.1016			
Treatment F						1.703		11.048		2.974			
Treatment Prob(F)						0.1162		0.0001		0.0075			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9,11

Crop Type, Code						C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean	
Rating Type						Stunting		Stunting	
Rating Unit						%		%	
Rating Date						08/10/16		08/10/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
8	Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring	A	10.3	a
	Metsulfuron	60	WG	0.00138	lb ai/a	Spring	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Non-STS Soybean							1.8	c
9	Untreated Check							0.0	b
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Bolt Soybean							0.0	c
10	Untreated Check							0.0	b
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Non-STS Soybean							0.0	c
11	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A	11.0	a
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Sentrallas Premix	1.55	OD	0.17	lb ai/a	30EPP	B		
	----thifensulfuron	0.25		0.0274					
	----fluroxypyr	1.3		0.143					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	30EPP	B		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	30EPP	B		
	Bolt Soybean							1.8	c
12	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring	A	11.0	a
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	Sentrallas Premix	1.55	OD	0.17	lb ai/a	30EPP	B		
	----thifensulfuron	0.25		0.0274					
	----fluroxypyr	1.3		0.143					
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	30EPP	B		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	30EPP	B		
	Non-STS Soybean							3.0	bc
LSD P=.05						6.36		4.60	
Standard Deviation						4.42		3.19	
CV						54.31		118.85	
Replicate F						1.846		1.897	
Replicate Prob(F)						0.1580		0.1493	
Treatment F						3.334		2.420	
Treatment Prob(F)						0.0036		0.0246	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=9,11

Travallas and Sentrallas Recropping to Soybean		
Trial ID: Soy7-16	Location: Field #14	Trial Year: 2016
Protocol ID: Soy7-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact: DuPont	

Crop Type, Code	C	GLXMA	C	GLXMA	C	GLXMA
Crop Name		Soybean		Soybean		Soybean
Rating Type		StandCts		StandCts		Stunted
Rating Unit		#/10 ft		#/ 10 ft		#/10 ft
Rating Date		07/13/16		07/13/16		07/13/16
Trt Treatment	Form	Form	Rate	Appl	Appl	
No. Name	Conc	Type	Rate	Unit	Timing	Code
<b>TABLE OF R MEANS</b>						
Replicate 1						31.3
Replicate 2						26.3
Replicate 3						32.0
Replicate 4						28.5
<b>TABLE OF A (Herbicide) MEANS</b>						
1 Travallas Premix	1.575	OD	0.086	lb ai/a	Spring A	31.4 a
1 ----metsulfuron	.025		0.00137			
1 ----thifensulfuron	0.25		0.0137			
1 ----fluroxypyr	1.3		0.071			
1 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
1 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
2 Travallas Premix	1.575	OD	0.172	lb ai/a	Spring A	29.1 a
2 ----metsulfuron	.025		0.00273			
2 ----thifensulfuron	0.25		0.0273			
2 ----fluroxypyr	1.3		0.142			
2 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
2 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
3 Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring A	27.8 a
3 ----thifensulfuron	0.25		0.0274			
3 ----fluroxypyr	1.3		0.143			
3 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
3 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
4 Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring A	28.5 a
4 Metsulfuron	60	WG	0.00138	lb ai/a	Spring A	
4 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
4 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
5 Untreated Check						33.5 a
5 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
5 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
6 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	26.9 a
6 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
6 Sentrallas Premix	1.55	OD	0.17	lb ai/a	30EPP B	
6 ----thifensulfuron	0.25		0.0274			
6 ----fluroxypyr	1.3		0.143			
6 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	30EPP B	
6 Scanner Nonionic Surfactant	100	L	0.25	% v/v	30EPP B	
LSD P=.05						5.20
Standard Deviation						5.11
CV						17.31
<b>TABLE OF B (Variety) MEANS</b>						
1 Bolt Soybean						29.8 a
2 Non-STS Soybean						29.2 a
LSD P=.05						3.00
Standard Deviation						5.11
CV						17.31

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code	C	GLXMA	C	GLXMA	C	GLXMA
Crop Name		Soybean		Soybean		Soybean
Rating Type		Stunted		Stunting		Stunting
Rating Unit		#/ 10 ft		%		%
Rating Date		07/13/16		07/01/16		07/01/16
Trt Treatment	Form	Form	Rate	Appl	Appl	
No. Name	Conc	Type	Rate	Unit	Timing	Code
TABLE OF R MEANS						
Replicate 1						0.2 10.2 6.0
Replicate 2						0.3 10.6 6.4
Replicate 3						0.1 11.3 6.5
Replicate 4						0.0 11.0 7.0
TABLE OF A (Herbicide) MEANS						
1 Travallas Premix	1.575	OD	0.086	lb ai/a	Spring A	0.0 a 12.8 a 7.9 ab
1 ----metsulfuron	.025		0.00137			
1 ----thifensulfuron	0.25		0.0137			
1 ----fluroxypyr	1.3		0.071			
1 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
1 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
2 Travallas Premix	1.575	OD	0.172	lb ai/a	Spring A	0.4 a 11.9 a 7.3 ab
2 ----metsulfuron	.025		0.00273			
2 ----thifensulfuron	0.25		0.0273			
2 ----fluroxypyr	1.3		0.142			
2 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
2 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
3 Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring A	0.1 a 12.9 a 9.1 a
3 ----thifensulfuron	0.25		0.0274			
3 ----fluroxypyr	1.3		0.143			
3 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
3 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
4 Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring A	0.3 a 14.8 a 5.6 b
4 Metsulfuron	60	WG	0.00138	lb ai/a	Spring A	
4 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
4 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
5 Untreated Check						0.0 a 0.0 b 0.0 c
5 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
5 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
6 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	0.0 a 12.4 a 9.0 a
6 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
6 Sentrallas Premix	1.55	OD	0.17	lb ai/a	30EPP B	
6 ----thifensulfuron	0.25		0.0274			
6 ----fluroxypyr	1.3		0.143			
6 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	30EPP B	
6 Scanner Nonionic Surfactant	100	L	0.25	% v/v	30EPP B	
LSD P=.05			0.36			3.48 3.21
Standard Deviation			0.35			3.42 3.16
CV			281.41			31.77 48.75
TABLE OF B (Variety) MEANS						
1 Bolt Soybean						0.2 a 11.0 a 6.1 a
2 Non-STS Soybean						0.0 a 10.5 a 6.8 a
LSD P=.05			0.21			2.01 1.85
Standard Deviation			0.35			3.42 3.16
CV			281.41			31.77 48.75

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Crop Type, Code	C	GLXMA	C	GLXMA	C	GLXMA
Crop Name		Soybean		Soybean		Soybean
Rating Type		Stunting		Stunting		Stunting
Rating Unit		%		%		%
Rating Date		07/12/16		07/12/16		07/21/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code	
TABLE OF R MEANS						
Replicate 1						10.4
Replicate 2						11.0
Replicate 3						10.3
Replicate 4						11.6
TABLE OF A (Herbicide) MEANS						
1 Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	11.4 c
1 ----metsulfuron	.025		0.00137			
1 ----thifensulfuron	0.25		0.0137			
1 ----fluroxypyr	1.3		0.071			
1 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	
1 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A	
2 Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	13.3 abc
2 ----metsulfuron	.025		0.00273			
2 ----thifensulfuron	0.25		0.0273			
2 ----fluroxypyr	1.3		0.142			
2 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	
2 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A	
3 Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	14.5 a
3 ----thifensulfuron	0.25		0.0274			
3 ----fluroxypyr	1.3		0.143			
3 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	
3 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A	
4 Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	12.3 bc
4 Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A	
4 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	
4 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A	
5 Untreated Check						0.0 d
5 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	
5 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A	
6 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	13.5 ab
6 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A	
6 Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B	
6 ----thifensulfuron	0.25		0.0274			
6 ----fluroxypyr	1.3		0.143			
6 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B	
6 Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B	
LSD P=.05						2.02
Standard Deviation						1.98
CV						18.36
TABLE OF B (Variety) MEANS						
1 Bolt Soybean						11.1 a
2 Non-STS Soybean						10.5 a
LSD P=.05						1.17
Standard Deviation						1.98
CV						18.36

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code	C	GLXMA	C	GLXMA	C	GLXMA
Crop Name		Soybean		Soybean		Soybean
Rating Type		Stunting		Stunting		Stunting
Rating Unit		%		%		%
Rating Date		07/21/16		07/30/16		07/30/16
Trt Treatment No. Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code
<b>TABLE OF R MEANS</b>						
Replicate 1						4.3
Replicate 2						2.0
Replicate 3						2.2
Replicate 4						1.6
<b>TABLE OF A (Herbicide) MEANS</b>						
1 Travallas Premix	1.575	OD	0.086	lb ai/a	Spring A	3.9 a
1 ----metsulfuron	.025		0.00137			
1 ----thifensulfuron	0.25		0.0137			
1 ----fluroxypyr	1.3		0.071			
1 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
1 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
2 Travallas Premix	1.575	OD	0.172	lb ai/a	Spring A	2.4 abc
2 ----metsulfuron	.025		0.00273			
2 ----thifensulfuron	0.25		0.0273			
2 ----fluroxypyr	1.3		0.142			
2 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
2 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
3 Sentrallas Premix	1.55	OD	0.17	lb ai/a	Spring A	4.5 a
3 ----thifensulfuron	0.25		0.0274			
3 ----fluroxypyr	1.3		0.143			
3 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
3 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
4 Harmony SG.....thifensulfuron	50	SG	0.0138	lb ai/a	Spring A	0.9 bc
4 Metsulfuron	60	WG	0.00138	lb ai/a	Spring A	
4 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
4 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
5 Untreated Check						0.0 c
5 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	
5 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
6 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Spring A	3.5 ab
6 Scanner Nonionic Surfactant	100	L	0.25	% v/v	Spring A	
6 Sentrallas Premix	1.55	OD	0.17	lb ai/a	30EPP B	
6 ----thifensulfuron	0.25		0.0274			
6 ----fluroxypyr	1.3		0.143			
6 Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	30EPP B	
6 Scanner Nonionic Surfactant	100	L	0.25	% v/v	30EPP B	
LSD P=.05						2.92
Standard Deviation						2.87
CV						114.00
<b>TABLE OF B (Variety) MEANS</b>						
1 Bolt Soybean						2.3 a
2 Non-STS Soybean						2.8 a
LSD P=.05						1.69
Standard Deviation						2.87
CV						114.00

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code	C	GLXMA	C	GLXMA			
Crop Name		Soybean		Soybean			
Rating Type		Stunting		Stunting			
Rating Unit		%		%			
Rating Date		08/10/16		08/10/16			
Trt Treatment No. Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code		
TABLE OF R MEANS							
Replicate 1						6.5	4.0
Replicate 2						10.2	3.4
Replicate 3						6.9	1.2
Replicate 4						9.0	2.2
TABLE OF A (Herbicide) MEANS							
1 Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	8.0 a	0.9 b
1 ----metsulfuron	.025		0.00137				
1 ----thifensulfuron	0.25		0.0137				
1 ----fluroxypyr	1.3		0.071				
1 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A		
1 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
2 Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	8.6 a	3.0 b
2 ----metsulfuron	.025		0.00273				
2 ----thifensulfuron	0.25		0.0273				
2 ----fluroxypyr	1.3		0.142				
2 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A		
2 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
3 Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	11.0 a	7.3 a
3 ----thifensulfuron	0.25		0.0274				
3 ----fluroxypyr	1.3		0.143				
3 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A		
3 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
4 Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	10.3 a	2.6 b
4 Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A		
4 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A		
4 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
5 Untreated Check						0.0 b	0.0 b
5 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A		
5 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
6 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	11.0 a	2.4 b
6 Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A		
6 Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B		
6 ----thifensulfuron	0.25		0.0274				
6 ----fluroxypyr	1.3		0.143				
6 Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B		
6 Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B		
LSD P=.05						4.50	3.25
Standard Deviation						4.42	3.19
CV						54.31	118.85
TABLE OF B (Variety) MEANS							
1 Bolt Soybean						7.8 a	2.4 a
2 Non-STS Soybean						8.5 a	3.0 a
LSD P=.05						2.60	1.88
Standard Deviation						4.42	3.19
CV						54.31	118.85

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						StandCts		StandCts		Stunted	
Rating Unit						#/10 ft		#/ 10 ft		#/10 ft	
Rating Date						07/13/16		07/13/16		07/13/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code					
TABLE OF A (Herbicide) B (Variety) MEANS											
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	30.3 a	27.8 a	0.0 a		
1	----metsulfuron	.025		0.00137							
1	----thifensulfuron	0.25		0.0137							
1	----fluroxypyr	1.3		0.071							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
1	Bolt Soybean										
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	29.5 a	25.0 a	0.3 a		
2	----metsulfuron	.025		0.00273							
2	----thifensulfuron	0.25		0.0273							
2	----fluroxypyr	1.3		0.142							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Bolt Soybean										
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	28.3 a	24.5 a	0.0 a		
3	----thifensulfuron	0.25		0.0274							
3	----fluroxypyr	1.3		0.143							
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
3	Bolt Soybean										
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	29.0 a	29.0 a	0.3 a		
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A					
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
4	Bolt Soybean										
5	Untreated Check						34.8 a	27.8 a	0.0 a		
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
5	Bolt Soybean										
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	27.3 a	27.5 a	0.0 a		
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B					
6	----thifensulfuron	0.25		0.0274							
6	----fluroxypyr	1.3		0.143							
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B					
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B					
6	Bolt Soybean										
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	32.5 a	27.3 a	0.3 a		
1	----metsulfuron	.025		0.00137							
1	----thifensulfuron	0.25		0.0137							
1	----fluroxypyr	1.3		0.071							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	28.8 a	29.8 a	0.3 a		
2	----metsulfuron	.025		0.00273							
2	----thifensulfuron	0.25		0.0273							
2	----fluroxypyr	1.3		0.142							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunted		Stunting		Stunting	
Rating Unit						#/ 10 ft		%		%	
Rating Date						07/13/16		07/01/16		07/01/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code					
TABLE OF A (Herbicide) B (Variety) MEANS											
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	0.0 a	12.8 a	8.0 a		
1	----metsulfuron	.025		0.00137							
1	----thifensulfuron	0.25		0.0137							
1	----fluroxypyr	1.3		0.071							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
1	Bolt Soybean										
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	0.8 a	10.8 a	5.5 a		
2	----metsulfuron	.025		0.00273							
2	----thifensulfuron	0.25		0.0273							
2	----fluroxypyr	1.3		0.142							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Bolt Soybean										
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	0.0 a	14.8 a	7.3 a		
3	----thifensulfuron	0.25		0.0274							
3	----fluroxypyr	1.3		0.143							
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
3	Bolt Soybean										
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	0.5 a	15.5 a	7.0 a		
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A					
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
4	Bolt Soybean										
5	Untreated Check						0.0 a	0.0 a	0.0 a		
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
5	Bolt Soybean										
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	0.0 a	12.3 a	9.0 a		
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B					
6	----thifensulfuron	0.25		0.0274							
6	----fluroxypyr	1.3		0.143							
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B					
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B					
6	Bolt Soybean										
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	0.0 a	12.8 a	7.8 a		
1	----metsulfuron	.025		0.00137							
1	----thifensulfuron	0.25		0.0137							
1	----fluroxypyr	1.3		0.071							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	0.0 a	13.0 a	9.0 a		
2	----metsulfuron	.025		0.00273							
2	----thifensulfuron	0.25		0.0273							
2	----fluroxypyr	1.3		0.142							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunting		Stunting		Stunting	
Rating Unit						%		%		%	
Rating Date						07/12/16		07/12/16		07/21/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code					
TABLE OF A (Herbicide) B (Variety) MEANS											
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	10.3 a	5.5 a	6.0 a		
1	----metsulfuron	.025		0.00137							
1	----thifensulfuron	0.25		0.0137							
1	----fluroxypyr	1.3		0.071							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
1	Bolt Soybean										
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	13.8 a	4.3 a	11.0 a		
2	----metsulfuron	.025		0.00273							
2	----thifensulfuron	0.25		0.0273							
2	----fluroxypyr	1.3		0.142							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Bolt Soybean										
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	14.8 a	8.3 a	12.3 a		
3	----thifensulfuron	0.25		0.0274							
3	----fluroxypyr	1.3		0.143							
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
3	Bolt Soybean										
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	13.5 a	7.0 a	11.5 a		
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A					
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
4	Bolt Soybean										
5	Untreated Check						0.0 a	0.0 a	0.0 a		
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
5	Bolt Soybean										
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	14.3 a	8.0 a	13.5 a		
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B					
6	----thifensulfuron	0.25		0.0274							
6	----fluroxypyr	1.3		0.143							
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B					
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B					
6	Bolt Soybean										
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	12.5 a	7.3 a	7.3 a		
1	----metsulfuron	.025		0.00137							
1	----thifensulfuron	0.25		0.0137							
1	----fluroxypyr	1.3		0.071							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	12.8 a	8.5 a	11.5 a		
2	----metsulfuron	.025		0.00273							
2	----thifensulfuron	0.25		0.0273							
2	----fluroxypyr	1.3		0.142							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunting		Stunting		Stunting	
Rating Unit						%		%		%	
Rating Date						07/21/16		07/30/16		07/30/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code					
TABLE OF A (Herbicide) B (Variety) MEANS											
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	4.3 a	10.5 a	4.3 a		
1	----metsulfuron	.025		0.00137							
1	----thifensulfuron	0.25		0.0137							
1	----fluroxypyr	1.3		0.071							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
1	Bolt Soybean										
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	3.0 a	15.3 a	5.0 a		
2	----metsulfuron	.025		0.00273							
2	----thifensulfuron	0.25		0.0273							
2	----fluroxypyr	1.3		0.142							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Bolt Soybean										
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	3.0 a	16.0 a	7.3 a		
3	----thifensulfuron	0.25		0.0274							
3	----fluroxypyr	1.3		0.143							
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
3	Bolt Soybean										
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	0.0 a	13.5 a	4.3 a		
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A					
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
4	Bolt Soybean										
5	Untreated Check						0.0 a	0.0 a	0.0 a		
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
5	Bolt Soybean										
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	3.5 a	15.0 a	7.8 a		
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B					
6	----thifensulfuron	0.25		0.0274							
6	----fluroxypyr	1.3		0.143							
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B					
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B					
6	Bolt Soybean										
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	3.5 a	11.0 a	4.3 a		
1	----metsulfuron	.025		0.00137							
1	----thifensulfuron	0.25		0.0137							
1	----fluroxypyr	1.3		0.071							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	1.8 a	13.5 a	7.8 a		
2	----metsulfuron	.025		0.00273							
2	----thifensulfuron	0.25		0.0273							
2	----fluroxypyr	1.3		0.142							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean	
Rating Type						Stunting		Stunting	
Rating Unit						%		%	
Rating Date						08/10/16		08/10/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
TABLE OF A (Herbicide) B (Variety) MEANS									
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	8.3 a	0.0 a	
1	----metsulfuron	.025		0.00137					
1	----thifensulfuron	0.25		0.0137					
1	----fluroxypyr	1.3		0.071					
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
1	Bolt Soybean								
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	7.8 a	2.5 a	
2	----metsulfuron	.025		0.00273					
2	----thifensulfuron	0.25		0.0273					
2	----fluroxypyr	1.3		0.142					
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
2	Bolt Soybean								
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	9.8 a	6.8 a	
3	----thifensulfuron	0.25		0.0274					
3	----fluroxypyr	1.3		0.143					
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
3	Bolt Soybean								
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	10.3 a	3.5 a	
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A			
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
4	Bolt Soybean								
5	Untreated Check						0.0 a	0.0 a	
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
5	Bolt Soybean								
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	11.0 a	1.8 a	
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B			
6	----thifensulfuron	0.25		0.0274					
6	----fluroxypyr	1.3		0.143					
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B			
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B			
6	Bolt Soybean								
1	Travallas Premix	1.575	OD	0.086 lb ai/a	Spring	A	7.8 a	1.8 a	
1	----metsulfuron	.025		0.00137					
1	----thifensulfuron	0.25		0.0137					
1	----fluroxypyr	1.3		0.071					
1	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
1	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
2	Non-STS Soybean								
2	Travallas Premix	1.575	OD	0.172 lb ai/a	Spring	A	9.5 a	3.5 a	
2	----metsulfuron	.025		0.00273					
2	----thifensulfuron	0.25		0.0273					
2	----fluroxypyr	1.3		0.142					
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
2	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
2	Non-STS Soybean								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						StandCts		StandCts		Stunted	
Rating Unit						#/10 ft		#/ 10 ft		#/10 ft	
Rating Date						07/13/16		07/13/16		07/13/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code					
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	27.3 a	25.5 a	0.3 a		
3	----thifensulfuron	0.25		0.0274							
3	----fluroxypyr	1.3		0.143							
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	28.0 a	30.3 a	0.0 a		
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A					
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
5	Untreated Check						32.3 a	30.3 a	0.0 a		
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	26.5 a	28.3 a	0.0 a		
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B					
6	----thifensulfuron	0.25		0.0274							
6	----fluroxypyr	1.3		0.143							
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B					
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B					
2	Non-STS Soybean										
LSD P=.05							7.35	5.65	0.45		
Standard Deviation							5.11	3.93	0.31		
CV							17.31	14.16	298.36		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunted		Stunting		Stunting	
Rating Unit						#/ 10 ft		%		%	
Rating Date						07/13/16		07/01/16		07/01/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code					
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	0.3 a	11.0 a	11.0 a		
3	----thifensulfuron	0.25		0.0274							
3	----fluroxypyr	1.3		0.143							
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	0.0 a	14.0 a	4.3 a		
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A					
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
5	Untreated Check						0.0 a	0.0 a	0.0 a		
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	0.0 a	12.5 a	9.0 a		
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B					
6	----thifensulfuron	0.25		0.0274							
6	----fluroxypyr	1.3		0.143							
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B					
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B					
2	Non-STS Soybean										
LSD P=.05							0.51	4.92	4.54		
Standard Deviation							0.35	3.42	3.16		
CV							281.41	31.77	48.75		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunting		Stunting		Stunting	
Rating Unit						%		%		%	
Rating Date						07/12/16		07/12/16		07/21/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code					
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	14.3 a	7.3 a	12.3 a		
3	----thifensulfuron	0.25		0.0274							
3	----fluroxypyr	1.3		0.143							
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	11.0 a	5.0 a	10.8 a		
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A					
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
5	Untreated Check						0.0 a	0.0 a	0.0 a		
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	12.8 a	6.5 a	13.5 a		
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B					
6	----thifensulfuron	0.25		0.0274							
6	----fluroxypyr	1.3		0.143							
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B					
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B					
2	Non-STS Soybean										
LSD P=.05							2.86	3.56	5.37		
Standard Deviation							1.98	2.47	3.73		
CV							18.36	43.98	40.88		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	GLXMA	C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean		Soybean	
Rating Type						Stunting		Stunting		Stunting	
Rating Unit						%		%		%	
Rating Date						07/21/16		07/30/16		07/30/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code					
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	6.0 a	15.3 a	9.0 a		
3	----thifensulfuron	0.25		0.0274							
3	----fluroxypyr	1.3		0.143							
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	1.8 a	13.5 a	5.3 a		
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A					
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
5	Untreated Check						0.0 a	0.0 a	0.0 a		
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A					
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
2	Non-STS Soybean										
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	3.5 a	19.0 a	9.0 a		
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A					
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B					
6	----thifensulfuron	0.25		0.0274							
6	----fluroxypyr	1.3		0.143							
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B					
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B					
2	Non-STS Soybean										
LSD P=.05							4.13	5.18	5.10		
Standard Deviation							2.87	3.60	3.54		
CV							114.00	30.30	66.73		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C	GLXMA	C	GLXMA
Crop Name						Soybean		Soybean	
Rating Type						Stunting		Stunting	
Rating Unit						%		%	
Rating Date						08/10/16		08/10/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
3	Sentrallas Premix	1.55	OD	0.17 lb ai/a	Spring	A	12.3 a	7.8 a	
3	----thifensulfuron	0.25		0.0274					
3	----fluroxypyr	1.3		0.143					
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
3	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
2	Non-STS Soybean								
4	Harmony SG.....thifensulfuron	50	SG	0.0138 lb ai/a	Spring	A	10.3 a	1.8 a	
4	Metsulfuron	60	WG	0.00138 lb ai/a	Spring	A			
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
4	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
2	Non-STS Soybean								
5	Untreated Check						0.0 a	0.0 a	
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A			
5	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
2	Non-STS Soybean								
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	Spring	A	11.0 a	3.0 a	
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	Spring	A			
6	Sentrallas Premix	1.55	OD	0.17 lb ai/a	30EPP	B			
6	----thifensulfuron	0.25		0.0274					
6	----fluroxypyr	1.3		0.143					
6	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	30EPP	B			
6	Scanner Nonionic Surfactant	100	L	0.25 % v/v	30EPP	B			
2	Non-STS Soybean								
LSD P=.05							6.36	4.60	
Standard Deviation							4.42	3.19	
CV							54.31	118.85	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean StandCts #/10 ft 07/13/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1389.979167				
R	3	254.062500	84.687500	3.241	0.0344	
A	5	244.854167	48.970833	1.874	0.1257	5.2
B	1	4.687500	4.687500	0.179	0.6746	3.0
AB	5	24.187500	4.837500	0.185	0.9662	7.4
ERROR	33	862.187500	26.126894			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean StandCts #/ 10 ft 07/13/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	837.479167				
R	3	161.229167	53.743056	3.484	0.0266	
A	5	102.854167	20.570833	1.334	0.2745	4.0
B	1	31.687500	31.687500	2.054	0.1612	2.3
AB	5	32.687500	6.537500	0.424	0.8287	5.7
ERROR	33	509.020833	15.424874			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunted #/10 ft 07/13/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	4.479167				
R	3	0.562500	0.187500	1.941	0.1421	
A	5	0.354167	0.070833	0.733	0.6037	0.3
B	1	0.020833	0.020833	0.216	0.6454	0.2
AB	5	0.354167	0.070833	0.733	0.6037	0.4
ERROR	33	3.187500	0.096591			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunted #/ 10 ft 07/13/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	7.250000				
R	3	0.416667	0.138889	1.122	0.3541	
A	5	1.000000	0.200000	1.616	0.1831	0.4
B	1	0.333333	0.333333	2.694	0.1102	0.2
AB	5	1.416667	0.283333	2.290	0.0683	0.5
ERROR	33	4.083333	0.123737			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/01/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1590.479167				
R	3	9.229167	3.076389	0.263	0.8518	
A	5	1151.854167	230.370833	19.668	0.0001	3.5
B	1	2.520833	2.520833	0.215	0.6458	2.0
AB	5	40.354167	8.070833	0.689	0.6352	4.9
ERROR	33	386.520833	11.712753			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/01/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	871.979167				
R	3	6.062500	2.020833	0.203	0.8939	
A	5	468.854167	93.770833	9.400	0.0001	3.2
B	1	6.020833	6.020833	0.604	0.4428	1.9
AB	5	61.854167	12.370833	1.240	0.3129	4.5
ERROR	33	329.187500	9.975379			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/12/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1341.312500				
R	3	13.229167	4.409722	1.119	0.3554	
A	5	1168.437500	233.687500	59.311	0.0001	2.0
B	1	3.520833	3.520833	0.894	0.3514	1.2
AB	5	26.104167	5.220833	1.325	0.2778	2.9
ERROR	33	130.020833	3.940025			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/12/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	631.250000				
R	3	52.083333	17.361111	2.837	0.0530	
A	5	320.500000	64.100000	10.476	0.0001	2.5
B	1	0.750000	0.750000	0.123	0.7285	1.5
AB	5	56.000000	11.200000	1.830	0.1340	3.6
ERROR	33	201.916667	6.118687			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/21/16 Missing values in column 9 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	1477.844506				
R	3	11.649219	3.883073	0.279	0.8401	
A	5	1016.030686	203.206137	14.599	0.0001	3.8
B	1	0.343511	0.343511	0.025	0.8762	2.2
AB	5	4.406948	0.881390	0.063	0.9971	5.4
ERROR	32	445.414141	13.919192			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/21/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	481.979167				
R	3	54.729167	18.243056	2.209	0.1055	
A	5	126.354167	25.270833	3.060	0.0223	2.9
B	1	2.520833	2.520833	0.305	0.5843	1.7
AB	5	25.854167	5.170833	0.626	0.6809	4.1
ERROR	33	272.520833	8.258207			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/30/16 Missing values in column 11 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	2021.873278				
R	3	32.964187	10.988062	0.848	0.4778	
A	5	1533.867080	306.773416	23.680	0.0001	3.7
B	1	1.394628	1.394628	0.108	0.7450	2.1
AB	5	39.086777	7.817355	0.603	0.6977	5.2
ERROR	32	414.560606	12.955019			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/30/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	910.312500				
R	3	84.562500	28.187500	2.243	0.1016	
A	5	384.687500	76.937500	6.123	0.0004	3.6
B	1	15.187500	15.187500	1.209	0.2796	2.1
AB	5	11.187500	2.237500	0.178	0.9689	5.1
ERROR	33	414.687500	12.566288			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 08/10/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1471.979167				
R	3	108.395833	36.131944	1.846	0.1580	
A	5	698.604167	139.720833	7.139	0.0001	4.5
B	1	4.687500	4.687500	0.240	0.6278	2.6
AB	5	14.437500	2.887500	0.148	0.9794	6.4
ERROR	33	645.854167	19.571338			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 08/10/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	666.312500				
R	3	58.062500	19.354167	1.897	0.1493	
A	5	252.187500	50.437500	4.944	0.0017	3.2
B	1	3.520833	3.520833	0.345	0.5609	1.9
AB	5	15.854167	3.170833	0.311	0.9029	4.6
ERROR	33	336.687500	10.202652			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Recrop Safety of Canopy and Envive to Lima Bean  
 Trial ID: Soy8a-15      Location: Field #4      Trial Year:  
 Protocol ID: Soy8-15      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

**General Trial Information**  
 Investigator: Mark VanGessel    Title: Extension Weed Specialist  
  
 Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel    Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max      Soybean      BBCH Scale: BSOY  
 Variety: S45LL33  
 Planting Date: 06/11/15      Planting Rate: 180000    S/A  
 Depth: 1    in  
 Row Spacing: 15    in      Planting Method: PLANTD    planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA    medium/trashy  
 Soil Moisture: NORMAL    normal, adequate  
 Soil Temperature: 91    F  
 Emergence Date: 06/16/15  
 % Standard Moisture: 13.0

Crop 2: C      PHSLU Phaseolus lunatus Lima bean      BBCH Scale: BVBE  
 Variety: C-elite  
 Planting Date: 06/15/16      Planting Rate: 4      per ft  
 Depth: 1    in  
 Row Spacing: 30    in      Planting Method: PLANTD    planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH    smooth  
 Soil Moisture: NORMAL    normal, adequate  
 Soil Temperature: 77    F  
 Emergence Date: 06/20/16  
 Harvest Date: 09/07/16  
 Harvested Width: 5    ft  
 Harvested Length: 10    ft

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD    field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2    Treatments: 6      Tillage Type: NOTILL    no-till  
 Replications: 3      Study Design: RACOBL Randomized Complete Block (RCB)

Trial Initiation Comments:  
 Plots were dicked prior to planting lima beans.

**Maintenance**

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/08/15	Liberty 280	2.34	SL	32	FL OZ/A
2.	07/08/15	AMS	100	D	8.5	LB/100 GAL
3.	06/15/16	Dual Mag	7.64	E	1	PT/A

Comment: Liberty + AMS applied to maintain weed-free 7-8-15; Total PRE 6-15-16.

**Soil Description**  
 % Sand: 79    % OM: 1.3      Texture: SL    sandy loam  
 % Silt: 11      pH: 6.7  
 % Clay: 10      CEC: 6.8      Fert. Level: G good  
 Soil Drainage: G    good



**Application Description**

	A
Application Date	06/12/15
Appl. Stop Time	09:20 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	84 F
% Relative Humidity Start, Stop	69
Wind Velocity+Dir. Start	2 mph SW
Wet Leaves (Y/N)	N no
Soil Temperature	84 F
Soil Moisture	NORMAL
% Cloud Cover	10

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY
Crop 2 Code, BBCH Scale	PHSLU BVBE

**Application Equipment**

	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

**Trial Comments**

07/08/15: Weed control was excellent in all treatments. Plots 102, 203, and 305 had atrazine treatments in the spring of 2015 (Cover5-15).

06/25/16: lima beans at unifoliate stage, with first trifoliate are not out yet

2016: Stand counts taken (2) 3 ft sections of middle 2 rows.

Harvest was delayed by approximately a week.

Recrop Safety of Canopy and Envive to Lima Bean									
Trial ID: Soy8a-15			Location: Field #4			Trial Year:			
Protocol ID: Soy8-15			Investigator: Mark VanGessel			Study Director:			
Sponsor Contact: DuPont									
Crop Type, Code					C GLXMA	C GLXMA	C PHSLU	C PHSLU	
Crop Name					Soybean	Soybean	Lima bean	Lima bean	
Rating Type					Stunting	Stunting	Stunting	Stunting	
Rating Unit					%	%	%	%	
Rating Date					07/09/15	07/28/15	06/25/16	06/30/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code		
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	0.0 d	5.7 b
	----chlorimuron	9.199999		0.02					
	----flumioxazin	29.2		.0636					
	----thifensulfuron	2.9		0.0063					
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	16.7 bc	16.7 a
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	29.0 ab	16.7 a
	----chlorimuron	9.199999		0.04					
	----flumioxazin	29.2		0.127					
	----thifensulfuron	2.9		0.0126					
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	43.3 a	20.0 a
	----metribuzin	64.3		0.32					
	----chlorimuron	10.7		0.0535					
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	10.3 cd	0.0 b
	----s-metolachlor	5.25		0.99					
	----metribuzin	1.25		0.235					
6	Untreated Check							0.0 d	0.0 b
								1.7 a	0.0 c
LSD P=.05					15.87	6.51	5.63	4.27	
Standard Deviation					8.72	3.52	3.10	2.35	
CV					52.68	35.82	179.8	56.28	
Replicate F					1.351	0.981	0.145	0.818	
Replicate Prob(F)					0.3025	0.4118	0.8669	0.4687	
Treatment F					11.509	19.706	0.937	8.673	
Treatment Prob(F)					0.0007	0.0001	0.4971	0.0021	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2

Crop Type, Code						C	PHSLU	C	PHSLU	C	PHSLU
Crop Name						Lima bean		Lima bean		Lima bean	
Rating Type						Stunting		Stunting		StandCnt	
Rating Unit						%		%		#/6ftrow	
Rating Date						07/07/16		07/12/16		07/15/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	0.0 b	9.0 ab	21.3 a	
	----chlorimuron	9.199999		0.02							
	----flumioxazin	29.2		.0636							
	----thifensulfuron	2.9		0.0063							
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	8.7 a	8.7 ab	24.0 a	
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	3.3 b	4.0 bc	23.0 a	
	----chlorimuron	9.199999		0.04							
	----flumioxazin	29.2		0.127							
	----thifensulfuron	2.9		0.0126							
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	11.3 a	10.3 a	21.3 a	
	----metribuzin	64.3		0.32							
	----chlorimuron	10.7		0.0535							
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	0.0 b	9.0 ab	23.0 a	
	----s-metolachlor	5.25		0.99							
	----metribuzin	1.25		0.235							
6	Untreated Check							0.0 b	0.0 c	21.3 a	
LSD P=.05						4.95		5.84		4.37	
Standard Deviation						2.72		3.21		2.40	
CV						69.9		46.97		10.75	
Replicate F						0.820		0.405		1.069	
Replicate Prob(F)						0.4682		0.6777		0.3794	
Treatment F						10.063		4.644		0.694	
Treatment Prob(F)						0.0012		0.0188		0.6401	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2

Crop Type, Code							C PHSLU	C PHSLU	C PHSLU				
Crop Name							Lima bean	Lima bean	Lima bean				
Rating Type							gram/plnt	Stunting	#plump				
Rating Unit								%	#/4plant				
Rating Date							07/15/16	07/23/16	09/07/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code						
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	1.1106522849782600	a	1.7	a	36.3	a
	----chlorimuron	9.199999		0.02									
	----flumioxazin	29.2		.0636									
	----thifensulfuron	2.9		0.0063									
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	0.9444445388888900	a	4.0	a	25.7	a
	----metribuzin	64.3		0.161									
	----chlorimuron	10.7		0.0268									
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	1.0000001000000000	a	6.3	a	20.0	a
	----chlorimuron	9.199999		0.04									
	----flumioxazin	29.2		0.127									
	----thifensulfuron	2.9		0.0126									
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	0.9855073449275380	a	4.0	a	46.0	a
	----metribuzin	64.3		0.32									
	----chlorimuron	10.7		0.0535									
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	1.0289856101449300	a	2.3	a	25.0	a
	----s-metolachlor	5.25		0.99									
	----metribuzin	1.25		0.235									
6	Untreated Check							1.1136538108314300	a	5.0	a	31.7	a
LSD P=.05							0.22594459179273700		8.00		28.38		
Standard Deviation							0.12419534795604600		4.40		15.60		
CV							12.05		113.03		50.69		
Replicate F							1.422		2.608		1.727		
Replicate Prob(F)							0.2862		0.1226		0.2269		
Treatment F							0.922		0.453		1.082		
Treatment Prob(F)							0.5053		0.8022		0.4259		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2

Crop Type, Code						C PHSLU	C PHSLU	C PHSLU	C PHSLU
Crop Name						Lima bean	Lima bean	Lima bean	Lima bean
Rating Type						#flat	#dry	%plump	%flat
Rating Unit						#/4plant	#/4plant	%	%
Rating Date						09/07/16	09/07/16	09/07/16	09/07/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	4.3 a	4.9 a
	----chlorimuron	9.199999		0.02					
	----flumioxazin	29.2		.0636					
	----thifensulfuron	2.9		0.0063					
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	6.3 a	3.2 a
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	3.0 a	7.7 a
	----chlorimuron	9.199999		0.04					
	----flumioxazin	29.2		0.127					
	----thifensulfuron	2.9		0.0126					
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	1.3 a	16.7 a
	----metribuzin	64.3		0.32					
	----chlorimuron	10.7		0.0535					
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	7.3 a	6.9 a
	----s-metolachlor	5.25		0.99					
	----metribuzin	1.25		0.235					
6	Untreated Check							1.3 a	5.2 a
LSD P=.05						6.49	11.06 - 12.86	25.26	15.18
Standard Deviation						3.57	0.31t	13.88	8.34
CV						90.43	35.25t	20.24	91.03
Replicate F						0.869	1.689	2.858	0.783
Replicate Prob(F)						0.4488	0.2334	0.1043	0.4833
Treatment F						1.503	1.414	0.777	1.773
Treatment Prob(F)						0.2724	0.2992	0.5880	0.2062

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=2

Crop Type, Code							C PHSLU	C PHSLU
Crop Name							Lima bean	Lima bean
Rating Type							%dry	Yield
Rating Unit							%	g/20'row
Rating Date							09/07/16	09/07/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	13.8 a
	----chlorimuron	9.199999		0.02				
	----flumioxazin	29.2		.0636				
	----thifensulfuron	2.9		0.0063				
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	11.5 a
	----metribuzin	64.3		0.161				
	----chlorimuron	10.7		0.0268				
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	29.5 a
	----chlorimuron	9.199999		0.04				
	----flumioxazin	29.2		0.127				
	----thifensulfuron	2.9		0.0126				
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	26.4 a
	----metribuzin	64.3		0.32				
	----chlorimuron	10.7		0.0535				
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	17.7 a
	----s-metolachlor	5.25		0.99				
	----metribuzin	1.25		0.235				
6	Untreated Check							18.8 a
LSD P=.05							21.64 - 24.61	247.06
Standard Deviation							1.42t	135.80
CV							32.1t	45.5
Replicate F							5.404	11.597
Replicate Prob(F)							0.0256	0.0025
Treatment F							0.905	0.252
Treatment Prob(F)							0.5144	0.9293

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Missing data estimates are included in columns:Yates=2

## University of Delaware

Recrop Safety of Canopy and Envive to Watermelon  
 Trial ID: Soy8brevised-15 Location: Field #4 Trial Year:  
 Protocol ID: Soy8-15 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

**General Trial Information**

Investigator: Mark VanGessel Title: Extension Weed Specialist

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjb@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C GLXMA Glycine max Soybean BBCH Scale: BSOY  
 Variety: S45LL33  
 Planting Date: 06/11/15 Planting Rate: 180000 S/A  
 Depth: 1 in  
 Row Spacing: 15 in Planting Method: PLANTD planted  
 Planting Equipment: FE Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Moisture: NORMAL normal, adequate  
 Soil Temperature: 91 F  
 Emergence Date: 06/16/15  
 % Standard Moisture: 13.0

Crop 2: C CITLA Citrullus lanatus Watermelon BBCH Scale: BVVT  
 Variety: Fascination  
 Planting Date: 07/13/16 Planting Rate: 21 plot  
 Planting Method: HAND

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 6 Tillage Type: NOTILL no-till  
 Replications: 3 Study Design: RACOB L Randomized Complete Block (RCB)

Trial Initiation Comments:  
 Watermelons planted on plastic.

**Maintenance**

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/08/15	Liberty 280	2.34	SL	32	FL OZ/A
2.	07/08/15	AMS	100	D	8.5	LB/100 GAL

Comment: Liberty + AMS applied to maintain weed-free.

**Field Prep./Maintenance:**

Total POST row middles Gramoxone 3 pt/A + Dual 1.25 pt/A 6-24-16.

**Soil Description**

% Sand: 79 % OM: 1.3 Texture: SL sandy loam  
 % Silt: 11 pH: 6.7  
 % Clay: 10 CEC: 6.8 Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	06/12/15
Appl. Stop Time	09:20 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	84 F
% Relative Humidity Start, Stop	69
Wind Velocity+Dir. Start	2 mph SW
Wet Leaves (Y/N)	N no
Soil Temperature	84 F
Soil Moisture	NORMAL
% Cloud Cover	10

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY
Crop 2 Code, BBCH Scale	CITLA BVVT

**Application Equipment**

	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

**Trial Comments**

07/08/15: Weed control was excellent for all treatments

07/29/16: No injury observed on melons on this date. Plot 104 1/3 under water and draining down 105 and 106.

08/29/16: Plot 301 - blight or wilt on last 3 plants? aAso 1 plant in plots 104, 106, 203 have wilt. Biomass reduction rating based on overall plot effect including environmental.



Recrop Safety of Canopy and Envive to Watermelon						Trial Year:											
Trial ID: Soy8brevised-15			Location: Field #4														
Protocol ID: Soy8-15			Investigator: Mark VanGessel														
			Study Director:														
			Sponsor Contact: DuPont														
Crop Type, Code						C	GLXMA	C	GLXMA	C	CITLA	C	CITLA	C	CITLA		
Crop Name						Soybean		Soybean		Watrmeln		Watrmeln		Watrmeln			
Rating Type						Stunting		Stunting		Stunting		Stunting		Stunting			
Rating Unit						%		%		%		%		%			
Rating Date						07/08/15		07/28/15		06/21/16		06/30/16		07/07/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code										
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	10.7	b	6.7	b	0.0	a	3.3	b	0.0	a
	----chlorimuron	9.199999		0.02													
	----flumioxazin	29.2		.0636													
	----thifensulfuron	2.9		0.0063													
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	14.7	b	5.7	b	0.0	a	14.0	a	0.0	a
	----metribuzin	64.3		0.161													
	----chlorimuron	10.7		0.0268													
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	33.3	a	26.7	a	0.0	a	14.0	a	0.0	a
	----chlorimuron	9.199999		0.04													
	----flumioxazin	29.2		0.127													
	----thifensulfuron	2.9		0.0126													
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	35.0	a	28.3	a	0.0	a	8.0	ab	0.0	a
	----metribuzin	64.3		0.32													
	----chlorimuron	10.7		0.0535													
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	0.0	c	3.3	b	0.0	a	0.0	b	0.0	a
	----s-metolachlor	5.25		0.99													
	----metribuzin	1.25		0.235													
6	Untreated Check							0.0	c	0.0	b	0.0	a	0.0	b	0.0	a
LSD P=.05						8.49		11.07		.		8.87		.			
Standard Deviation						4.67		6.09		0.00		4.88		0.00			
CV						29.9		51.68		0.0		74.4		0.0			
Replicate F						1.012		1.333		0.000		0.142		0.000			
Replicate Prob(F)						0.3978		0.3068		1.0000		0.8690		1.0000			
Treatment F						33.120		12.456		0.000		5.278		0.000			
Treatment Prob(F)						0.0001		0.0005		1.0000		0.0125		1.0000			

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 3,5,6 because error mean square = 0.

Crop Type, Code						C CITLA	C CITLA	C CITLA	C CITLA	C CITLA
Crop Name						Watrmeln	Watrmeln	Watrmeln	Watrmeln	Watrmeln
Rating Type						Stunting	Stunting	FreshWt	FreshWt	DryWt
Rating Unit						%	%	g	g	g
Rating Date						07/12/16	07/19/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code			
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	0.0 a	0.0 a	71.0 a
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	0.0 a	4.0 a	52.3 a
	----metribuzin	64.3		0.161						
	----chlorimuron	10.7		0.0268						
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	0.0 a	2.7 a	76.0 a
	----chlorimuron	9.199999		0.04						
	----flumioxazin	29.2		0.127						
	----thifensulfuron	2.9		0.0126						
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	0.0 a	0.0 a	62.7 a
	----metribuzin	64.3		0.32						
	----chlorimuron	10.7		0.0535						
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	0.0 a	0.0 a	76.0 a
	----s-metolachlor	5.25		0.99						
	----metribuzin	1.25		0.235						
6	Untreated Check							0.0 a	0.0 a	68.0 a
	LSD P=.05									6.46
	Standard Deviation							0.00		3.55
	CV							0.0		319.75
	Replicate F							0.000		0.493
	Replicate Prob(F)							1.0000		0.6249
	Treatment F							0.000		0.746
	Treatment Prob(F)							1.0000		0.6067
										15.935
										12.813
										29.832
										0.0008
										0.0017
										0.284
										2.475
										0.4896
										0.9114
										0.1044

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Could not calculate LSD (% mean diff) for columns 3,5,6 because error mean square = 0.

Crop Type, Code						C CITLA	C CITLA	C CITLA	C CITLA	C CITLA		
Crop Name						Watrmeln	Watrmeln	Watrmeln	Watrmeln	Watrmeln		
Rating Type						DryWt	BiomsRed	Yld1Harv	Yld1 Wt	Yld1Ripe		
Rating Unit						g	%	#	lbs	%		
Rating Date						08/29/16	08/30/16	08/30/16	08/30/16	08/30/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code					
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	50.0 a	2.7 a	3.3 b	53.647 b	37.227 a
	----chlorimuron	9.199999		0.02								
	----flumioxazin	29.2		.0636								
	----thifensulfuron	2.9		0.0063								
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	42.0 a	4.0 a	3.0 b	43.133 b	38.610 a
	----metribuzin	64.3		0.161								
	----chlorimuron	10.7		0.0268								
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	46.7 a	0.0 a	3.0 b	46.893 b	27.777 a
	----chlorimuron	9.199999		0.04								
	----flumioxazin	29.2		0.127								
	----thifensulfuron	2.9		0.0126								
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	50.7 a	4.0 a	2.7 b	45.447 b	23.333 a
	----metribuzin	64.3		0.32								
	----chlorimuron	10.7		0.0535								
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	51.0 a	9.0 a	1.7 b	28.407 b	27.777 a
	----s-metolachlor	5.25		0.99								
	----metribuzin	1.25		0.235								
6	Untreated Check							40.7 a	0.0 a	6.3 a	103.687 a	56.667 a
LSD P=.05						29.54	9.31	2.20	40.9081	22.8208		
Standard Deviation						16.24	5.12	1.21	22.4860	12.5439		
CV						34.67	156.13	36.33	42.0	35.6		
Replicate F						12.162	1.886	9.545	7.758	12.227		
Replicate Prob(F)						0.0021	0.2019	0.0048	0.0092	0.0021		
Treatment F						0.236	1.275	5.091	3.992	2.774		
Treatment Prob(F)						0.9379	0.3468	0.0140	0.0298	0.0797		

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Could not calculate LSD (% mean diff) for columns 3,5,6 because error mean square = 0.

Crop Type, Code						C CITLA	C CITLA	C CITLA	C CITLA	C CITLA		
Crop Name						Watrmeln	Watrmeln	Watrmeln	Watrmeln	Watrmeln		
Rating Type						Yld2Harv	Yld2 Wt	Yld3Unripe	Yld3Harv	Yld3 Wt		
Rating Unit						#	lbs	# left	#	lbs		
Rating Date						09/07/16	09/07/16	09/14/16	09/14/16	09/14/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code					
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	0.7 a	9.967 a	4.9 a	0.7 b	11.180 b
	----chlorimuron	9.199999		0.02								
	----flumioxazin	29.2		.0636								
	----thifensulfuron	2.9		0.0063								
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	1.3 a	21.767 a	3.0 a	0.7 b	11.167 b
	----metribuzin	64.3		0.161								
	----chlorimuron	10.7		0.0268								
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	2.7 a	47.987 a	4.4 a	1.3 b	25.747 ab
	----chlorimuron	9.199999		0.04								
	----flumioxazin	29.2		0.127								
	----thifensulfuron	2.9		0.0126								
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	1.7 a	31.967 a	5.1 a	2.7 a	49.367 a
	----metribuzin	64.3		0.32								
	----chlorimuron	10.7		0.0535								
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	1.3 a	17.900 a	2.3 a	1.0 b	15.633 b
	----s-metolachlor	5.25		0.99								
	----metribuzin	1.25		0.235								
6	Untreated Check							1.0 a	16.667 a	3.2 a	0.7 b	13.687 b
LSD P=.05						2.22	37.4162	4.59 - 6.49	1.29	23.8900		
Standard Deviation						1.22	20.5666	0.75t	0.71	13.1316		
CV						84.48	84.37	36.56t	60.61	62.15		
Replicate F						0.149	0.315	1.328	4.333	5.132		
Replicate Prob(F)						0.8632	0.7364	0.3080	0.0441	0.0293		
Treatment F						0.955	1.320	0.396	3.667	3.836		
Treatment Prob(F)						0.4878	0.3303	0.8409	0.0382	0.0335		

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 3,5,6 because error mean square = 0.

Crop Type, Code						C CITLA	C CITLA	C CITLA	C CITLA		
Crop Name						Watmeln	Watmeln	Watmeln	Watmeln		
Rating Type						1+2Harv	1+2 Wt	TtlHarv	Ttl Wt		
Rating Unit						#	lbs	#	lbs		
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	4.0 a	63.613 a	4.7 a	74.793 a
	----chlorimuron	9.199999		0.02							
	----flumioxazin	29.2		.0636							
	----thifensulfuron	2.9		0.0063							
2	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	4.3 a	64.900 a	5.0 a	76.067 a
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
3	Envive Premix	41.3	WG	0.18	lb ai/a	PRE	A	5.7 a	94.880 a	7.0 a	120.627 a
	----chlorimuron	9.199999		0.04							
	----flumioxazin	29.2		0.127							
	----thifensulfuron	2.9		0.0126							
4	Canopy Premix	75	DF	0.375	lb ai/a	PRE	A	4.3 a	77.413 a	7.0 a	126.780 a
	----metribuzin	64.3		0.32							
	----chlorimuron	10.7		0.0535							
5	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	3.0 a	46.307 a	4.0 a	61.940 a
	----s-metolachlor	5.25		0.99							
	----metribuzin	1.25		0.235							
6	Untreated Check							7.3 a	120.353 a	8.0 a	134.040 a
LSD P=.05						3.77	60.5625	3.98	61.8315		
Standard Deviation						2.07	33.2895	2.19	33.9870		
CV						43.35	42.73	36.81	34.32		
Replicate F						2.539	2.367	0.708	0.441		
Replicate Prob(F)						0.1283	0.1440	0.5159	0.6551		
Treatment F						1.606	1.874	1.599	2.573		
Treatment Prob(F)						0.2446	0.1860	0.2466	0.0955		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 3,5,6 because error mean square = 0.

Optimum Mixtures for PRE Herbicides in Soybeans  
 Trial ID: Soy9-16      Location: Field #      Trial Year: 2016  
 Protocol ID: Soy9-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max      Soybean      BBCH Scale: BSOY  
 Variety: S43RY95  
 Attributes: Roundup Ready  
 Planting Date: 06/01/16      Planting Rate: 180000      S/A  
 Depth: 1      in  
 Row Spacing: 15      in      Planting Method: PLANTD      planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA      medium/trashy  
 Soil Temperature: 81      F      Soil Moisture: NORMAL      normal, adequate  
 Emergence Date: 06/06/16  
 Harvest Date: 11/03/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 Harvested Length: 25      FT  
 % Standard Moisture: 13.0

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 16      Tillage Type: MINTIL      minimum-till  
 Replications: 3      Study Design: FACTOR      Factorial

## Trial Initiation Comments:

When soybeans were planted, ZRX units were used to cause some soil disturbance.

## Field Prep./Maintenance:

Early Preplant burndown application of Roundup PowerMax 1 qt/A + 2,4-D ester 1 pt/A applied to study area on 4-18-16 to kill existing vegetation. Total PRE burndown application of Liberty 1 qt/A + UAN on 6-3-16. Total POST application of Roundup 1qt/A + Reflex 1.5 pt/A on 7-5-16.

**Soil Description**

% Sand: 79      % OM: 0.9      Texture: SL      sandy loam  
 % Silt: 10      pH: 6.1  
 % Clay: 11      CEC: 4.7      Fert. Level: G good  
 Soil Drainage: F      fair

**Application Description**

	A
Application Date	06/02/16
Appl. Stop Time	09:30 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	67      F
% Relative Humidity Start, Stop	93
Wind Velocity+Dir. Start	2      mph      NE
Wet Leaves (Y/N)	Y      yes
Soil Temperature	67      F
Soil Moisture	NORMAL
% Cloud Cover	100

**Application Equipment**

	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

## Trial Comments

07/04/16: There were emerged weeds at the time of PRE application due to no non-selective herbicide used with PRE trts. There were emerged weeds that survived and makes rating difficult. Weeds presumed to have been present at time of PRE trts were not included in ratings. Authority trts did not have as much POST activity as trts with Valor.

07/15/16: Plot 106 and 114 have dicamba injury.

Optimum Mixtures for PRE Herbicides in Soybeans			
Trial ID: Soy9-16	Location: Field #	Trial Year: 2016	
Protocol ID: Soy9-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Pest Code						C	GLXMA	C	GLXMA	AMAPA	IPOSS
Crop Type, Code										C -	C -
Description						Soybean	Soybean	Soybean	PalmerAm	mornnglry	
Rating Type						Stunting	Stunting	Stunting	Control	Control	
Rating Unit						%	%	%	%	%	%
Rating Date						06/22/16	07/04/16	07/04/16	07/04/16	07/04/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		1.7 bc	0.0 f	100.0 a	71.7 g
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A					
2	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		4.0 ab	7.1 abc	95.0 b	79.3 d-g
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A					
3	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		0.0 c	1.7 ef	100.0 a	89.0 abc
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0.0234 lb ai/a	PRE	A					
4	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		1.7 bc	0.0 f	100.0 a	78.3 d-g
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A					
5	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		4.7 ab	8.6 abc	99.0 a	81.3 c-f
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A					
6	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		1.7 bc	6.3 bcd	97.7 ab	91.3 ab
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0.0234 lb ai/a	PRE	A					
7	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		4.0 ab	0.0 f	100.0 a	75.0 fg
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A					
8	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		7.0 a	10.7 a	100.0 a	83.8 b-e
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A					
9	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		4.7 ab	2.3 def	100.0 a	76.7 efg
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0.0234 lb ai/a	PRE	A					
10	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		3.3 abc	2.3 def	100.0 a	71.7 g
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A					
11	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		7.0 a	7.0 abc	100.0 a	82.3 c-f
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A					
12	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		7.0 a	9.7 ab	100.0 a	85.3 bcd
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0.0234 lb ai/a	PRE	A					
13	Untreated Check							0.0 c	0.0 f	0.0 d	0.0 h
14	Spartan.....sulfentrazone	4	F	0.188 lb ai/a	PRE	A		0.0 c	0.0 f	90.0 c	86.6 bcd
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A					
15	Spartan.....sulfentrazone	4	F	0.188 lb ai/a	PRE	A		5.7 a	2.3 def	97.7 ab	91.7 ab
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A					
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=2,4,5; Average=3



Pest Code						C	GLXMA	C	GLXMA
Crop Type, Code									
Description						Soybean		Soybean	
Rating Type						Stunting		Yield	
Rating Unit						%		Bu/A	
Rating Date						07/15/16		11/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code		
1	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		2.3 fg	68.5 a
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A			
2	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		10.3 bc	62.3 a
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A			
3	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		7.2 cde	68.1 a
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0234 lb ai/a	PRE	A			
4	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		0.0 g	65.8 a
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A			
5	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		7.7 cd	67.8 a
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A			
6	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		12.5 ab	67.0 a
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0234 lb ai/a	PRE	A			
7	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		4.7 def	69.3 a
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A			
8	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		15.0 a	68.6 a
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A			
9	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		0.0 g	68.6 a
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0234 lb ai/a	PRE	A			
10	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		7.0 cde	66.6 a
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A			
11	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		12.3 ab	69.3 a
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A			
12	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		15.0 a	68.9 a
	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0234 lb ai/a	PRE	A			
13	Untreated Check							0.0 g	67.5 a
14	Spartan.....sulfentrazone	4	F	0.188 lb ai/a	PRE	A		3.5 efg	62.8 a
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A			
15	Spartan.....sulfentrazone	4	F	0.188 lb ai/a	PRE	A		13.0 ab	64.7 a
	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4,5; Average=3

Pest Code						C	GLXMA	C	GLXMA	AMAPA	IPOSS				
Crop Type, Code										C -	C -				
Description						Soybean	Soybean	Soybean	PalmerAm	mornngly					
Rating Type						Stunting	Stunting	Stunting	Control	Control					
Rating Unit						%	%	%	%	%	%				
Rating Date						06/22/16	07/04/16	07/04/16	07/04/16	07/04/16	07/04/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code								
16	Spartan.....sulfentrazone	4	F	0.188	lb ai/a	PRE	A	0.0	c	4.7	cde	97.0	ab	96.7	a
	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A								
	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A								
LSD	P=.05					3.93	4.01	3.96	8.51						
Standard Deviation						2.36	2.40	2.36	5.08						
CV						72.03	61.15	2.56	6.55						
Replicate	F					1.817	0.792	1.498	13.524						
Replicate	Prob(F)					0.1800	0.4628	0.2423	0.0001						
Treatment	F					3.709	7.519	330.334	55.764						
Treatment	Prob(F)					0.0011	0.0001	0.0001	0.0001						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4,5; Average=3

Pest Code							C	GLXMA	C	GLXMA
Crop Type, Code										
Description							Soybean		Soybean	
Rating Type							Stunting		Yield	
Rating Unit							%		Bu/A	
Rating Date							07/15/16		11/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
16	Spartan.....sulfentrazone	4	F	0.188	lb ai/a	PRE	A	10.0	bc	
	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A			
	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A			
	LSD P=.05							3.98	7.95	
	Standard Deviation							2.37	4.77	
	CV							31.5	7.16	
	Replicate F							0.380	0.690	
	Replicate Prob(F)							0.6875	0.5092	
	Treatment F							15.109	1.251	
	Treatment Prob(F)							0.0001	0.2912	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4,5; Average=3

Optimum Mixtures for PRE Herbicides in Soybeans  
 Trial ID: Soy9-16      Location: Field #      Trial Year: 2016  
 Protocol ID: Soy9-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Pest Code	C	GLXMA	C	GLXMA	AMAPA	IPOSS	
Crop Type, Code					C -	C -	
Description	Soybean		Soybean		PalmerAm	morngrly	
Rating Type	Stunting		Stunting		Control	Control	
Rating Unit	%		%		%	%	
Rating Date	06/22/16		07/04/16		07/04/16	07/04/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code
<b>TABLE OF R MEANS</b>							
Replicate 1		3.2		3.8	98.3	86.2	
Replicate 2		3.3		4.9	99.8	80.7	
Replicate 3		5.2		5.2	99.9	74.6	
<b>TABLE OF A (Valor) MEANS</b>							
1 Valor SX.....flumioxazin	51 WG	0.048 lb ai/a	PRE	A	2.3 b	4.0 a	98.6 a 81.8 a
2 Valor SX.....flumioxazin	51 WG	0.064 lb ai/a	PRE	A	5.5 a	5.3 a	100.0 a 79.1 a
LSD P=.05		1.83		1.50	1.78	3.46	
Standard Deviation		2.65		2.15	2.57	4.97	
CV		68.13		46.32	2.59	6.18	
<b>TABLE OF B (metribuzin) MEANS</b>							
1 Metribuzin.....metribuzin	75 DF	0.164 lb ai/a	PRE	A	3.6 a	3.6 b	99.2 a 79.2 a
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/a	PRE	A	4.2 a	5.7 a	99.4 a 81.7 a
LSD P=.05		1.83		1.50	1.78	3.46	
Standard Deviation		2.65		2.15	2.57	4.97	
CV		68.13		46.32	2.59	6.18	
<b>TABLE OF C (Classic) MEANS</b>							
1 Classic.....chlorimuron	25 WG	0 lb ai/a	PRE	A	2.7 b	0.6 c	100.0 a 74.2 b
2 Classic.....chlorimuron	25 WG	0.0156 lb ai/a	PRE	A	5.7 a	8.3 a	98.5 a 81.7 a
3 Classic.....chlorimuron	25 WG	0.0234 lb ai/a	PRE	A	3.3 b	5.0 b	99.4 a 85.6 a
LSD P=.05		2.24		1.83	2.18	4.24	
Standard Deviation		2.65		2.15	2.57	4.97	
CV		68.13		46.32	2.59	6.18	
<b>TABLE OF A (Valor) B (metribuzin) MEANS</b>							
1 Valor SX.....flumioxazin	51 WG	0.048 lb ai/a	PRE	A	1.9 a	2.9 a	98.3 a 80.0 a
1 Metribuzin.....metribuzin	75 DF	0.164 lb ai/a	PRE	A			
2 Valor SX.....flumioxazin	51 WG	0.064 lb ai/a	PRE	A	5.2 a	4.3 a	100.0 a 78.5 a
1 Metribuzin.....metribuzin	75 DF	0.164 lb ai/a	PRE	A			
1 Valor SX.....flumioxazin	51 WG	0.048 lb ai/a	PRE	A	2.7 a	5.0 a	98.9 a 83.6 a
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/a	PRE	A			
2 Valor SX.....flumioxazin	51 WG	0.064 lb ai/a	PRE	A	5.8 a	6.3 a	100.0 a 79.8 a
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/a	PRE	A			
LSD P=.05		2.59		2.11	2.52	4.89	
Standard Deviation		2.65		2.15	2.57	4.97	
CV		68.13		46.32	2.59	6.18	
<b>TABLE OF A (Valor) C (Classic) MEANS</b>							
1 Valor SX.....flumioxazin	51 WG	0.048 lb ai/a	PRE	A	1.7 a	0.0 a	100.0 a 75.0 cd
1 Classic.....chlorimuron	25 WG	0 lb ai/a	PRE	A			
2 Valor SX.....flumioxazin	51 WG	0.064 lb ai/a	PRE	A	3.7 a	1.2 a	100.0 a 73.3 d
1 Classic.....chlorimuron	25 WG	0 lb ai/a	PRE	A			
1 Valor SX.....flumioxazin	51 WG	0.048 lb ai/a	PRE	A	4.3 a	7.9 a	97.0 a 80.3 bc
2 Classic.....chlorimuron	25 WG	0.0156 lb ai/a	PRE	A			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code					C	GLXMA	C	GLXMA
Crop Type, Code								
Description					Soybean		Soybean	
Rating Type					Stunting		Yield	
Rating Unit					%		Bu/A	
Rating Date					07/15/16		11/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code	
TABLE OF R MEANS								
Replicate 1					7.9		68.5	
Replicate 2					7.9		66.0	
Replicate 3					7.8		68.2	
TABLE OF A (Valor) MEANS								
1	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		6.7 b
2	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		9.0 a
LSD P=.05					1.75		3.25	
Standard Deviation					2.51		4.71	
CV					32.07		6.96	
TABLE OF B (metribuzin) MEANS								
1	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A		6.6 b
2	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A		9.1 a
LSD P=.05					1.75		3.25	
Standard Deviation					2.51		4.71	
CV					32.07		6.96	
TABLE OF C (Classic) MEANS								
1	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A		3.5 c
2	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A		11.3 a
3	Classic.....chlorimuron	25	WG	0.0234 lb ai/a	PRE	A		8.7 b
LSD P=.05					2.15		3.98	
Standard Deviation					2.51		4.71	
CV					32.07		6.96	
TABLE OF A (Valor) B (metribuzin) MEANS								
1	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		6.6 b
1	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A		66.3 a
2	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		6.6 b
1	Metribuzin.....metribuzin	75	DF	0.164 lb ai/a	PRE	A		68.9 a
1	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		6.7 b
2	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A		66.9 a
2	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		11.4 a
2	Metribuzin.....metribuzin	75	DF	0.188 lb ai/a	PRE	A		68.3 a
LSD P=.05					2.48		4.60	
Standard Deviation					2.51		4.71	
CV					32.07		6.96	
TABLE OF A (Valor) C (Classic) MEANS								
1	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		1.2 d
1	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A		67.1 a
2	Valor SX.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A		5.8 c
1	Classic.....chlorimuron	25	WG	0 lb ai/a	PRE	A		68.0 a
1	Valor SX.....flumioxazin	51	WG	0.048 lb ai/a	PRE	A		9.0 b
2	Classic.....chlorimuron	25	WG	0.0156 lb ai/a	PRE	A		65.1 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code							C	GLXMA	C	GLXMA	AMAPA	IPOSS
Crop Type, Code											C -	C -
Description							Soybean		Soybean		PalmerAm	mornglry
Rating Type							Stunting		Stunting		Control	Control
Rating Unit							%		%		%	%
Rating Date							06/22/16		07/04/16		07/04/16	07/04/16
Trt No.	Treatment Name	Form	Form Conc	Rate	Appl Unit	Appl Timing	Code					
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	7.0 a		8.8 a		100.0 a
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A					83.0 b
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	0.8 a		4.0 a		98.8 a
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A					90.2 a
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	5.8 a		6.0 a		100.0 a
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A					81.0 b
LSD P=.05								3.17		2.59		3.08
Standard Deviation								2.65		2.15		2.57
CV								68.13		46.32		2.59
TABLE OF B (metribuzin) C (Classic) MEANS												
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A	2.8 a		0.0 b		100.0 a
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A					73.3 a
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	2.5 a		1.2 b		100.0 a
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A					75.0 a
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A	5.5 a		8.9 a		97.5 a
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A					81.5 a
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	5.8 a		7.8 a		99.5 a
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A					81.8 a
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A	2.3 a		2.0 b		100.0 a
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A					82.8 a
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	4.3 a		8.0 a		98.8 a
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A					88.3 a
LSD P=.05								3.17		2.59		3.08
Standard Deviation								2.65		2.15		2.57
CV								68.13		46.32		2.59
TABLE OF A (Valor) B (metribuzin) C (Classic) MEANS												
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	1.7 a		0.0 a		100.0 a
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A					71.7 a
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A					
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	4.0 a		0.0 a		100.0 a
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A					75.0 a
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A					
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	1.7 a		0.0 a		100.0 a
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A					78.3 a
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A					
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	3.3 a		2.3 a		100.0 a
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A					71.7 a
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A					
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	4.0 a		7.1 a		95.0 a
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A					79.3 a
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A					
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	7.0 a		10.7 a		100.0 a
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A					83.8 a
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A					
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	4.7 a		8.6 a		99.0 a
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A					81.3 a
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code							C	GLXMA	C	GLXMA
Crop Type, Code										
Description							Soybean		Soybean	
Rating Type							Stunting		Yield	
Rating Unit							%		Bu/A	
Rating Date							07/15/16		11/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	13.7 a	69.0 a	
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A			
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	9.8 b	67.5 a	
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	7.5 bc	68.8 a	
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A			
LSD P=.05							3.04		5.64	
Standard Deviation							2.51		4.71	
CV							32.07		6.96	
TABLE OF B (metribuzin) C (Classic) MEANS										
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A	3.5 c	68.9 a	
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A			
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	3.5 c	66.2 a	
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A			
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A	12.7 ab	65.5 a	
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A			
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	10.0 b	68.6 a	
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A			
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A	3.6 c	68.3 a	
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A			
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	13.7 a	68.0 a	
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A			
LSD P=.05							3.04		5.64	
Standard Deviation							2.51		4.71	
CV							32.07		6.96	
TABLE OF A (Valor) B (metribuzin) C (Classic) MEANS										
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	2.3 a	68.5 a	
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A			
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	4.7 a	69.3 a	
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A			
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A			
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	0.0 a	65.8 a	
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	7.0 a	66.6 a	
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			
1	Classic.....chlorimuron	25	WG	0	lb ai/a	PRE	A			
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	10.3 a	62.3 a	
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A			
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	15.0 a	68.6 a	
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A			
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A			
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	7.7 a	67.8 a	
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	University of Delaware						AMAPA	IPOSS
Crop Type, Code	C	GLXMA	C	GLXMA	C	-	C	-
Description	Soybean		Soybean		PalmerAm	mornglry		
Rating Type	Stunting		Stunting		Control	Control		
Rating Unit	%		%		%	%		
Rating Date	06/22/16		07/04/16		07/04/16	07/04/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code	
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	7.0 a
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	7.0 a
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A	100.0 a
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	0.0 a
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A	1.7 a
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A	100.0 a
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	4.7 a
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A	2.3 a
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A	100.0 a
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	1.7 a
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	6.3 a
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A	97.7 a
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	7.0 a
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A	9.7 a
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A	100.0 a
LSD P=.05								4.49
Standard Deviation								2.65
CV								68.13
								3.66
								2.15
								4.36
								2.57
								8.47
								4.97
								6.18

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code							C	GLXMA	C	GLXMA
Crop Type, Code										
Description							Soybean		Soybean	
Rating Type							Stunting		Yield	
Rating Unit							%		Bu/A	
Rating Date							07/15/16		11/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	12.3 a	69.3 a	
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			
2	Classic.....chlorimuron	25	WG	0.0156	lb ai/a	PRE	A			
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	7.2 a	68.1 a	
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A			
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	0.0 a	68.6 a	
1	Metribuzin.....metribuzin	75	DF	0.164	lb ai/a	PRE	A			
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A			
1	Valor SX.....flumioxazin	51	WG	0.048	lb ai/a	PRE	A	12.5 a	67.0 a	
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	15.0 a	68.9 a	
2	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			
3	Classic.....chlorimuron	25	WG	0.0234	lb ai/a	PRE	A			
LSD P=.05							4.29		7.97	
Standard Deviation							2.51		4.71	
CV							32.07		6.96	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 06/22/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	365.555556				
R	2	29.555556	14.777778	2.105	0.1457	
A	1	93.444444	93.444444	13.311	0.0014	1.8
B	1	4.000000	4.000000	0.570	0.4583	1.8
AB	1	0.111111	0.111111	0.016	0.9010	2.6
C	2	59.555556	29.777778	4.242	0.0277	2.2
AC	2	14.888889	7.444444	1.060	0.3634	3.2
BC	2	8.666667	4.333333	0.617	0.5485	3.2
ABC	2	0.888889	0.444444	0.063	0.9388	4.5
ERROR	22	154.444444	7.020202			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/04/16 Missing values in column 2 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	33	632.400488				
R	2	12.136052	6.068026	1.312	0.2915	
A	1	17.163271	17.163271	3.711	0.0684	1.5
B	1	37.006952	37.006952	8.001	0.0104	1.5
AB	1	0.006945	0.006945	0.002	0.9695	2.1
C	2	363.778881	181.889441	39.327	0.0001	1.8
AC	2	1.778910	0.889455	0.192	0.8266	2.6
BC	2	78.597211	39.298606	8.497	0.0021	2.6
ABC	2	29.430565	14.715282	3.182	0.0631	3.7
ERROR	20	92.501701	4.625085			

FACTORIAL/POOLED ERROR AOV For AMAPA C PalmerAm Control % 07/04/16 Missing values in column 3 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	34	235.638889				
R	2	20.222222	10.111111	1.534	0.2389	
A	1	17.361111	17.361111	2.633	0.1196	1.8
B	1	0.694444	0.694444	0.105	0.7487	1.8
AB	1	0.694444	0.694444	0.105	0.7487	2.5
C	2	13.722222	6.861111	1.041	0.3707	2.2
AC	2	13.722222	6.861111	1.041	0.3707	3.1
BC	2	15.388889	7.694444	1.167	0.3306	3.1
ABC	2	15.388889	7.694444	1.167	0.3306	4.4
ERROR	21	138.444444	6.592593			

FACTORIAL/POOLED ERROR AOV For IPOSS C morngrly Control % 07/04/16 Missing values in column 4 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	33	2605.221842				
R	2	806.700551	403.350275	16.308	0.0001	
A	1	65.340160	65.340160	2.642	0.1197	3.5
B	1	55.006837	55.006837	2.224	0.1515	3.5
AB	1	12.350382	12.350382	0.499	0.4879	4.9
C	2	807.927756	403.963878	16.333	0.0001	4.2
AC	2	217.764126	108.882063	4.402	0.0260	6.0
BC	2	44.263986	22.131993	0.895	0.4244	6.0
ABC	2	101.210009	50.605005	2.046	0.1554	8.5
ERROR	20	494.658035	24.732902			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/15/16 Missing values in column 5 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	32	1064.939457				
R	2	0.134616	0.067308	0.011	0.9894	
A	1	48.785647	48.785647	7.726	0.0119	1.8
B	1	56.103398	56.103398	8.885	0.0077	1.8
AB	1	51.501385	51.501385	8.156	0.0101	2.5
C	2	381.223344	190.611672	30.186	0.0001	2.1
AC	2	97.900322	48.950161	7.752	0.0035	3.0
BC	2	273.748628	136.874314	21.676	0.0001	3.0
ABC	2	35.566219	17.783110	2.816	0.0849	4.3
ERROR	19	119.975899	6.314521			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Yield Bu/A 11/03/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	664.984014				
R	2	45.941056	22.970528	1.037	0.3712	
A	1	36.001042	36.001042	1.625	0.2157	3.3
B	1	0.002502	0.002502	0.000	0.9916	3.3
AB	1	3.053104	3.053104	0.138	0.7140	4.6
C	2	7.532230	3.766115	0.170	0.8447	4.0
AC	2	17.074830	8.537415	0.385	0.6847	5.6
BC	2	51.966868	25.983434	1.173	0.3280	5.6
ABC	2	16.109164	8.054582	0.364	0.6992	8.0
ERROR	22	487.303218	22.150146			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Liberty Link Soybean Weed Control  
 Trial ID: Soy10-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Soy10-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Bayer

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: S44LS76  
 Attributes: Liberty Link  
 Planting Date: 06/01/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 81 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/07/16  
 Harvest Date: 11/03/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25 FT

**Pest Description**

Pest 1 Type: W      Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory  
 Pest 2 Type: W      Code: AMAPA Amaranthus palmeri  
 Common Name: Palmer amaranth

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 8      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RACOB      Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Early Preplant burndown application of Roundup PowerMax 1 qt/A + 2,4-D ester 1 pt/A applied to study area on 4-18-16 to kill existing vegetation. Total PRE application of Liberty 1 qt/A + UAN on 6-3-16.

**Soil Description**

% Sand: 79      % OM: 0.9      Texture: SL      sandy loam  
 % Silt: 10      pH: 6.1  
 % Clay: 11      CEC: 4.7      Fert. Level: G good  
 Soil Drainage: F      fair

<b>Application Description</b>			
	A	B	C
Application Date	06/02/16	06/30/16	
Appl. Stop Time	11:30 AM	09:15 AM	
Interval to Prev. Appl.		28 DAYS	
Application Method	SPRAY	SPRAY	
Application Timing	PRE	28DAP	
Application Placement	BROADC	BROADC	
Applied By	Johnson	Johnson	
Air Temperature Start, Stop	67 F	76 F	
% Relative Humidity Start, Stop	93	61	
Wind Velocity+Dir. Start	2 mph NE	0 mph N/A	
Wet Leaves (Y/N)	Y yes	N no	
Soil Temperature	67 F	75 F	
Soil Moisture	NORMAL	NORMAL	
% Cloud Cover	100	0	

<b>Crop Stage At Each Application</b>			
	A	B	C
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC	
Stage Majority, Percent		4-trifol 100	
Height Average		6 in	

<b>Pest Stage At Each Application</b>			
	A	B	C
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent		run 60	
Stage Minimum, Percent		veg 40	
Stage Maximum, Percent		run 60	
Height Average		6 in	
Height Minimum, Maximum		2 9	
Density Average		10 m2	
Pest 2 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent		veg 80	
Stage Minimum, Percent		veg 80	
Stage Maximum, Percent		eaFlwr 20	
Height Average		12 in	
Height Minimum, Maximum		4 18	
Density Average		5 m2	

<b>Application Equipment</b>			
	A	B	C
Appl. Equipment	Tractor	Tractor	
Equipment Type	TRMOSP	TRMOSP	
Operation Pressure	40 psi	40 psi	
Nozzle Type	AIRMIX	AIRMIX	
Nozzle Size	11002	11002	
Nozzle Spacing	20 in	20 in	
Boom Length	10 ft	10 ft	
Boom Height	18 in	32 in	
Ground Speed	3 mph	3 mph	
Carrier	WATER	WATER	
Application Amount	20 gal/ac	20 gal/ac	
Mix Size	0.7 GAL	0.7 GAL	
Propellant	COMAIR	COMAIR	

Trial Comments

The C application was not needed so not applied.

Liberty Link Soybean Weed Control									
Trial ID: Soy10-16		Location: Field #14		Trial Year: 2016					
Protocol ID: Soy10-16		Investigator: Mark VanGessel		Study Director:					
		Sponsor Contact: Bayer							
Pest Code	Pest Name					AMAPA PalmerAm	IPOSS Morngrly		
Crop Type, Code				C GLXMA	C GLXMA	C -	C -		
Crop Name				Soybean	Soybean	Control	Control		
Rating Type				Stunting	Stunting	%	%		
Rating Unit				%	%				
Rating Date				06/21/16	06/29/16	06/29/16	06/29/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 d	0.0 b
2	Authority First Premix	70 DF		0.236 lb ai/a	PRE		A	7.3 b	1.0 b
	----sulfentrazone	62.1		0.21					
	----cloransulam	7.9		0.0266					
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	28DAP		B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	28DAP		B		
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	if needed		C		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	if needed		C		
3	Authority MTZ Premix	45 DF		0.338 lb ai/a	PRE		A	1.0 cd	0.0 b
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	28DAP		B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	28DAP		B		
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	if needed		C		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	if needed		C		
4	Valor XLT Premix	40.3 WG		0.088 lb ai/a	PRE		A	8.0 b	1.0 b
	----flumioxazin	30		0.0655					
	----chlorimuron	10.3		0.0225					
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	28DAP		B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	28DAP		B		
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	if needed		C		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	if needed		C		
5	Fierce Premix	76 WG		0.178 lb ai/a	PRE		A	15.7 a	4.3 a
	----flumioxazin	33.5		0.0785					
	----pyroxasulfone	42.5		0.1					
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	28DAP		B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	28DAP		B		
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	if needed		C		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	if needed		C		
6	Canopy Premix	75 DF		0.188 lb ai/a	PRE		A	0.0 d	0.0 b
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	28DAP		B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	28DAP		B		
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	if needed		C		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	if needed		C		
7	Authority Elite Premix	7 EC		1.53 lb ai/a	PRE		A	6.3 b	1.0 b
	----sulfentrazone	0.7		0.153					
	----s-metolachlor	6.3		1.38					
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	28DAP		B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	28DAP		B		
	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	if needed		C		
	Dry Ammonium Sulfate	100 D		1.02 % w/v	if needed		C		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,9

Pest Code Pest Name						MOLVE Carpetwd			AMAPA PalmerAm		
Crop Type, Code						C - C	GLXMA	C GLXMA	C -		
Crop Name						Control	Soybean	Soybean	Control		
Rating Type						%	Injury	Chlrsls	%		
Rating Unit							%	%	%		
Rating Date						06/29/16	07/07/16	07/07/16	07/07/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 b	2.0 c	5.0 a	96.0 a
2	Authority First Premix	70	DF	0.236	lb ai/a	PRE	A	100.0 a	7.5 a	5.0 a	98.3 a
	----sulfentrazone	62.1		0.21							
	----cloransulam	7.9		0.0266							
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C				
3	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	100.0 a	7.5 a	5.0 a	98.3 a
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C				
4	Valor XLT Premix	40.3	WG	0.088	lb ai/a	PRE	A	70.0 a	5.7 b	4.3 a	98.3 a
	----flumioxazin	30		0.0655							
	----chlorimuron	10.3		0.0225							
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C				
5	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	100.0 a	7.5 a	5.0 a	100.0 a
	----flumioxazin	33.5		0.0785							
	----pyroxasulfone	42.5		0.1							
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C				
6	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	100.0 a	5.7 b	5.0 a	96.7 a
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C				
7	Authority Elite Premix	7	EC	1.53	lb ai/a	PRE	A	92.0 a	5.5 b	3.7 a	100.0 a
	----sulfentrazone	0.7		0.153							
	----s-metolachlor	6.3		1.38							
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,9



Pest Code Pest Name Crop Type, Code						C GLXMA	AMAPA PalmerAm C -	IPOSS Morngrly C -	C GLXMA	
Crop Name Rating Type Rating Unit Rating Date						Soybean Injury %	Control %	Control %	Soybean Yield Bu/A	
						07/13/16	07/13/16	07/13/16	11/03/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Timing	Appl Code				
1	Untreated Check						0.0 b	0.0 c	0.0 c	58.9 a
2	Authority First Premix	70 DF		0.236 lb	ai/a PRE	A	4.3 a	100.0 a	78.3 a	68.6 a
	----sulfentrazone	62.1		0.21						
	----cloransulam	7.9		0.0266						
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a 28DAP	B				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v 28DAP	B				
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a if needed	C				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v if needed	C				
3	Authority MTZ Premix	45 DF		0.338 lb	ai/a PRE	A	6.3 a	97.7 ab	74.3 a	60.9 a
	----sulfentrazone	18		0.135						
	----metribuzin	27		0.203						
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a 28DAP	B				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v 28DAP	B				
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a if needed	C				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v if needed	C				
4	Valor XLT Premix	40.3 WG		0.088 lb	ai/a PRE	A	3.3 ab	100.0 a	73.3 a	65.1 a
	----flumioxazin	30		0.0655						
	----chlorimuron	10.3		0.0225						
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a 28DAP	B				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v 28DAP	B				
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a if needed	C				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v if needed	C				
5	Fierce Premix	76 WG		0.178 lb	ai/a PRE	A	6.8 a	100.0 a	69.3 a	63.1 a
	----flumioxazin	33.5		0.0785						
	----pyroxasulfone	42.5		0.1						
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a 28DAP	B				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v 28DAP	B				
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a if needed	C				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v if needed	C				
6	Canopy Premix	75 DF		0.188 lb	ai/a PRE	A	5.7 a	100.0 a	63.3 ab	62.2 a
	----metribuzin	64.3		0.161						
	----chlorimuron	10.7		0.0268						
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a 28DAP	B				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v 28DAP	B				
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a if needed	C				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v if needed	C				
7	Authority Elite Premix	7 EC		1.53 lb	ai/a PRE	A	3.3 ab	96.0 b	60.0 ab	63.3 a
	----sulfentrazone	0.7		0.153						
	----s-metolachlor	6.3		1.38						
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a 28DAP	B				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v 28DAP	B				
	Liberty 280.....glufosinate	2.34 SL		0.585 lb	ai/a if needed	C				
	Dry Ammonium Sulfate	100 D		1.02 %	w/v if needed	C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,9

Pest Code Pest Name						C	GLXMA	C	GLXMA	AMAPA PalmerAm	IPOSS Mornglry	
Crop Type, Code						C	GLXMA	C	GLXMA	C -	C -	
Crop Name						Soybean		Soybean				
Rating Type						Stunting		Stunting		Control	Control	
Rating Unit						%		%		%	%	
Rating Date						06/21/16		06/29/16		06/29/16	06/29/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code					
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	3.3	c	2.0	b	
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			95.0	a	
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				53.3	
LSD	P=.05						2.77		2.21		15.43	
Standard Deviation							1.58		1.26		8.81	
CV							30.39		108.26		11.16	
Replicate F							2.311		1.358		1.739	
Replicate Prob(F)							0.1357		0.2890		0.2116	
Treatment F							33.936		4.000		40.023	
Treatment Prob(F)							0.0001		0.0131		0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,9

Pest Code Pest Name						MOLVE Carpetwd			AMAPA PalmerAm
Crop Type, Code						C -	C GLXMA	C GLXMA	C -
Crop Name						Control	Soybean Injury	Soybean Chlrsls	Control
Rating Type						%	%	%	%
Rating Unit						06/29/16	07/07/16	07/07/16	07/07/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	70.0 a	6.3 ab
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A		5.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B		100.0 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B		
LSD P=.05						42.25	1.62	1.08	3.43
Standard Deviation						24.13	0.88	0.62	1.96
CV						30.54	14.73	12.99	1.99
Replicate F						2.281	8.463	0.000	5.106
Replicate Prob(F)						0.1388	0.0086	1.0000	0.0216
Treatment F						6.137	13.099	1.938	1.840
Treatment Prob(F)						0.0020	0.0005	0.1384	0.1570

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,9

Pest Code						C	GLXMA	AMAPA PalmerAm C -	IPOSS Mornglry C -	C	GLXMA
Pest Name							Soybean	Control	Control		Soybean
Crop Type, Code							Injury	%	%		Yield
Crop Name							%				Bu/A
Rating Type							07/13/16	07/13/16	07/13/16		11/03/16
Rating Unit											
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	5.0 a	100.0 a	46.7 b	62.8 a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A				
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							3.77	3.57	21.54	11.58
	Standard Deviation							2.10	2.04	12.30	6.61
	CV							48.4	2.35	21.15	10.48
	Replicate F							4.995	0.040	0.476	0.167
	Replicate Prob(F)							0.0286	0.9609	0.6308	0.8482
	Treatment F							3.201	885.404	12.942	0.564
	Treatment Prob(F)							0.0416	0.0001	0.0001	0.7727

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,9

PRE and POST Weed Control in Liberty Link Soybeans  
 Trial ID: Soy11-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Soy11-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: FMC

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: S44LS76  
 Attributes: Liberty Link  
 Planting Date: 06/06/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/12/16  
 Harvest Date: 10/27/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25 FT

**Pest Description**

Pest 1 Type: W      Code: DIGSA      Digitaria sanguinalis  
 Common Name: large crabgrass  
 Pest 2 Type: W      Code: IPOSS      Ipomoea sp.  
 Common Name: Morning glory  
 Pest 3 Type: W      Code: AMAPA      Amaranthus palmeri  
 Common Name: Palmer amaranth

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 14      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: FACTOR Factorial

**Soil Description**

% Sand: 81      % OM: 1.4      Texture: LS loamy sand  
 % Silt: 12      pH: 6.7  
 % Clay: 7      CEC: 4.9      Fert. Level: G good  
 Soil Drainage: G good

<b>Application Description</b>				
	A	B	C	D
Application Date	06/08/16	06/30/16	07/11/16	07/21/16
Appl. Stop Time	08:45 AM	10:00 AM	08:30 AM	09:30 AM
Interval to Prev. Appl.		22 DAYS	11 DAYS	10 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	PRE	V2-4	V5-6	V7-8
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	VanGessl	VanGessl
Air Temperature Start, Stop	71 F	76 F	76 F	81 F
% Relative Humidity Start, Stop	49	61	59	67
Wind Velocity+Dir. Start	4 mph W	0 mph N/A	2 mph NE	1 mph SE
Wet Leaves (Y/N)	N no	N no	Y yes	N no
Soil Temperature	71 F	75 F	76 F	81 F
Soil Moisture	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover	50	0	15	10

<b>Crop Stage At Each Application</b>				
	A	B	C	D
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC	DESC	DESC
Stage Majority, Percent		2-trifol 100	5 trif 100	9 trif 100
Height Average		5 in	10 in	17 in

<b>Pest Stage At Each Application</b>				
	A	B	C	D
Pest 1 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent		1-tilr 50	3-tilr 60	4-tilr 70
Stage Minimum, Percent		3-leaf 20	2-tilr 20	3-tilr 30
Stage Maximum, Percent		2-tilr 30	4-tilr 20	4-tilr 70
Height Average		2 in	7.5 in	13 in
Height Minimum, Maximum		1 3	7 8	12 14
Density Average		100 m2	40 m2	40 m2
Pest 2 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent		1-3 lf 50	veg 55	run 100
Stage Minimum, Percent		cot 20	veg 55	
Stage Maximum, Percent		4-5 lf 30	run 45	
Height Average		1.5 in	6 in	18 in
Height Minimum, Maximum		1 2.5	5 8	15 20
Density Average		2 m2	2 m2	5 m2
Pest 3 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent		veg 100	veg 100	veg 100
Height Average		1.5 in	10 in	17 in
Height Minimum, Maximum		1 2	8 12	15 20
Density Average		1 m2	1 m2	1 m2

**Application Equipment**

	A	B	C	D
Appl. Equipment	Tractor	Tractor	Backpack	Backpack
Equipment Type	TRMOSP	TRMOSP	SPRBAC	SPRBAC
Operation Pressure	40 psi	40 psi	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	20 in	20 in	18 in	18 in
Boom Length	10 ft	10 ft	9 ft	9 ft
Boom Height	18 in	21 in	28 in	36 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Propellant	COMAIR	COMAIR	COMCO2	COMCO2

**Trial Comments**

06/22/16: Seedlings of morningglory and large crabgrass observed in all treatments.

07/11/16: Very dense grass pressure which is suppressing broadleaf weeds, particularly in plots with less than 60% control of grasses.

IPOSS seedlings:  
 X= 1 to 2 seedlings per plot  
 XX= >2 seedlings per plot  
 XXX= plants with more than 1 true leaf  
 0= no emerged seedlings

Few IPOSS seedlings have begun to emerge in plots with early application.

07/21/16: Grasses in plots with <50% control are interfering with broadleaf weed growth. Treatments at EPOST had excellent control of plants present at time of applicaiton, ratings reflect new emergence. Treatments at MPOST had poor control of large crabgrass.

07/30/16: Soybean canopy was stunted and not as "tight" in trt 3, 6, 9, 12, 13 as other treatments due to weed competition. Late ratings due to leaf and tissue burn on weeds, plants may recover, but Liberty caused significant leaf burn (i.e. trt 3), but lots of grass residue still standing; burned Palmer and morningglory leaves off, but stems still appear to be green. If no signs of morningglory, then rated it 99%, maybe severely injured plants and can not see because of how dense the grass is.

PRE and POST Weed Control in Liberty Link Soybeans  
 Trial ID: Soy11-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Soy11-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: FMC

Pest Code			AMAPA	IPOSS	DIGSA						
Pest Name			PalmerAm	Morngrly	L.crbgrs						
Crop Type, Code	C GLXMA		C -	C -	C -						
Crop Name	Soybean										
Rating Type	Stunting		PRE-Cntrl	PRE-Cntrl	PRE-Cntrl						
Rating Unit	%		%	%	%						
Rating Date	06/22/16		07/01/16	07/01/16	07/01/16						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	Authority XL Premix	70	DG	0.232	lb ai/a	PRE	A	7.0	a		
	----sulfentrazone	62.2		0.206							
	----chlorimuron	7.8		0.0259							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
2	Authority XL Premix	70	DG	0.232	lb ai/a	PRE	A	95.0	a	76.7	b
	----sulfentrazone	62.2		0.206							
	----chlorimuron	7.8		0.0259							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
3	Authority XL Premix	70	DG	0.232	lb ai/a	PRE	A				
	----sulfentrazone	62.2		0.206							
	----chlorimuron	7.8		0.0259							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
4	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	0.0	b		
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
5	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	93.3	a	83.0	ab
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
6	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A				
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
7	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	0.0	b		
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
8	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	92.7	a	80.0	b
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=9,15,16,17,18,19,20  
 Could not calculate LSD (% mean diff) for columns 11,12,14 because error mean square = 0.



Pest Code	AMAPA	IPOSS	DIGSA	AMAPA							
Pest Name	PalmerAm	Morngrly	L.crbgrs	PalmerAm							
Crop Type, Code	C -	C -	C -	C -							
Crop Name											
Rating Type	PRE-Cntrl	PRE-Cntrl	PRE-Cntrl	PRE-Cntrl							
Rating Unit	%	%	%	%							
Rating Date	07/11/16	07/11/16	07/11/16	07/21/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	Authority XL Premix	70	DG	0.232	lb ai/a	PRE	A				
	----sulfentrazone	62.2		0.206							
	----chlorimuron	7.8		0.0259							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
2	Authority XL Premix	70	DG	0.232	lb ai/a	PRE	A				
	----sulfentrazone	62.2		0.206							
	----chlorimuron	7.8		0.0259							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
3	Authority XL Premix	70	DG	0.232	lb ai/a	PRE	A	97.3 a	70.0 a	58.3 a	97.3 a
	----sulfentrazone	62.2		0.206							
	----chlorimuron	7.8		0.0259							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
4	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A				
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
5	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A				
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
6	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	80.0 b	74.3 a	40.0 b	81.0 b
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
7	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A				
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
8	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A				
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9,15,16,17,18,19,20

Could not calculate LSD (% mean diff) for columns 11,12,14 because error mean square = 0.

Pest Code Pest Name Crop Type, Code						IPOSS Morngrly C -	DIGSA L.crbgrs C -	AMAPA PalmerAm C -	IPOSS Morngrly C -
Crop Name Rating Type						PRE-Cntrl	PRE-Cntrl	POST-Cntrl	POST-Cntrl
Rating Unit Rating Date						% 07/21/16	% 07/21/16	% 07/11/16	% 07/11/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Appl Timing Code				
1	Authority XL Premix	70	DG	0.232 lb ai/a	PRE A			100.0 a	100.0 a
	----sulfentrazone	62.2		0.206					
	----chlorimuron	7.8		0.0259					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V2-4 B				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V2-4 B				
2	Authority XL Premix	70	DG	0.232 lb ai/a	PRE A				
	----sulfentrazone	62.2		0.206					
	----chlorimuron	7.8		0.0259					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V5-6 C				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V5-6 C				
3	Authority XL Premix	70	DG	0.232 lb ai/a	PRE A	63.3 a	48.3 a		
	----sulfentrazone	62.2		0.206					
	----chlorimuron	7.8		0.0259					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V7-8 D				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V7-8 D				
4	Authority MTZ Premix	45	DF	0.338 lb ai/a	PRE A			100.0 a	100.0 a
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V2-4 B				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V2-4 B				
5	Authority MTZ Premix	45	DF	0.338 lb ai/a	PRE A				
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V5-6 C				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V5-6 C				
6	Authority MTZ Premix	45	DF	0.338 lb ai/a	PRE A	51.3 a	50.0 a		
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V7-8 D				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V7-8 D				
7	Canopy Premix	75	DF	0.188 lb ai/a	PRE A			100.0 a	100.0 a
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V2-4 B				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V2-4 B				
8	Canopy Premix	75	DF	0.188 lb ai/a	PRE A				
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V5-6 C				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V5-6 C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=9,15,16,17,18,19,20  
 Could not calculate LSD (% mean diff) for columns 11,12,14 because error mean square = 0.

Pest Code Pest Name Crop Type, Code						IPOSS Morngrly C -	DIGSA L.crbgrs C -	AMAPA PalmerAm C -	IPOSS Morngrly C -
Crop Name Rating Type						Emergnce	POST-Cntrl	POST-Cntrl	POST-Cntrl
Rating Unit Rating Date						Relative 07/11/16	% 07/11/16	% 07/21/16	% 07/21/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Appl Timing Code				
1	Authority XL Premix	70	DG	0.232 lb ai/a	PRE A	1.0 b	100.0 a	100.0 a	86.0 a
	----sulfentrazone	62.2		0.206					
	----chlorimuron	7.8		0.0259					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V2-4 B				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V2-4 B				
2	Authority XL Premix	70	DG	0.232 lb ai/a	PRE A			100.0 a	90.3 a
	----sulfentrazone	62.2		0.206					
	----chlorimuron	7.8		0.0259					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V5-6 C				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V5-6 C				
3	Authority XL Premix	70	DG	0.232 lb ai/a	PRE A				
	----sulfentrazone	62.2		0.206					
	----chlorimuron	7.8		0.0259					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V7-8 D				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V7-8 D				
4	Authority MTZ Premix	45	DF	0.338 lb ai/a	PRE A	0.7 b	100.0 a	100.0 a	91.0 a
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V2-4 B				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V2-4 B				
5	Authority MTZ Premix	45	DF	0.338 lb ai/a	PRE A			93.7 a	85.0 a
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V5-6 C				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V5-6 C				
6	Authority MTZ Premix	45	DF	0.338 lb ai/a	PRE A				
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V7-8 D				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V7-8 D				
7	Canopy Premix	75	DF	0.188 lb ai/a	PRE A	1.0 b	100.0 a	100.0 a	91.7 a
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V2-4 B				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V2-4 B				
8	Canopy Premix	75	DF	0.188 lb ai/a	PRE A			96.0 a	83.3 ab
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	V5-6 C				
	Dry Ammonium Sulfate	100	D	2.04 % w/v	V5-6 C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9,15,16,17,18,19,20

Could not calculate LSD (% mean diff) for columns 11,12,14 because error mean square = 0.

Pest Code Pest Name Crop Type, Code						DIGSA L.crbgrs C -	AMAPA PalmerAm C -	IPOSS Mornglry C -	DIGSA L.crbgrs C -	
Crop Name Rating Type						POST-Cntrl	POST-Cntrl	POST-Cntrl	POST-Cntrl	
Rating Unit Rating Date						% 07/21/16	% 07/30/16	% 07/30/16	% 07/21/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Appl Timing Code					
1	Authority XL Premix ----sulfentrazone ----chlorimuron Liberty 280.....glufosinate Dry Ammonium Sulfate	70 62.2 7.8 2.34 100	DG   SL D	0.232 0.206 0.0259 0.53 2.04	lb ai/a PRE   V2-4 % w/v V2-4	A   B B	95.0 a	98.0 ab	90.0 ab	93.0 a
2	Authority XL Premix ----sulfentrazone ----chlorimuron Liberty 280.....glufosinate Dry Ammonium Sulfate	70 62.2 7.8 2.34 100	DG   SL D	0.232 0.206 0.0259 0.53 2.04	lb ai/a PRE   V5-6 % w/v V5-6	A   C C	64.6 b	99.1 a	77.5 b	64.2 c
3	Authority XL Premix ----sulfentrazone ----chlorimuron Liberty 280.....glufosinate Dry Ammonium Sulfate	70 62.2 7.8 2.34 100	DG   SL D	0.232 0.206 0.0259 0.53 2.04	lb ai/a PRE   V7-8 % w/v V7-8	A   D D		99.0 a	98.3 a	90.0 ab
4	Authority MTZ Premix ----sulfentrazone ----metribuzin Liberty 280.....glufosinate Dry Ammonium Sulfate	45 18 27 2.34 100	DF   SL D	0.338 0.135 0.203 0.53 2.04	lb ai/a PRE   V2-4 % w/v V2-4	A   B B	96.3 a	99.0 a	87.3 ab	94.0 a
5	Authority MTZ Premix ----sulfentrazone ----metribuzin Liberty 280.....glufosinate Dry Ammonium Sulfate	45 18 27 2.34 100	DF   SL D	0.338 0.135 0.203 0.53 2.04	lb ai/a PRE   V5-6 % w/v V5-6	A   C C	69.3 b	98.3 ab	80.7 ab	64.3 c
6	Authority MTZ Premix ----sulfentrazone ----metribuzin Liberty 280.....glufosinate Dry Ammonium Sulfate	45 18 27 2.34 100	DF   SL D	0.338 0.135 0.203 0.53 2.04	lb ai/a PRE   V7-8 % w/v V7-8	A   D D		99.0 a	98.3 a	89.3 ab
7	Canopy Premix ----metribuzin ----chlorimuron Liberty 280.....glufosinate Dry Ammonium Sulfate	75 64.3 10.7 2.34 100	DF   SL D	0.188 0.161 0.0268 0.53 2.04	lb ai/a PRE   V2-4 % w/v V2-4	A   B B	97.0 a	99.0 a	94.0 ab	91.0 ab
8	Canopy Premix ----metribuzin ----chlorimuron Liberty 280.....glufosinate Dry Ammonium Sulfate	75 64.3 10.7 2.34 100	DF   SL D	0.188 0.161 0.0268 0.53 2.04	lb ai/a PRE   V5-6 % w/v V5-6	A   C C	65.0 b	89.0 c	83.0 ab	58.3 c

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9,15,16,17,18,19,20

Could not calculate LSD (% mean diff) for columns 11,12,14 because error mean square = 0.

Pest Code Pest Name Crop Type, Code						C GLXMA
Crop Name Rating Type Rating Unit Rating Date						Soybean Yield Bu/A 10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit Appl Timing	Appl Code
1	Authority XL Premix	70	DG	0.232	lb ai/a PRE	A
	----sulfentrazone	62.2		0.206		
	----chlorimuron	7.8		0.0259		
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a V2-4	B
	Dry Ammonium Sulfate	100	D	2.04	% w/v V2-4	B
49.8						abc
2	Authority XL Premix	70	DG	0.232	lb ai/a PRE	A
	----sulfentrazone	62.2		0.206		
	----chlorimuron	7.8		0.0259		
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a V5-6	C
	Dry Ammonium Sulfate	100	D	2.04	% w/v V5-6	C
48.4						bcd
3	Authority XL Premix	70	DG	0.232	lb ai/a PRE	A
	----sulfentrazone	62.2		0.206		
	----chlorimuron	7.8		0.0259		
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a V7-8	D
	Dry Ammonium Sulfate	100	D	2.04	% w/v V7-8	D
47.3						cd
4	Authority MTZ Premix	45	DF	0.338	lb ai/a PRE	A
	----sulfentrazone	18		0.135		
	----metribuzin	27		0.203		
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a V2-4	B
	Dry Ammonium Sulfate	100	D	2.04	% w/v V2-4	B
52.9						abc
5	Authority MTZ Premix	45	DF	0.338	lb ai/a PRE	A
	----sulfentrazone	18		0.135		
	----metribuzin	27		0.203		
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a V5-6	C
	Dry Ammonium Sulfate	100	D	2.04	% w/v V5-6	C
52.9						abc
6	Authority MTZ Premix	45	DF	0.338	lb ai/a PRE	A
	----sulfentrazone	18		0.135		
	----metribuzin	27		0.203		
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a V7-8	D
	Dry Ammonium Sulfate	100	D	2.04	% w/v V7-8	D
54.9						ab
7	Canopy Premix	75	DF	0.188	lb ai/a PRE	A
	----metribuzin	64.3		0.161		
	----chlorimuron	10.7		0.0268		
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a V2-4	B
	Dry Ammonium Sulfate	100	D	2.04	% w/v V2-4	B
57.2						a
8	Canopy Premix	75	DF	0.188	lb ai/a PRE	A
	----metribuzin	64.3		0.161		
	----chlorimuron	10.7		0.0268		
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a V5-6	C
	Dry Ammonium Sulfate	100	D	2.04	% w/v V5-6	C
50.5						abc

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9,15,16,17,18,19,20

Could not calculate LSD (% mean diff) for columns 11,12,14 because error mean square = 0.

Pest Code Pest Name		AMAPA PalmerAm	IPOSS Mornglry	DIGSA L.crbgrs
Crop Type, Code	C GLXMA	C -	C -	C -
Crop Name Rating Type	Soybean Stunting	PRE-Cntrl	PRE-Cntrl	PRE-Cntrl
Rating Unit Rating Date	% 06/22/16	% 07/01/16	% 07/01/16	% 07/01/16
Trt Treatment No. Name	Form Form Conc Type Rate	Rate Unit	Appl Timing	Appl Code
9 Canopy Premix ----metribuzin ----chlorimuron Liberty 280.....glufosinate Dry Ammonium Sulfate	75 DF 64.3 10.7 2.34 SL 100 D	0.188 lb ai/a 0.161 0.0268 0.53 lb ai/a 2.04 % w/v	PRE V7-8 V7-8	A D D
10 No PRE Herbicide Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.53 lb ai/a 2.04 % w/v	V2-4 V2-4	B B
11 No PRE Herbicide Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.53 lb ai/a 2.04 % w/v	V5-6 V5-6	C C
12 No PRE Herbicide Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.53 lb ai/a 2.04 % w/v	V7-8 V7-8	D D
13 Valor XLT Premix ----flumioxazin ----chlorimuron Liberty 280.....glufosinate Dry Ammonium Sulfate	40.3 WG 30 10.3 2.34 SL 100 D	0.0756 lb ai/a 0.056 0.0193 0.53 lb ai/a 2.04 % w/v	PRE V7-8 V7-8	A D D
14 Untreated Check				
LSD P=.05	3.40	8.50	10.69	5.51
Standard Deviation	1.81	4.67	5.87	3.03
CV	77.46	7.36	10.62	6.26
Replicate F	1.000	1.855	3.396	1.364
Replicate Prob(F)	0.4096	0.2065	0.0749	0.2994
Treatment F	10.000	333.336	162.114	463.273
Treatment Prob(F)	0.0033	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9, 15, 16, 17, 18, 19, 20

Could not calculate LSD (% mean diff) for columns 11, 12, 14 because error mean square = 0.

Pest Code						AMAPA	IPOSS	DIGSA	AMAPA		
Pest Name						PalmerAm	Mornglry	L.crbgrs	PalmerAm		
Crop Type, Code						C -	C -	C -	C -		
Crop Name											
Rating Type						PRE-Cntrl	PRE-Cntrl	PRE-Cntrl	PRE-Cntrl		
Rating Unit						%	%	%	%		
Rating Date						07/11/16	07/11/16	07/11/16	07/21/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code				
9	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	87.0 b	68.3 a	60.0 a	81.0 b
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
10	No PRE Herbicide										
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
11	No PRE Herbicide										
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
12	No PRE Herbicide										
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
13	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	97.3 a	68.3 a	66.7 a	99.0 a
	----flumioxazin	30		0.056							
	----chlorimuron	10.3		0.0193							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
14	Untreated Check							0.0 c	0.0 b	0.0 c	0.0 c
LSD P=.05						8.88	13.59	12.86	8.97		
Standard Deviation						4.72	7.22	6.83	4.77		
CV						6.52	12.84	15.18	6.65		
Replicate F						0.524	1.432	0.107	0.857		
Replicate Prob(F)						0.6110	0.2941	0.8997	0.4600		
Treatment F						227.730	57.180	46.964	221.739		
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9, 15, 16, 17, 18, 19, 20

Could not calculate LSD (% mean diff) for columns 11, 12, 14 because error mean square = 0.

Pest Code						IPOSS	DIGSA	AMAPA	IPOSS
Pest Name						Mornglry	L.crbgrs	PalmerAm	Mornglry
Crop Type, Code						C -	C -	C -	C -
Crop Name									
Rating Type						PRE-Cntrl	PRE-Cntrl	POST-Cntrl	POST-Cntrl
Rating Unit						%	%	%	%
Rating Date						07/21/16	07/21/16	07/11/16	07/11/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
9	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	56.0 a	50.0 a
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D		
10	No PRE Herbicide							100.0 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B		
11	No PRE Herbicide								
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C		
12	No PRE Herbicide								
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D		
13	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	60.0 a	45.0 a
	----flumioxazin	30		0.056					
	----chlorimuron	10.3		0.0193					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D		
14	Untreated Check							0.0 b	0.0 b
	LSD P=.05							26.53	32.02
	Standard Deviation							13.74	17.00
	CV							29.78	43.98
	Replicate F							0.111	0.697
	Replicate Prob(F)							0.8969	0.5258
	Treatment F							10.888	4.890
	Treatment Prob(F)							0.0040	0.0272

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=9,15,16,17,18,19,20  
 Could not calculate LSD (% mean diff) for columns 11,12,14 because error mean square = 0.



Pest Code						IPOSS	DIGSA	AMAPA	IPOSS		
Pest Name						Morninglry	L.crbgrs	PalmerAm	Morninglry		
Crop Type, Code						C -	C -	C -	C -		
Crop Name											
Rating Type						Emergnce	POST-Cntrl	POST-Cntrl	POST-Cntrl		
Rating Unit						Relative	%	%	%		
Rating Date						07/11/16	07/11/16	07/21/16	07/21/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code				
9	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A				
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
10	No PRE Herbicide							2.3 a	100.0 a	100.0 a	83.0 ab
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
11	No PRE Herbicide									75.0 b	71.7 b
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
12	No PRE Herbicide										
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
13	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A				
	----flumioxazin	30		0.056							
	----chlorimuron	10.3		0.0193							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
14	Untreated Check							3.0 a	0.0 b	0.0 c	0.0 c
LSD P=.05						1.14	.	12.63	13.02		
Standard Deviation						0.61	0.00	7.25	7.48		
CV						37.85	0.0	8.54	9.88		
Replicate F						0.545	0.000	0.676	4.533		
Replicate Prob(F)						0.5997	1.0000	0.5234	0.0288		
Treatment F						8.364	0.000	61.603	45.217		
Treatment Prob(F)						0.0059	1.0000	0.0001	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9, 15, 16, 17, 18, 19, 20

Could not calculate LSD (% mean diff) for columns 11, 12, 14 because error mean square = 0.

Pest Code						DIGSA	AMAPA	IPOSS	DIGSA
Pest Name						L.crbgrs	PalmerAm	Mornglry	L.crbgrs
Crop Type, Code						C -	C -	C -	C -
Crop Name									
Rating Type						POST-Cntrl	POST-Cntrl	POST-Cntrl	POST-Cntrl
Rating Unit						%	%	%	%
Rating Date						07/21/16	07/30/16	07/30/16	07/21/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
9	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A		
	----metribuzin	64.3		0.161					
	----chlorimuron	10.7		0.0268					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D		
10	No PRE Herbicide								
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B		
11	No PRE Herbicide								
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C		
12	No PRE Herbicide								
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D		
13	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A		
	----flumioxazin	30		0.056					
	----chlorimuron	10.3		0.0193					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D		
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D		
14	Untreated Check								
	LSD P=.05								
	Standard Deviation								
	CV								
	Replicate F								
	Replicate Prob(F)								
	Treatment F								
	Treatment Prob(F)								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9, 15, 16, 17, 18, 19, 20

Could not calculate LSD (% mean diff) for columns 11, 12, 14 because error mean square = 0.

Pest Code						C GLXMA		
Pest Name								
Crop Type, Code								
Crop Name						Soybean		
Rating Type						Yield		
Rating Unit						Bu/A		
Rating Date						10/27/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code	
9	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	49.7 bc
	----metribuzin	64.3		0.161				
	----chlorimuron	10.7		0.0268				
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D	
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D	
10	No PRE Herbicide							53.6 abc
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B	
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B	
11	No PRE Herbicide							42.0 d
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C	
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C	
12	No PRE Herbicide							54.2 abc
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D	
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D	
13	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	53.9 abc
	----flumioxazin	30		0.056				
	----chlorimuron	10.3		0.0193				
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D	
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D	
14	Untreated Check							32.1 e
LSD P=.05								7.40
Standard Deviation								4.41
CV								8.82
Replicate F								5.118
Replicate Prob(F)								0.0134
Treatment F								6.328
Treatment Prob(F)								0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=9, 15, 16, 17, 18, 19, 20

Could not calculate LSD (% mean diff) for columns 11, 12, 14 because error mean square = 0.

PRE and POST Weed Control in Liberty Link Soybeans					Trial ID: Soy11-16 Location: Field #18 Trial Year: 2016						
Protocol ID: Soy11-16 Investigator: Mark VanGessel					Study Director:						
Sponsor Contact: FMC											
Pest Code	AMAPA	IPOSS	DIGSA	C	GLXMA						
Pest Name	PalmerAm	Morngrly	L.crbgrs	C							
Crop Type, Code	C -	C -	C -								
Crop Name	POST-Cntrl	POST-Cntrl	POST-Cntrl		Soybean						
Rating Type					Yield						
Rating Unit	%	%	%		Bu/A						
Rating Date	07/21/16	07/21/16	07/21/16		10/27/16						
Trt Treatment	Form Form	Rate	Appl	Appl							
No. Name	Conc Type	Rate	Unit	Timing Code							
<b>TABLE OF R MEANS</b>											
Replicate 1					93.1	78.4	79.6	47.9			
Replicate 2					96.1	89.3	78.0	54.6			
Replicate 3					97.5	88.1	77.6	50.8			
<b>TABLE OF A (PRE Herbicide) MEANS</b>											
1 Authority XL Premix 70 DG 0.232 lb ai/a PRE A					100.0 a	88.1 a	79.8 a	48.5 a			
1 ----sulfentrazone 62.2 0.206											
1 ----chlorimuron 7.8 0.0259											
2 Authority MTZ Premix 45 DF 0.338 lb ai/a PRE A					96.8 a	88.0 a	82.8 a	53.6 a			
2 ----sulfentrazone 18 0.135											
2 ----metribuzin 27 0.203											
3 Canopy Premix 75 DF 0.188 lb ai/a PRE A					98.0 a	87.5 a	81.0 a	52.5 a			
3 ----metribuzin 64.3 0.161											
3 ----chlorimuron 10.7 0.0268											
4 No PRE Herbicide					87.5 a	77.3 a	70.0 b	49.9 a			
LSD P=.05					7.89	7.87	4.87	3.96			
Standard Deviation					7.75	7.73	4.78	4.05			
CV					8.11	9.07	6.10	7.92			
<b>TABLE OF B (POST Timing) MEANS</b>											
1 Liberty 280.....glufosinate 2.34 SL 0.53 lb ai/a V2-4 B					100.0 a	87.9 a	96.3 a	53.4 a			
1 Dry Ammonium Sulfate 100 D 2.04 % w/v V2-4 B											
2 Liberty 280.....glufosinate 2.34 SL 0.53 lb ai/a V5-6 C					91.2 b	82.6 a	60.6 b	48.5 b			
2 Dry Ammonium Sulfate 100 D 2.04 % w/v V5-6 C											
3 Liberty 280.....glufosinate 2.34 SL 0.53 lb ai/a V7-8 D					.	.	.	51.5 ab			
3 Dry Ammonium Sulfate 100 D 2.04 % w/v V7-8 D											
LSD P=.05					6.83	6.82	4.22	3.43			
Standard Deviation					7.75	7.73	4.78	4.05			
CV					8.11	9.07	6.10	7.92			
<b>TABLE OF A (PRE Herbicide) B (POST Timing) MEANS</b>											
1 Authority XL Premix 70 DG 0.232 lb ai/a PRE A					100.0 a	86.0 a	95.0 a	49.8 bc			
1 ----sulfentrazone 62.2 0.206											
1 ----chlorimuron 7.8 0.0259											
1 Liberty 280.....glufosinate 2.34 SL 0.53 lb ai/a V2-4 B											
1 Dry Ammonium Sulfate 100 D 2.04 % w/v V2-4 B											
2 Authority MTZ Premix 45 DF 0.338 lb ai/a PRE A					100.0 a	91.0 a	96.3 a	52.9 abc			
2 ----sulfentrazone 18 0.135											
2 ----metribuzin 27 0.203											
1 Liberty 280.....glufosinate 2.34 SL 0.53 lb ai/a V2-4 B											
1 Dry Ammonium Sulfate 100 D 2.04 % w/v V2-4 B											

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

						AMAPA PalmerAm C -	IPOSS Mornlry C -	DIGSA L.crbgrs C -	C GLXMA		
Pest Code Pest Name Crop Type, Code											
Crop Name Rating Type						POST-Cntrl	POST-Cntrl	POST-Cntrl	Soybean Yield		
Rating Unit Rating Date						% 07/21/16	% 07/21/16	% 07/21/16	Bu/A 10/27/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code				
3	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	100.0 a	91.7 a	97.0 a	57.2 a
3	----metribuzin	64.3		0.161							
3	----chlorimuron	10.7		0.0268							
1	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
4	No PRE Herbicide							100.0 a	83.0 a	96.7 a	53.6 abc
1	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V2-4	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V2-4	B				
1	Authority XL Premix	70	DG	0.232	lb ai/a	PRE	A	100.0 a	90.3 a	64.6 b	48.4 bcd
1	----sulfentrazone	62.2		0.206							
1	----chlorimuron	7.8		0.0259							
2	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
2	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	93.7 a	85.0 a	69.3 b	52.9 abc
2	----sulfentrazone	18		0.135							
2	----metribuzin	27		0.203							
2	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
3	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	96.0 a	83.3 a	65.0 b	50.5 abc
3	----metribuzin	64.3		0.161							
3	----chlorimuron	10.7		0.0268							
2	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
4	No PRE Herbicide							75.0 a	71.7 a	43.3 c	42.0 d
2	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V5-6	C				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V5-6	C				
1	Authority XL Premix	70	DG	0.232	lb ai/a	PRE	A	.	.	.	47.3 cd
1	----sulfentrazone	62.2		0.206							
1	----chlorimuron	7.8		0.0259							
3	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
3	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
2	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	.	.	.	54.9 ab
2	----sulfentrazone	18		0.135							
2	----metribuzin	27		0.203							
3	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
3	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
3	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	.	.	.	49.7 bc
3	----metribuzin	64.3		0.161							
3	----chlorimuron	10.7		0.0268							
3	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
3	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
4	No PRE Herbicide							.	.	.	54.2 ab
3	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	V7-8	D				
3	Dry Ammonium Sulfate	100	D	2.04	% w/v	V7-8	D				
LSD P=.05						13.67	13.63	8.43	6.86		
Standard Deviation						7.75	7.73	4.78	4.05		
CV						8.11	9.07	6.10	7.92		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm C POST-Cntrl % 07/21/16 Analysis will skip factor level B3 for column 15 - all B3 treatments are missing; Missing values in column 15 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	22	2435.833333				
R	2	80.083333	40.041667	0.667	0.5300	
A	3	553.500000	184.500000	3.073	0.0653	7.9
B	1	468.166667	468.166667	7.797	0.0153	6.8
AB	3	553.500000	184.500000	3.073	0.0653	13.7
ERROR	13	780.583333	60.044872			

FACTORIAL/POOLED ERROR AOV For IPOSS Mornglry C POST-Cntrl % 07/21/16 Analysis will skip factor level B3 for column 16 - all B3 treatments are missing; Missing values in column 16 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	22	2227.627441				
R	2	571.174805	285.587402	4.781	0.0278	
A	3	501.743978	167.247993	2.800	0.0817	7.9
B	1	171.668132	171.668132	2.874	0.1138	6.8
AB	3	206.525228	68.841743	1.153	0.3650	13.6
ERROR	13	776.515299	59.731946			

FACTORIAL/POOLED ERROR AOV For DIGSA L.crbgrs C POST-Cntrl % 07/21/16 Analysis will skip factor level B3 for column 17 - all B3 treatments are missing; Missing values in column 17 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	22	9187.639160				
R	2	18.182617	9.091309	0.398	0.6798	
A	3	593.990072	197.996691	8.660	0.0020	4.9
B	1	7634.895996	7634.895996	333.921	0.0001	4.2
AB	3	643.333822	214.444607	9.379	0.0014	8.4
ERROR	13	297.236654	22.864358			

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Yield Bu/A 10/27/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1183.078962				
R	2	274.625494	137.312747	8.367	0.0020	
A	3	144.406334	48.135445	2.933	0.0560	4.0
B	2	149.101977	74.550988	4.543	0.0223	3.4
AB	6	253.890623	42.315104	2.578	0.0480	6.9
ERROR	22	361.054534	16.411570			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Dicamba in Conventional Tillage RR Soybeans  
 Trial ID: Soy12-16      Location: Field #2 east      Trial Year: 2016  
 Protocol ID: Soy12-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

C  
 Attributes: Non-crop

**Pest Description**

Pest 1 Type: W      Code: ELEIN      Eleusine indica  
 Common Name: Goosegrass  
 Pest 2 Type: W      Code: CYPES      Cyperus esculentus  
 Common Name: Yellow nutsedge  
 Pest 3 Type: W      Code: IPOSS      Ipomoea sp.  
 Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 30 FT  
 Treated Plot Area: 300 FT2      Treatments: 8      Tillage Type: CONTIL      conventional-till  
 Replications: 3      Study Design: RACOB      Randomized Complete Block (RCB)

Trial Initiation Comments:  
 Trial was initiated 6-15-16.

**Soil Description**

% Sand: 79      % OM: 0.6      Texture: SL      sandy loam  
 % Silt: 12      pH: 6.0  
 % Clay: 9      CEC: 4.6      Fert. Level: G good  
 Soil Drainage: G      good

**Application Description**

	A	B
Application Date	06/15/16	07/30/16
Appl. Stop Time	11:30 AM	09:00 AM
Interval to Prev. Appl.		45      DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	2-4"wds
Application Placement	BROADC	BROADC
Applied By	VanGessl	VanGessl
Air Temperature Start, Stop	70      F	80      F
% Relative Humidity Start, Stop	72	85
Wind Velocity+Dir. Start	1      mph      SE	2      mph      S
Wet Leaves (Y/N)	N      no	Y      yes
Soil Temperature	70      F	80      F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	85	40

<b>Pest Stage At Each Application</b>		
	A	B
Pest 1 Code, Type, Scale	ELEIN W	ELEIN W
Stage Majority, Percent		4-leaf 70
Stage Minimum, Percent		2-leaf 30
Stage Maximum, Percent		4-leaf 70
Height Average		3 in
Density Average		5 plot
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent		7-leaf 40
Stage Minimum, Percent		6-leaf 30
Stage Maximum, Percent		8-leaf 30
Height Average		4 in
Density Average		2 plot
Pest 3 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		2-leaf 100
Height Average		2 in
Density Average		1 plot

<b>Application Equipment</b>		
	A	B
Appl. Equipment	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Boom Length	9 ft	9 ft
Boom Height	18 in	24 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L
Propellant	COMCO2	COMCO2

#### Trial Comments

08/07/16: Very little emergence of weeds after PRE applications. There were plenty of weeds emerging in the border areas and in the untreated checks, but few emerged in the plots. In the untreated check were goosegrass, large crabgrass, Palmer amaranth, common lambsquarters, carpetweed, and morningglory species. All treatments had 100% control of all the species listed above unless noted. Yellow nutsedge was sporadic and so ratings are variable.



Dicamba in Conventional Tillage RR Soybeans  
 Trial ID: Soy12-16      Location: Field #2 east      Trial Year: 2016  
 Protocol ID: Soy12-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

Pest Code	AMAPA	IPOSS	DIGSA							
Pest Name	PalmerAm	Morgnglry	L.crbgrs							
Rating Type	Control	Control	Control							
Rating Unit	%	%	%							
Rating Date	07/29/16	07/29/16	07/29/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code			
1	Envive Premix	41.3	WG	0.0645	lb ai/a	PRE	A	100.0 a	100.0 a	97.3 a
	----chlorimuron	9.199999		0.0144						
	----flumioxazin	29.2		0.0456						
	----thifensulfuron	2.9		0.00453						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
2	Envive Premix	41.3	WG	0.0645	lb ai/a	PRE	A	100.0 a	100.0 a	89.7 a
	----chlorimuron	9.199999		0.0144						
	----flumioxazin	29.2		0.0456						
	----thifensulfuron	2.9		0.00453						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
3	Envive Premix	41.3	WG	0.0645	lb ai/a	PRE	A	100.0 a	100.0 a	92.7 a
	----chlorimuron	9.199999		0.0144						
	----flumioxazin	29.2		0.0456						
	----thifensulfuron	2.9		0.00453						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
4	Enlite Premix	47.9	WG	0.105	lb ai/a	PRE	A	100.0 a	100.0 a	94.0 a
	----chlorimuron	2.9		0.00636						
	----flimioxazin	36.2		0.079						
	----thifensulfuron	8.8		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
5	Enlite Premix	47.9	WG	0.105	lb ai/a	PRE	A	100.0 a	100.0 a	99.7 a
	----chlorimuron	2.9		0.00636						
	----flimioxazin	36.2		0.079						
	----thifensulfuron	8.8		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
6	Enlite Premix	47.9	WG	0.105	lb ai/a	PRE	A	100.0 a	94.3 b	98.0 a
	----chlorimuron	2.9		0.00636						
	----flimioxazin	36.2		0.079						
	----thifensulfuron	8.8		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
7	Untreated Check							0.0 b	0.0 c	0.0 b

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=3  
 Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Pest Code Pest Name							ELEIN Goosegrs	IPOSS Morngrly	CYPES Y.nutsge
Rating Type Rating Unit Rating Date							Control % 07/29/16	Control % 08/07/16	Control % 08/07/16
Trt Treatment No. Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code			
1 Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Roundup PowerMax..glyphosate Clarity.....dicamba	41.3 9.199999 29.2 2.9 4.5 4	WG    AS L	0.0645 0.0144 0.0456 0.00453 0.77 0.5	lb ai/a    lb ae/a lb ai/a	PRE    2-4" 2-4"	A    B B	98.7 a	100.0 a	99.0 a
2 Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Roundup PowerMax..glyphosate Clarity.....dicamba Cinch.....s-metolachlor	41.3 9.199999 29.2 2.9 4.5 4 7.64	WG    AS L E	0.0645 0.0144 0.0456 0.00453 0.77 0.5 0.955	lb ai/a    lb ae/a lb ai/a lb ai/a	PRE    2-4" 2-4" 2-4"	A    B B B	97.3 a	100.0 a	95.0 a
3 Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Roundup PowerMax..glyphosate Cobra.....lactofen Cinch.....s-metolachlor	41.3 9.199999 29.2 2.9 4.5 2 7.64	WG    AS EC E	0.0645 0.0144 0.0456 0.00453 0.77 0.156 0.955	lb ai/a    lb ae/a lb ai/a lb ai/a	PRE    2-4" 2-4" 2-4"	A    B B B	91.0 b	100.0 a	96.3 a
4 Enlite Premix ----chlorimuron ----flimioxazin ----thifensulfuron Roundup PowerMax..glyphosate Clarity.....dicamba	47.9 2.9 36.2 8.8 4.5 4	WG    AS L	0.105 0.00636 0.079 0.0193 0.77 0.5	lb ai/a    lb ae/a lb ai/a	PRE    2-4" 2-4"	A    B B	99.0 a	100.0 a	91.7 a
5 Enlite Premix ----chlorimuron ----flimioxazin ----thifensulfuron Roundup PowerMax..glyphosate Clarity.....dicamba Cinch.....s-metolachlor	47.9 2.9 36.2 8.8 4.5 4 7.64	WG    AS L E	0.105 0.00636 0.079 0.0193 0.77 0.5 0.955	lb ai/a    lb ae/a lb ai/a lb ai/a	PRE    2-4" 2-4" 2-4"	A    B B B	99.7 a	100.0 a	96.7 a
6 Enlite Premix ----chlorimuron ----flimioxazin ----thifensulfuron Roundup PowerMax..glyphosate Cobra.....lactofen Cinch.....s-metolachlor	47.9 2.9 36.2 8.8 4.5 2 7.64	WG    AS EC E	0.105 0.00636 0.079 0.0193 0.77 0.156 0.955	lb ai/a    lb ae/a lb ai/a lb ai/a	PRE    2-4" 2-4" 2-4"	A    B B B	99.0 a	99.0 a	93.3 a
7 Untreated Check							0.0 c	0.0 b	0.0 b

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3

Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Pest Code							ELEIN	IPOSS	CYPES	
Pest Name							Goosegrs	Mornngly	Y.nutsge	
Rating Type							Control	Control	Control	
Rating Unit							%	%	%	
Rating Date							08/23/16	08/23/16	08/23/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
1	Envive Premix	41.3	WG	0.0645	lb ai/a	PRE	A	99.7 a	100.0 a	100.0 a
	----chlorimuron	9.199999		0.0144						
	----flumioxazin	29.2		0.0456						
	----thifensulfuron	2.9		0.00453						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
2	Envive Premix	41.3	WG	0.0645	lb ai/a	PRE	A	100.0 a	100.0 a	98.0 a
	----chlorimuron	9.199999		0.0144						
	----flumioxazin	29.2		0.0456						
	----thifensulfuron	2.9		0.00453						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
3	Envive Premix	41.3	WG	0.0645	lb ai/a	PRE	A	100.0 a	100.0 a	97.3 a
	----chlorimuron	9.199999		0.0144						
	----flumioxazin	29.2		0.0456						
	----thifensulfuron	2.9		0.00453						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
4	Enlite Premix	47.9	WG	0.105	lb ai/a	PRE	A	98.7 a	100.0 a	96.3 a
	----chlorimuron	2.9		0.00636						
	----flimioxazin	36.2		0.079						
	----thifensulfuron	8.8		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
5	Enlite Premix	47.9	WG	0.105	lb ai/a	PRE	A	100.0 a	100.0 a	96.7 a
	----chlorimuron	2.9		0.00636						
	----flimioxazin	36.2		0.079						
	----thifensulfuron	8.8		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
6	Enlite Premix	47.9	WG	0.105	lb ai/a	PRE	A	100.0 a	96.7 a	99.7 a
	----chlorimuron	2.9		0.00636						
	----flimioxazin	36.2		0.079						
	----thifensulfuron	8.8		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
7	Untreated Check							0.0 b	0.0 b	0.0 b

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3

Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Pest Code Pest Name							AMAPA PalmerAm	IPOSS Mornglry	DIGSA L.crbgrs	
Rating Type Rating Unit Rating Date							Control %	Control %	Control %	
							07/29/16	07/29/16	07/29/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
8	Trivence Premix	61.3	WG	0.257	lb ai/a	PRE	A	100.0 a	100.0 a	98.2 a
	----chlorimuron	3.9		0.0164						
	----metribuzin	44.6		0.187						
	----flumioxazin	12.8		0.0537						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.375	lb ai/a	2-4"wds	B			
LSD P=.05							.	3.73	13.14	
Standard Deviation							0.00	2.13	7.45	
CV							0.0	2.46	8.9	
Replicate F							0.000	1.000	1.450	
Replicate Prob(F)							1.0000	0.3927	0.2700	
Treatment F							0.000	814.971	62.470	
Treatment Prob(F)							1.0000	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=3

Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

University of Delaware							ELEIN	IPOSS	CYPES	
Pest Code							Goosegrs	Mornglry	Y.nutsge	
Pest Name										
Rating Type							Control	Control	Control	
Rating Unit							%	%	%	
Rating Date							07/29/16	08/07/16	08/07/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
8	Trivence Premix	61.3	WG	0.257	lb ai/a	PRE	A	99.0 a	100.0 a	99.0 a
	----chlorimuron	3.9		0.0164						
	----metribuzin	44.6		0.187						
	----flumioxazin	12.8		0.0537						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.375	lb ai/a	2-4"wds	B			
LSD P=.05							4.57	1.07	9.61	
Standard Deviation							2.61	0.61	5.49	
CV							3.05	0.7	6.54	
Replicate F							5.325	1.000	6.624	
Replicate Prob(F)							0.0191	0.3927	0.0095	
Treatment F							528.293	9972.430	115.048	
Treatment Prob(F)							0.0001	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=3

Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Pest Code							ELEIN	IPOSS	CYPES
Pest Name							Goosegrs	Morngrly	Y.nutsge
Rating Type							Control	Control	Control
Rating Unit							%	%	%
Rating Date							08/23/16	08/23/16	08/23/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
8	Trivence Premix	61.3	WG	0.257	lb ai/a PRE	A	100.0 a	100.0 a	98.7 a
	----chlorimuron	3.9		0.0164					
	----metribuzin	44.6		0.187					
	----flumioxazin	12.8		0.0537					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a 2-4"wds	B			
	Reflex.....fomesafen	2	L	0.375	lb ai/a 2-4"wds	B			
LSD P=.05							1.50	3.57	4.32
Standard Deviation							0.86	2.04	2.46
CV							0.98	2.34	2.87
Replicate F							0.740	1.000	9.416
Replicate Prob(F)							0.4950	0.3927	0.0026
Treatment F							5098.464	892.429	595.200
Treatment Prob(F)							0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3

Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Dicamba in No-Tillage RR Soybeans  
 Trial ID: Soy13-16      Location: Field #2 west      Trial Year: 2016  
 Protocol ID: Soy13-16      Investigator: Mark VanGessel  
    Study Director:  
    Sponsor Contact: DuPont

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

C  
 Attributes: Non-crop

**Pest Description**

Pest 1 Type: W      Code: ERICA      Conyza canadensis  
    Common Name: Canada horseweed

Pest 2 Type: W      Code: OEOLA      Oenothera laciniata  
    Common Name: Cutleaf eveningprimrose

Pest 3 Type: W      Code: VERPG      Veronica peregrina  
    Common Name: Purslane speedwell

Pest 4 Type: W      Code: ELEIN      Eleusine indica  
    Common Name: Goosegrass

Pest 5 Type: W      Code: DIGSA      Digitaria sanguinalis  
    Common Name: large crabgrass

Pest 6 Type: W      Code: PANDI      Panicum dichotomiflorum  
    Common Name: Fall panicum

Pest 7 Type: W      Code: AMAPA      Amaranthus palmeri  
    Common Name: Palmer amaranth

Pest 8 Type: W      Code: IPOSS      Ipomoea sp.  
    Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 8      Tillage Type: NOTILL      no-till  
    Replications: 3      Study Design: FACTOR Factorial

Trial Initiation Comments:  
 Trial initiated 5-22-16.

**Soil Description**

% Sand: 87      % OM: 0.9      Texture: LS loamy sand  
    % Silt: 4      pH: 5.8  
    % Clay: 9      CEC: 5.4      Fert. Level: G good  
 Soil Drainage: G good

<b>Application Description</b>	<b>A</b>	<b>B</b>
Application Date	05/12/16	07/06/16
Appl. Stop Time	02:00 PM	03:25 PM
Application Method	SPRAY	SPRAY
Application Timing	10EPP	2-4"wds
Application Placement	BROADC	BROADC
Applied By	VanGessl	VanGessl
Air Temperature Start, Stop	70 F	87 F
% Relative Humidity Start, Stop	75	72
Wind Velocity+Dir. Start	1 mph E	1 mph SE
Wet Leaves (Y/N)	N no	N no
Soil Temperature	70 F	87 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	100	60



<b>Pest Stage At Each Application</b>		
	A	B
Pest 1 Code, Type, Scale	ERICA W	ERICA W
Stage Majority, Percent	bolt 100	
Height Average	8 in	
Height Minimum, Maximum	6 9	
Density Average	3 plot	
Pest 2 Code, Type, Scale	OEOLA W	OEOLA W
Stage Majority, Percent	flower 100	
Height Average	7 in	
Height Minimum, Maximum	7 8	
Density Average	3 plot	
Pest 3 Code, Type, Scale	VERPG W	VERPG W
Stage Majority, Percent	flower 100	
Height Average	5 in	
Height Minimum, Maximum	4 6	
Density Average	4 m2	
Pest 4 Code, Type, Scale	ELEIN W	ELEIN W
Stage Majority, Percent		veg 100
Height Average		7 in
Height Minimum, Maximum		6 8
Density Average		4 plot
Pest 5 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent		veg 100
Height Average		6 in
Height Minimum, Maximum		4 8
Density Average		2 plot
Pest 6 Code, Type, Scale	PANDI W	PANDI W
Stage Majority, Percent		veg 100
Height Average		9 in
Height Minimum, Maximum		8 10
Density Average		7 plot
Pest 7 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent		4-leaf 60
Stage Minimum, Percent		3-leaf 40
Stage Maximum, Percent		4-leaf 60
Height Average		2.5 in
Height Minimum, Maximum		2 3
Density Average		1 plot
Pest 8 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		4-leaf 100
Height Average		3 in
Density Average		1 plot

**Application Equipment**

	A	B
Appl. Equipment	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Boom Length	9 ft	9 ft
Boom Height	24 in	22 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Propellant	COMCO2	COMCO2

**Trial Comments**

06/02/16: All treatments provided excellent control of horseweed.

07/06/16: Too few broadleaves to rate; winter annual weed control was 100% for all species in all treated plots.

07/28/16: Very little emergence of weeds after the burndown treatments.

07/15/16: Broadleaf weed control is 100% for all treatments.

Dicamba in No-Tillage RR Soybeans  
 Trial ID: Soy13-16      Location: Field #2 west      Trial Year: 2016  
 Protocol ID: Soy13-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: DuPont

Pest Code						OverallCntrl	OEOLA	LEPVI	
Pest Name							CEprmrse	V.peprwd	
Rating Type						Control	Control	Control	
Rating Unit						%	%	%	
Rating Date						06/02/16	06/02/16	06/02/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
1	Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP A	93.7 abc	93.7 b	97.3 a
	----chlorimuron	9.199999		0.0144					
	----flumioxazin	29.2		0.0456					
	----thifensulfuron	2.9		0.00453					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds B			
2	Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP A	96.3 a	98.0 ab	98.0 a
	----chlorimuron	9.199999		0.0144					
	----flumioxazin	29.2		0.0456					
	----thifensulfuron	2.9		0.00453					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds B			
3	Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP A	92.3 bc	98.0 ab	98.0 a
	----chlorimuron	9.199999		0.0144					
	----flumioxazin	29.2		0.0456					
	----thifensulfuron	2.9		0.00453					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds B			
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds B			
4	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP A	90.0 c	95.0 ab	97.3 a
	----chlorimuron	2.9		0.00636					
	----flimioxazin	36.2		0.079					
	----thifensulfuron	8.8		0.0193					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds B			
5	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP A	97.0 a	99.0 a	98.0 a
	----chlorimuron	2.9		0.00636					
	----flimioxazin	36.2		0.079					
	----thifensulfuron	8.8		0.0193					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=6

Pest Code	VERPG	VIORA	DIGSA						
Pest Name	P.spdwl	FldPansy	L.crbgrs						
Rating Type	Control	Control	Control						
Rating Unit	%	%	%						
Rating Date	06/02/16	06/02/16	07/06/16						
Trt Treatment	Form	Form	Rate	Appl	Appl				
No. Name	Conc	Type	Rate	Unit	Timing	Code			
1 Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A	100.0 a	100.0 a	70.0 b
----chlorimuron	9.199999		0.0144						
----flumioxazin	29.2		0.0456						
----thifensulfuron	2.9		0.00453						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
2 Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A	97.7 a	95.0 a	
----chlorimuron	9.199999		0.0144						
----flumioxazin	29.2		0.0456						
----thifensulfuron	2.9		0.00453						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
3 Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A	99.0 a	96.7 a	
----chlorimuron	9.199999		0.0144						
----flumioxazin	29.2		0.0456						
----thifensulfuron	2.9		0.00453						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B			
Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
4 Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A	100.0 a	100.0 a	75.0 b
----chlorimuron	2.9		0.00636						
----flimioxazin	36.2		0.079						
----thifensulfuron	8.8		0.0193						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
5 Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A	100.0 a	100.0 a	
----chlorimuron	2.9		0.00636						
----flimioxazin	36.2		0.079						
----thifensulfuron	8.8		0.0193						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=6

Pest Code							PANDI	ELEIN	PANDI
Pest Name							F.panicm	Goosegrs	F.panicm
Rating Type							Control	Control	Control
Rating Unit							%	%	%
Rating Date							07/06/16	07/15/16	07/15/16
Trt Treatment	Form	Form	Rate	Appl	Appl				
No. Name	Conc	Type	Rate	Unit	Timing	Code			
1 Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A	78.3 a	89.3 b	95.0 b
----chlorimuron	9.199999		0.0144						
----flumioxazin	29.2		0.0456						
----thifensulfuron	2.9		0.00453						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
2 Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A		91.3 ab	98.0 a
----chlorimuron	9.199999		0.0144						
----flumioxazin	29.2		0.0456						
----thifensulfuron	2.9		0.00453						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
3 Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A		97.7 a	98.3 a
----chlorimuron	9.199999		0.0144						
----flumioxazin	29.2		0.0456						
----thifensulfuron	2.9		0.00453						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B			
Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
4 Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A	70.0 b	96.0 ab	99.0 a
----chlorimuron	2.9		0.00636						
----flimioxazin	36.2		0.079						
----thifensulfuron	8.8		0.0193						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
5 Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A		93.0 ab	97.0 ab
----chlorimuron	2.9		0.00636						
----flimioxazin	36.2		0.079						
----thifensulfuron	8.8		0.0193						
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6

Pest Code							AMAPA	IPOSS	ELEIN	
Pest Name							PalmerAm	Morngrly	Goosegrs	
Rating Type							Control	Control	Control	
Rating Unit							%	%	%	
Rating Date							07/28/16	07/28/16	07/28/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
1	Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A	95.3 ab	97.3 ab	95.0 a
	----chlorimuron	9.199999		0.0144						
	----flumioxazin	29.2		0.0456						
	----thifensulfuron	2.9		0.00453						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
2	Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A	100.0 a	100.0 a	96.0 a
	----chlorimuron	9.199999		0.0144						
	----flumioxazin	29.2		0.0456						
	----thifensulfuron	2.9		0.00453						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
3	Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A	100.0 a	94.0 b	99.7 a
	----chlorimuron	9.199999		0.0144						
	----flumioxazin	29.2		0.0456						
	----thifensulfuron	2.9		0.00453						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
4	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A	90.0 b	100.0 a	95.7 a
	----chlorimuron	2.9		0.00636						
	----flimioxazin	36.2		0.079						
	----thifensulfuron	8.8		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
5	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A	100.0 a	100.0 a	96.7 a
	----chlorimuron	2.9		0.00636						
	----flimioxazin	36.2		0.079						
	----thifensulfuron	8.8		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=6

Pest Code							PANDI F.panicm Control % 07/28/16
Pest Name							
Rating Type							
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code
1	Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A
	----chlorimuron	9.199999		0.0144			
	----flumioxazin	29.2		0.0456			
	----thifensulfuron	2.9		0.00453			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B
2	Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A
	----chlorimuron	9.199999		0.0144			
	----flumioxazin	29.2		0.0456			
	----thifensulfuron	2.9		0.00453			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B
3	Envive Premix	41.3	WG	0.0645	lb ai/a	10EPP	A
	----chlorimuron	9.199999		0.0144			
	----flumioxazin	29.2		0.0456			
	----thifensulfuron	2.9		0.00453			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B
4	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A
	----chlorimuron	2.9		0.00636			
	----flimioxazin	36.2		0.079			
	----thifensulfuron	8.8		0.0193			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B
5	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A
	----chlorimuron	2.9		0.00636			
	----flimioxazin	36.2		0.079			
	----thifensulfuron	8.8		0.0193			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B
	Clarity.....dicamba	4	L	0.5	lb ai/a	2-4"wds	B
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=6

Pest Code Pest Name							OverallCntrl	OEOLA CEprmrse	LEPVI V.peprwd
Rating Type Rating Unit Rating Date							Control %	Control %	Control %
							06/02/16	06/02/16	06/02/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
6	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP A	97.0 a	98.7 a	97.3 a
	----chlorimuron	2.9		0.00636					
	----flimioxazin	36.2		0.079					
	----thifensulfuron	8.8		0.0193					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds B			
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds B			
7	Untreated Check						0.0 d	0.0 c	0.0 b
8	Trivence Premix	61.3	WG	0.257	lb ai/a	10EPP A	95.7 ab	98.7 a	98.0 a
	----chlorimuron	3.9		0.0164					
	----metribuzin	44.6		0.187					
	----flumioxazin	12.8		0.0537					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP A			
	2,4-D ester	3.8	L	0.71	lb ae/a	10EPP A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds B			
	Reflex.....fomesafen	2	L	0.375	lb ai/a	2-4"wds B			
LSD P=.05							3.96	4.98	2.55
Standard Deviation							2.26	2.84	1.46
CV							2.73	3.34	1.7
Replicate F							1.856	1.159	11.353
Replicate Prob(F)							0.1928	0.3422	0.0012
Treatment F							658.768	440.135	1685.109
Treatment Prob(F)							0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=6



Pest Code							VERPG	VIORA	DIGSA	
Pest Name							P.spdwill	FldPansy	L.crbgrs	
Rating Type							Control	Control	Control	
Rating Unit							%	%	%	
Rating Date							06/02/16	06/02/16	07/06/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
6	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A	98.0 a	100.0 a	
	----chlorimuron	2.9		0.00636						
	----flimioxazin	36.2		0.079						
	----thifensulfuron	8.8		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B			
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B			
7	Untreated Check							0.0 b	0.0 b	0.0 c
8	Trivence Premix	61.3	WG	0.257	lb ai/a	10EPP	A	100.0 a	100.0 a	85.0 a
	----chlorimuron	3.9		0.0164						
	----metribuzin	44.6		0.187						
	----flumioxazin	12.8		0.0537						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A			
	2,4-D ester	3.8	L	0.71	lb ae/a	10EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B			
	Reflex.....fomesafen	2	L	0.375	lb ai/a	2-4"wds	B			
LSD P=.05							2.98	6.00	6.94	
Standard Deviation							1.70	3.43	3.06	
CV							1.96	3.97	5.33	
Replicate F							0.704	2.215	0.667	
Replicate Prob(F)							0.5112	0.1459	0.5625	
Treatment F							1274.941	312.392	482.489	
Treatment Prob(F)							0.0001	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=6

Pest Code						PANDI	ELEIN	PANDI
Pest Name						F.panicm	Goosegrs	F.panicm
Rating Type						Control	Control	Control
Rating Unit						%	%	%
Rating Date						07/06/16	07/15/16	07/15/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code		
6	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP A		
	----chlorimuron	2.9		0.00636			98.0 a	98.3 a
	----flimioxazin	36.2		0.079				
	----thifensulfuron	8.8		0.0193				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP A		
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds B		
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds B		
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds B		
7	Untreated Check						0.0 c	0.0 c
8	Trivence Premix	61.3	WG	0.257	lb ai/a	10EPP A	81.0 a	97.0 a
	----chlorimuron	3.9		0.0164				98.0 a
	----metribuzin	44.6		0.187				
	----flumioxazin	12.8		0.0537				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP A		
	2,4-D ester	3.8	L	0.71	lb ae/a	10EPP A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds B		
	Reflex.....fomesafen	2	L	0.375	lb ai/a	2-4"wds B		
LSD P=.05						4.43	7.36	2.78
Standard Deviation						2.22	4.20	1.59
CV						3.87	5.08	1.86
Replicate F						1.339	4.147	0.811
Replicate Prob(F)						0.3305	0.0385	0.4643
Treatment F						904.814	191.660	1422.447
Treatment Prob(F)						0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=6

Pest Code						AMAPA	IPOSS	ELEIN
Pest Name						PalmerAm	Morninglry	Goosegrs
Rating Type						Control	Control	Control
Rating Unit						%	%	%
Rating Date						07/28/16	07/28/16	07/28/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
6	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A	
	----chlorimuron	2.9		0.00636				
	----flimioxazin	36.2		0.079				
	----thifensulfuron	8.8		0.0193				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A	
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B	
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B	
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B	
7	Untreated Check							
								0.0 c
								0.0 c
								0.0 b
8	Trivence Premix	61.3	WG	0.257	lb ai/a	10EPP	A	
	----chlorimuron	3.9		0.0164				
	----metribuzin	44.6		0.187				
	----flumioxazin	12.8		0.0537				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A	
	2,4-D ester	3.8	L	0.71	lb ae/a	10EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B	
	Reflex.....fomesafen	2	L	0.375	lb ai/a	2-4"wds	B	
	LSD P=.05							7.78
	Standard Deviation							4.44
	CV							5.22
	Replicate F							1.318
	Replicate Prob(F)							0.2989
	Treatment F							181.737
	Treatment Prob(F)							0.0001
								4.14
								2.37
								2.74
								9.317
								0.1988
								0.0027
								656.200
								272.664
								0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=6

Pest Code							PANDI
Pest Name							F.panicm
Rating Type							Control
Rating Unit							%
Rating Date							07/28/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
6	Enlite Premix	47.9	WG	0.105	lb ai/a	10EPP	A
	----chlorimuron	2.9		0.00636			
	----flimioxazin	36.2		0.079			
	----thifensulfuron	8.8		0.0193			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A
	Clarity.....dicamba	4	L	0.5	lb ai/a	10EPP	A
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B
	Cobra.....lactofen	2	EC	0.156	lb ai/a	2-4"wds	B
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	2-4"wds	B
7	Untreated Check						0.0 b
8	Trivence Premix	61.3	WG	0.257	lb ai/a	10EPP	A
	----chlorimuron	3.9		0.0164			
	----metribuzin	44.6		0.187			
	----flumioxazin	12.8		0.0537			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	10EPP	A
	2,4-D ester	3.8	L	0.71	lb ae/a	10EPP	A
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	2-4"wds	B
	Reflex.....fomesafen	2	L	0.375	lb ai/a	2-4"wds	B
	LSD P=.05						7.68
	Standard Deviation						4.38
	CV						5.31
	Replicate F						1.017
	Replicate Prob(F)						0.3868
	Treatment F						174.506
	Treatment Prob(F)						0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6

S-metolachlor + Dicamba in RR2 Xtend Soybeans  
 Trial ID: Soy14-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Soy14-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Syngenta

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: S41-A1X  
 Attributes: Xtend  
 Planting Date: 05/24/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 81 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/31/16  
 Harvest Date: 10/27/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25 FT

**Pest Description**

Pest 1 Type: W      Code: AMAPA Amaranthus palmeri  
 Common Name: Palmer amaranth  
 Pest 2 Type: W      Code: MOLVE Mollugo verticillata  
 Common Name: Carpetweed  
 Pest 3 Type: W      Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 8      Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Early Preplant burndown application of Roundup PowerMax 1 qt/A + 2,4-D ester 1 pt/A applied to study area on 4-18-16 to kill existing vegetation. Total PRE Roundup 1 qt/A 5-24. Total POST Select Max 16 oz/A + NIS 7-11-16.

**Soil Description**

% Sand: 79      % OM: 0.9      Texture: SL sandy loam  
 % Silt: 10      pH: 6.1  
 % Clay: 11      CEC: 4.7      Fert. Level: G good  
 Soil Drainage: F fair

**Application Description**

	A
Application Date	06/24/16
Appl. Stop Time	01:00 PM
Application Method	SPRAY
Application Timing	2-4"wds
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	81 F
% Relative Humidity Start, Stop	72
Wind Velocity+Dir. Start	3 mph E
Wet Leaves (Y/N)	Y yes
Soil Temperature	81 F
Soil Moisture	NORMAL
% Cloud Cover	75

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY
Stage Scale Used	DESC
Stage Majority, Percent	4-trifol 70
Stage Minimum, Percent	3-trifol 30
Stage Maximum, Percent	4-trifol 70
Height Average	6 in

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	AMAPA W
Stage Majority, Percent	veg 100
Height Average	5 in
Height Minimum, Maximum	4 7
Density Average	15 m2
Pest 2 Code, Type, Scale	MOLVE W
Stage Majority, Percent	eaFlwr 100
Height Average	6 in
Density Average	20 m2
Pest 3 Code, Type, Scale	DIGSA W
Stage Majority, Percent	2-tilr 70
Stage Minimum, Percent	3-4 lf 20
Stage Maximum, Percent	1-tilr 10
Height Average	5 in
Height Minimum, Maximum	3 8
Density Average	15 m2

<b>Application Equipment</b>	
	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	24 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	0.7 GAL
Propellant	COMAIR

S-metolachlor + Dicamba in RR2 Xtend Soybeans  
 Trial ID: Soy14-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Soy14-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Syngenta

Pest Code	Pest Name	Crop Type, Code	C	GLXMA	C	GLXMA	AMAPA PalmerAm C -
	Crop Name			Soybean		Soybean	
	Rating Type			Stunting		LeafBrn	Control
	Rating Unit			%		%	%
	Rating Date			07/06/16		07/06/16	07/06/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code	
1	Untreated Check						0.0 e
2	AG13063 conditioner A21472 Premix	100 L 3.4 CS		1 % v/v 1.49 lb ai/a	2-4"wds A 2-4"wds A		0.0 e
3	AG13063 conditioner A21472 Premix Nonionic Surfactant	100 L 3.4 CS 100 L		1 % v/v 1.49 lb ai/a 0.25 % v/v	2-4"wds A 2-4"wds A 2-4"wds A		5.7 d
4	AG13063 conditioner A21472 Premix Roundup PowerMax..glyphosate	100 L 3.4 CS 4.5 AS		1 % v/v 1.49 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A		6.7 cd
5	AG13063 conditioner A21472 Premix Flexstar.....fomesafen Roundup PowerMax..glyphosate	100 L 3.4 CS 1.88 ME 4.5 AS		1 % v/v 1.49 lb ai/a 0.353 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A		10.7 c
6	AG13063 conditioner A21472 Premix Flexstar.....fomesafen Roundup PowerMax..glyphosate Methylated Seed Oil	100 L 3.4 CS 1.88 ME 4.5 AS 100 L		1 % v/v 1.49 lb ai/a 0.353 lb ai/a 1 lb ae/a 1 % v/v	2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A		19.3 b
7	AG13063 conditioner Clarity.....dicamba Roundup PowerMax..glyphosate	100 L 4 L 4.5 AS		1 % v/v 0.5 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A		20.0 b
8	AG13063 conditioner Warrant Ultra Premix ----acetochlor ----fomesafen Clarity.....dicamba Roundup PowerMax..glyphosate	100 L 3.45 SC 2.82 0.6300001 4 L 4.5 AS		1 % v/v 1.35 lb ai/a 1.1 0.247 0.5 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A		25.0 a
LSD P=.05				4.32		4.51	6.47
Standard Deviation				2.47		2.58	3.70
CV				23.13		25.56	4.83
Replicate F				6.576		4.240	0.027
Replicate Prob(F)				0.0097		0.0363	0.9730
Treatment F				31.015		40.871	213.020
Treatment Prob(F)				0.0001		0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Pest Code Pest Name Crop Type, Code	SETFA G.foxtl C - C GLXMA						AMAPA PalmerAm C -	
Crop Name Rating Type Rating Unit Rating Date	Control %						Soybean Injury %	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code	07/06/16	07/12/16	
1 Untreated Check						0.0 c	0.0 c	
2 AG13063 conditioner A21472 Premix	100 L 3.4 CS		1 % v/v 1.49 lb ai/a	2-4"wds A 2-4"wds A		0.0 c	2.0 bc	
3 AG13063 conditioner A21472 Premix Nonionic Surfactant	100 L 3.4 CS 100 L		1 % v/v 1.49 lb ai/a 0.25 % v/v	2-4"wds A 2-4"wds A 2-4"wds A		6.7 b	2.0 bc	
4 AG13063 conditioner A21472 Premix Roundup PowerMax..glyphosate	100 L 3.4 CS 4.5 AS		1 % v/v 1.49 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A		100.0 a	4.3 a	
5 AG13063 conditioner A21472 Premix Flexstar.....fomesafen Roundup PowerMax..glyphosate	100 L 3.4 CS 1.88 ME 4.5 AS		1 % v/v 1.49 lb ai/a 0.353 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A		96.3 a	5.0 a	
6 AG13063 conditioner A21472 Premix Flexstar.....fomesafen Roundup PowerMax..glyphosate Methylated Seed Oil	100 L 3.4 CS 1.88 ME 4.5 AS 100 L		1 % v/v 1.49 lb ai/a 0.353 lb ai/a 1 lb ae/a 1 % v/v	2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A		98.3 a	5.7 a	
7 AG13063 conditioner Clarity.....dicamba Roundup PowerMax..glyphosate	100 L 4 L 4.5 AS		1 % v/v 0.5 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A		100.0 a	3.7 ab	
8 AG13063 conditioner Warrant Ultra Premix ----acetochlor ----fomesafen Clarity.....dicamba Roundup PowerMax..glyphosate	100 L 3.45 SC 2.82 0.6300001 4 L 4.5 AS		1 % v/v 1.35 lb ai/a 1.1 0.247 0.5 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A		100.0 a	4.3 a	
LSD P=.05							5.95	2.23
Standard Deviation							3.40	1.27
CV							5.42	37.7
Replicate F							0.112	0.000
Replicate Prob(F)							0.8948	1.0000
Treatment F							653.357	6.614
Treatment Prob(F)							0.0001	0.0014

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name Crop Type, Code						IPOSS Mornglry C -	SETFA G.foxtl C -	C GLXMA	
Crop Name Rating Type Rating Unit Rating Date						Control %	Control %	Soybean Yield Bu/A	
						07/12/16	07/12/16	10/27/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code			
1	Untreated Check						0.0 c	0.0 b	52.9 a
2	AG13063 conditioner A21472 Premix	100 L 3.4 CS		1 % v/v 1.49 lb ai/a	2-4"wds A 2-4"wds A		100.0 a	1.7 b	56.9 a
3	AG13063 conditioner A21472 Premix Nonionic Surfactant	100 L 3.4 CS 100 L		1 % v/v 1.49 lb ai/a 0.25 % v/v	2-4"wds A 2-4"wds A 2-4"wds A		100.0 a	1.7 b	56.1 a
4	AG13063 conditioner A21472 Premix Roundup PowerMax..glyphosate	100 L 3.4 CS 4.5 AS		1 % v/v 1.49 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A		88.3 b	100.0 a	55.9 a
5	AG13063 conditioner A21472 Premix Flexstar.....fomesafen Roundup PowerMax..glyphosate	100 L 3.4 CS 1.88 ME 4.5 AS		1 % v/v 1.49 lb ai/a 0.353 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A		100.0 a	99.0 a	61.9 a
6	AG13063 conditioner A21472 Premix Flexstar.....fomesafen Roundup PowerMax..glyphosate Methylated Seed Oil	100 L 3.4 CS 1.88 ME 4.5 AS 100 L		1 % v/v 1.49 lb ai/a 0.353 lb ai/a 1 lb ae/a 1 % v/v	2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A		100.0 a	99.7 a	61.5 a
7	AG13063 conditioner Clarity.....dicamba Roundup PowerMax..glyphosate	100 L 4 L 4.5 AS		1 % v/v 0.5 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A		96.7 a	99.3 a	58.0 a
8	AG13063 conditioner Warrant Ultra Premix ----acetochlor ----fomesafen Clarity.....dicamba Roundup PowerMax..glyphosate	100 L 3.45 SC 2.82 0.6300001 4 L 4.5 AS		1 % v/v 1.35 lb ai/a 1.1 0.247 0.5 lb ai/a 1 lb ae/a	2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A 2-4"wds A		100.0 a	100.0 a	63.3 a
LSD P=.05						7.05	2.63	6.89	
Standard Deviation						4.03	1.50	3.93	
CV						4.7	2.4	6.75	
Replicate F						1.734	2.456	8.071	
Replicate Prob(F)						0.2124	0.1218	0.0047	
Treatment F						224.431	3455.663	2.493	
Treatment Prob(F)						0.0001	0.0001	0.0690	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

KFD195-02 Efficacy in Liberty Link Soybeans  
 Trial ID: Soy15-16 Location: Dorchester Co. Trial Year: 2016  
 Protocol ID: Soy15-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: UPI

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C GLXMA Glycine max Soybean BBCH Scale: BSOY  
 Variety: S44LS76  
 Attributes: Liberty-Link  
 Planting Date: 06/07/16 Planting Rate: 180000 S/A  
 Depth: 1 in  
 Row Spacing: 14 in Planting Method: PLANTD planted  
 Planting Equipment: FE Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 86 F Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/13/16

**Pest Description**

Pest 1 Type: W Code: AMBEL Ambrosia artemisiifolia  
 Common Name: Common ragweed

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 8 Tillage Type: NOTILL no-till  
 Replications: 3 Study Design: RACOB L Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Total EPP burndown Roundup PowerMax 1qt/A + 2,4-D ester 1pt/A on 5-4-16. Total PRE Gramoxone 3pt/A + NIS 0.25%v/v on 6-10-16.

**Application Description**

	A	B
Application Date	06/10/16	07/08/16
Appl. Stop Time	10:30 AM	12:00 PM
Interval to Prev. Appl.		28 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	2-3"wds
Application Placement	BROADC	BROADC
Applied By	VanGessl	VanGessl
Air Temperature Start, Stop	71 F	87 F
% Relative Humidity Start, Stop	37	57
Wind Velocity+Dir. Start	6 mph NE	4 mph NW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	71 F	87 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	10	5

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC
Stage Majority, Percent		3-trifol 100
Height Average		8 in

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	AMBEL W	AMBEL W
Stage Majority, Percent		6-leaf 100
Height Average		3 in
Density Average		35 m2

**Application Equipment**

	A	B
Appl. Equipment	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Boom Length	9 ft	9 ft
Boom Height	18 in	24 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	2 L	2 L
Propellant	COMCO2	COMCO2

**Trial Comments**

06/22/16: Soybeans are at the unifoliate stage (with first trifoliate just opening up). Leaf necrosis is from metribuzin causing marginal necrosis from soil-application

06/29/16: Excellent weed control in all treatments. Stunting is quite variable, looks like corn herbicides may have moved from adjacent corn across the plot area (towards the drainage ditch)

06/30/16: Poor control of morningglory species with treatments 4, 6, 7, and 8

07/08/16: Morningglory density is quite variable

07/15/16: Excellent control (>90% of ivyleaf morningglory and >95% of common ragweed) in all plots, including untreated check. Small morningglory were 100% control, but those plants having started to vine at time of application were ~90% control. Less control in areas with denser soybean canopy at time of application due to reduced coverage.

07/22/16: Good to excellent control of common ragweed with POST applications of Liberty.

KFD195-02 Efficacy in Liberty Link Soybeans					Trial ID: Soy15-16 Location: Dorchester Co. Trial Year: 2016						
Protocol ID: Soy15-16 Investigator: Mark VanGessel					Study Director:						
Sponsor Contact: UPI											
Pest Code	Pest Name	Crop Type, Code	C	GLXMA	C	GLXMA	C	GLXMA	AMBEL C.ragwd C -		
Crop Name	Rating Type	Rating Unit	Rating Date	Soybean LfNecros %	Soybean Stunting %	Soybean Stunting %	Control %	06/22/16	06/22/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 b	0.0 d	0.0 d	0.0 f
2	KFD-195-02	4 L		1.38 lb ai/a	PRE	A		14.0 a	12.3 a	21.7 b	94.7 a
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a	2-3"wds	B					
	Dry Ammonium Sulfate	100 D		1.02 % w/v	2-3"wds	B					
3	KFD-195-02	4 L		1.03 lb ai/a	PRE	A		11.3 a	8.0 ab	15.7 bc	85.7 abc
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a	2-3"wds	B					
	Dry Ammonium Sulfate	100 D		1.02 % w/v	2-3"wds	B					
4	KFD-195-02	4 L		0.69 lb ai/a	PRE	A		2.7 b	4.7 bc	8.0 cd	80.0 bcd
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a	2-3"wds	B					
	Dry Ammonium Sulfate	100 D		1.02 % w/v	2-3"wds	B					
5	Tricor DF.....metribuzin	75 DF		0.188 lb ai/a	PRE	A		0.0 b	1.7 cd	9.7 cd	76.7 cd
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a	2-3"wds	B					
	Dry Ammonium Sulfate	100 D		1.02 % w/v	2-3"wds	B					
6	Satellite Hydro.pendimethalin	3.8 CS		0.71 lb ai/a	PRE	A		0.0 b	1.7 cd	0.0 d	36.7 e
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a	2-3"wds	B					
	Dry Ammonium Sulfate	100 D		1.02 % w/v	2-3"wds	B					
7	Boundary Premix	6.5 EC		1.22 lb ai/a	PRE	A		1.0 b	1.7 cd	12.3 bc	71.7 d
	----s-metolachlor	5.25		0.99							
	----metribuzin	1.25		0.235							
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a	2-3"wds	B					
	Dry Ammonium Sulfate	100 D		1.02 % w/v	2-3"wds	B					
8	KFD-240-01	4.5 EC		1.37 lb ai/a	PRE	A		13.3 a	10.0 a	40.0 a	89.0 ab
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a	2-3"wds	B					
	Dry Ammonium Sulfate	100 D		1.02 % w/v	2-3"wds	B					
LSD	P=.05			4.50				4.50		10.48	11.53
Standard Deviation				2.57				2.57		5.94	6.58
CV				48.55				51.36		44.28	9.86
Replicate F				0.120				0.682		0.740	0.696
Replicate Prob(F)				0.8879				0.5215		0.4960	0.5151
Treatment F				18.589				9.502		14.393	72.068
Treatment Prob(F)				0.0001				0.0002		0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,5,7,8

Pest Code									
Pest Name									
Crop Type, Code									
Crop Name									
Rating Type									
Rating Unit									
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code		
	1 Untreated Check							0.0 c	0.0 c
	2 KFD-195-02	4 L		1.38 lb ai/a		PRE	A	21.7 a	76.0 a
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a		2-3"wds	B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v		2-3"wds	B		
	3 KFD-195-02	4 L		1.03 lb ai/a		PRE	A	11.3 ab	66.7 ab
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a		2-3"wds	B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v		2-3"wds	B		
	4 KFD-195-02	4 L		0.69 lb ai/a		PRE	A	6.4 bc	71.7 ab
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a		2-3"wds	B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v		2-3"wds	B		
	5 Tricor DF.....metribuzin	75 DF		0.188 lb ai/a		PRE	A	11.4 ab	67.7 ab
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a		2-3"wds	B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v		2-3"wds	B		
	6 Satellite Hydro.pendimethalin	3.8 CS		0.71 lb ai/a		PRE	A	3.3 bc	16.7 c
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a		2-3"wds	B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v		2-3"wds	B		
	7 Boundary Premix	6.5 EC		1.22 lb ai/a		PRE	A	1.5 bc	55.0 b
	----s-metolachlor	5.25		0.99					
	----metribuzin	1.25		0.235					
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a		2-3"wds	B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v		2-3"wds	B		
	8 KFD-240-01	4.5 EC		1.37 lb ai/a		PRE	A	19.9 a	77.7 a
	Interline.....glufosinate	2.34 SL		0.53 lb ai/a		2-3"wds	B		
	Dry Ammonium Sulfate	100 D		1.02 % w/v		2-3"wds	B		
	LSD P=.05			10.66				19.40	24.21
	Standard Deviation			5.86				11.08	12.86
	CV			62.02				20.55	22.53
	Replicate F			1.670				1.927	1.340
	Replicate Prob(F)			0.2367				0.1822	0.3148
	Treatment F			5.812				21.001	14.477
	Treatment Prob(F)			0.0067				0.0001	0.0006

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=3,5,7,8

Preplant Weed Control in Xtend Soybeans  
 Trial ID: Soy19-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Soy19-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Valent

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: AG40X6  
 Attributes: Xtend  
 Planting Date: 05/24/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 81 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/31/16  
 Harvest Date: 10/27/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25 FT

**Pest Description**

Pest 1 Type: W      Code: AMAPA Amaranthus palmeri  
 Common Name: Palmer amaranth  
 Pest 2 Type: W      Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 6      Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Early Preplant burndown application of Roundup PowerMax 1 qt/A + 2,4-D ester 1 pt/A applied to study area on 4-18-16 to kill existing vegetation.

**Soil Description**

% Sand: 79      % OM: 0.9      Texture: SL sandy loam  
 % Silt: 10      pH: 6.1  
 % Clay: 11      CEC: 4.7      Fert. Level: G good  
 Soil Drainage: F fair

<b>Application Description</b>		
	A	B
Application Date	05/17/16	06/30/16
Appl. Stop Time	07:30 AM	09:00 AM
Interval to Prev. Appl.		44 DAYS
Application Method	SPRAY	SPRAY
Application Timing	7EPP	2"wds
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	55 F	76 F
% Relative Humidity Start, Stop	78	61
Wind Velocity+Dir. Start	0 mph N/A	0 mph N/A
Wet Leaves (Y/N)	N no	N no
Soil Temperature	55 F	75 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	100	0
Next Moisture Occurred On	05/17/16	07/03/16

<b>Crop Stage At Each Application</b>		
	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC
Stage Majority, Percent		5-trif 70
Stage Minimum, Percent		5-trif 70
Stage Maximum, Percent		6-trif 30
Height Average		11 in
Height Minimum, Maximum		10 12

<b>Pest Stage At Each Application</b>		
	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent		veg 75
Stage Minimum, Percent		veg 75
Stage Maximum, Percent		run 30
Height Average		5 in
Height Minimum, Maximum		3 6
Density Average		2 m2
Pest 2 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		veg 40
Stage Minimum, Percent		veg 40
Stage Maximum, Percent		eaFlwr 60
Height Average		15 in
Height Minimum, Maximum		4 24
Density Average		5 m2



**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	20 in	40 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

**Trial Comments**

06/13/16: Palmer amaranth and fall panicum in untreated check (trt 1) but in not treatment with a 7EPP (burndown controled the plants that had emerged at time of application). Trt 2 had morningglory, Palmer amaranth, and large crabgrass seedlings present; all treatments (3-6) had morningglory at cotyledon stage.

06/30/16: Palmer Amaranth present only in treatments 1 and 2. Treatments 3 and 4 mostly clean except morningglory species.

07/13/16: Annual grass is giant foxtail and large crabgrass.

Preplant Weed Control in Xtend Soybeans  
 Trial ID: Soy19-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Soy19-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Valent

Pest Code					AMAPA	IPOSS					
Pest Name					PalmerAm	Morninglry					
Crop Type, Code			C GLXMA	C GLXMA	C -	C -					
Crop Name			Soybean	Soybean	Control	Control					
Rating Type			Stunting	Stunting	%	%					
Rating Unit			%	%							
Rating Date			06/13/16	06/29/16	06/29/16	06/29/16					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 b	0.0 a	0.0 c	0.0 b
2	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	7EPP	A		4.0 ab	0.0 a	0.0 c	33.3 b
	Clarity.....dicamba	4 L		0.5 lb ai/a	7EPP	A					
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP	A					
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	2"wds	B					
	Clarity.....dicamba	4 L		0.5 lb ai/a	2"wds	B					
	Nonionic Surfactant	100 L		0.25 % v/v	2"wds	B					
3	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	7EPP	A		6.7 a	1.0 a	93.3 ab	85.7 a
	Clarity.....dicamba	4 L		0.5 lb ai/a	7EPP	A					
	Valor SX.....flumioxazin	51 WG		0.08 lb ai/a	7EPP	A					
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP	A					
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	2"wds	B					
	Clarity.....dicamba	4 L		0.5 lb ai/a	2"wds	B					
	Nonionic Surfactant	100 L		0.25 % v/v	2"wds	B					
4	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	7EPP	A		4.7 ab	0.0 a	98.3 a	83.7 a
	Clarity.....dicamba	4 L		0.5 lb ai/a	7EPP	A					
	Fierce Premix	76 WG		0.143 lb ai/a	7EPP	A					
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP	A					
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	2"wds	B					
	Clarity.....dicamba	4 L		0.5 lb ai/a	2"wds	B					
	Nonionic Surfactant	100 L		0.25 % v/v	2"wds	B					
5	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	7EPP	A		7.3 a	1.0 a	95.3 ab	83.7 a
	Clarity.....dicamba	4 L		0.5 lb ai/a	7EPP	A					
	Fierce Premix	76 WG		0.143 lb ai/a	7EPP	A					
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP	A					
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	2"wds	B					
	Clarity.....dicamba	4 L		0.5 lb ai/a	2"wds	B					
	Warrant.....acetochlor	3 CS		1.13 lb ai/a	2"wds	B					
	Nonionic Surfactant	100 L		0.25 % v/v	2"wds	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=15  
 Could not calculate LSD (% mean diff) for columns 8 because error mean square = 0.

Pest Code Pest Name					GGGAN AnnGrass		AMAPA PalmerAm	SETFA G.foxtl
Crop Type, Code					C -	C GLXMA	C -	C -
Crop Name					Control	Soybean Stunting	Control	Control
Rating Type					%	%	%	%
Rating Unit					06/29/16	07/07/16	07/07/16	07/07/16
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code	
1	Untreated Check							0.0 d    0.0 c    0.0 c    0.0 b
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	7EPP	A		33.3 c    4.3 a    93.3 b    100.0 a
	Clarity.....dicamba	4	L	0.5 lb ai/a	7EPP	A		
	Nonionic Surfactant	100	L	0.25 % v/v	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	2"wds	B		
	Clarity.....dicamba	4	L	0.5 lb ai/a	2"wds	B		
	Nonionic Surfactant	100	L	0.25 % v/v	2"wds	B		
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	7EPP	A		93.3 b    1.7 bc    97.7 a    100.0 a
	Clarity.....dicamba	4	L	0.5 lb ai/a	7EPP	A		
	Valor SX.....flumioxazin	51	WG	0.08 lb ai/a	7EPP	A		
	Nonionic Surfactant	100	L	0.25 % v/v	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	2"wds	B		
	Clarity.....dicamba	4	L	0.5 lb ai/a	2"wds	B		
	Nonionic Surfactant	100	L	0.25 % v/v	2"wds	B		
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	7EPP	A		100.0 a    0.0 c    100.0 a    100.0 a
	Clarity.....dicamba	4	L	0.5 lb ai/a	7EPP	A		
	Fierce Premix	76	WG	0.143 lb ai/a	7EPP	A		
	----flumioxazin	33.5		0.063				
	----pyroxasulfone	42.5		0.08				
	Nonionic Surfactant	100	L	0.25 % v/v	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	2"wds	B		
	Clarity.....dicamba	4	L	0.5 lb ai/a	2"wds	B		
	Nonionic Surfactant	100	L	0.25 % v/v	2"wds	B		
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	7EPP	A		97.3 ab    3.7 ab    100.0 a    100.0 a
	Clarity.....dicamba	4	L	0.5 lb ai/a	7EPP	A		
	Fierce Premix	76	WG	0.143 lb ai/a	7EPP	A		
	----flumioxazin	33.5		0.063				
	----pyroxasulfone	42.5		0.08				
	Nonionic Surfactant	100	L	0.25 % v/v	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	2"wds	B		
	Clarity.....dicamba	4	L	0.5 lb ai/a	2"wds	B		
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	2"wds	B		
	Nonionic Surfactant	100	L	0.25 % v/v	2"wds	B		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=15  
 Could not calculate LSD (% mean diff) for columns 8 because error mean square = 0.

Pest Code Pest Name					AMAPA PalmerAm	IPOSS Morngrly	GGGAN AnnGrass				
Crop Type, Code	C	GLXMA			C -	C -	C -				
Crop Name		Soybean			Control	Control	Control				
Rating Type		Stunting			%	%	%				
Rating Unit		%									
Rating Date		07/13/16			07/13/16	07/13/16	07/13/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 c	0.0 b	0.0 b	0.0 b
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	3.3 b	94.3 a	100.0 a	99.0 a
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	2"wds	B				
	Clarity.....dicamba	4	L	0.5	lb ai/a	2"wds	B				
	Nonionic Surfactant	100	L	0.25	% v/v	2"wds	B				
3	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	1.0 bc	96.7 a	100.0 a	100.0 a
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A				
	Valor SX.....flumioxazin	51	WG	0.08	lb ai/a	7EPP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	2"wds	B				
	Clarity.....dicamba	4	L	0.5	lb ai/a	2"wds	B				
	Nonionic Surfactant	100	L	0.25	% v/v	2"wds	B				
4	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	0.0 c	100.0 a	100.0 a	99.7 a
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A				
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A				
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	2"wds	B				
	Clarity.....dicamba	4	L	0.5	lb ai/a	2"wds	B				
	Nonionic Surfactant	100	L	0.25	% v/v	2"wds	B				
5	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	12.0 a	100.0 a	98.3 a	100.0 a
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A				
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A				
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	2"wds	B				
	Clarity.....dicamba	4	L	0.5	lb ai/a	2"wds	B				
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	2"wds	B				
	Nonionic Surfactant	100	L	0.25	% v/v	2"wds	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=15  
 Could not calculate LSD (% mean diff) for columns 8 because error mean square = 0.

Pest Code Pest Name Crop Type, Code					C GLXMA		
Crop Name Rating Type Rating Unit Rating Date					Soybean Yield Bu/A 10/27/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Appl Timing	Appl Code	
1	Untreated Check						44.8 a
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	7EPP	A	56.7 a
	Clarity.....dicamba	4	L	0.5 lb ai/a	7EPP	A	
	Nonionic Surfactant	100	L	0.25 % v/v	7EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	2"wds	B	
	Clarity.....dicamba	4	L	0.5 lb ai/a	2"wds	B	
	Nonionic Surfactant	100	L	0.25 % v/v	2"wds	B	
3	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	7EPP	A	50.8 a
	Clarity.....dicamba	4	L	0.5 lb ai/a	7EPP	A	
	Valor SX.....flumioxazin	51	WG	0.08 lb ai/a	7EPP	A	
	Nonionic Surfactant	100	L	0.25 % v/v	7EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	2"wds	B	
	Clarity.....dicamba	4	L	0.5 lb ai/a	2"wds	B	
	Nonionic Surfactant	100	L	0.25 % v/v	2"wds	B	
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	7EPP	A	61.2 a
	Clarity.....dicamba	4	L	0.5 lb ai/a	7EPP	A	
	Fierce Premix	76	WG	0.143 lb ai/a	7EPP	A	
	----flumioxazin	33.5		0.063			
	----pyroxasulfone	42.5		0.08			
	Nonionic Surfactant	100	L	0.25 % v/v	7EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	2"wds	B	
	Clarity.....dicamba	4	L	0.5 lb ai/a	2"wds	B	
	Nonionic Surfactant	100	L	0.25 % v/v	2"wds	B	
5	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	7EPP	A	57.1 a
	Clarity.....dicamba	4	L	0.5 lb ai/a	7EPP	A	
	Fierce Premix	76	WG	0.143 lb ai/a	7EPP	A	
	----flumioxazin	33.5		0.063			
	----pyroxasulfone	42.5		0.08			
	Nonionic Surfactant	100	L	0.25 % v/v	7EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	2"wds	B	
	Clarity.....dicamba	4	L	0.5 lb ai/a	2"wds	B	
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	2"wds	B	
	Nonionic Surfactant	100	L	0.25 % v/v	2"wds	B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=15  
Could not calculate LSD (% mean diff) for columns 8 because error mean square = 0.

Pest Code Pest Name								AMAPA PalmerAm	IPOSS Mornglry		
Crop Type, Code						C GLXMA	C GLXMA	C -	C -		
Crop Name						Soybean	Soybean	Control	Control		
Rating Type						Stunting	Stunting	%	%		
Rating Unit						%	%	%	%		
Rating Date						06/13/16	06/29/16	06/29/16	06/29/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
6	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		7EPP	A	9.0 a	0.0 a	90.0 b	84.3 a
	Clarity.....dicamba	4 L		0.5 lb ai/a		7EPP	A				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a		7EPP	A				
	Nonionic Surfactant	100 L		0.25 % v/v		7EPP	A				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		2"wds	B				
	Clarity.....dicamba	4 L		0.5 lb ai/a		2"wds	B				
	Nonionic Surfactant	100 L		0.25 % v/v		2"wds	B				
LSD P=.05						5.27	1.91	6.29	42.37		
Standard Deviation						2.90	1.05	3.46	23.29		
CV						54.88	314.64	5.51	37.7		
Replicate F						1.795	0.455	0.599	1.329		
Replicate Prob(F)						0.2158	0.6472	0.5680	0.3077		
Treatment F						3.567	0.727	595.696	7.369		
Treatment Prob(F)						0.0413	0.6187	0.0001	0.0039		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=15

Could not calculate LSD (% mean diff) for columns 8 because error mean square = 0.

Pest Code						GGGAN		AMAPA	SETFA
Pest Name						AnnGrass		PalmerAm	G.foxtl
Crop Type, Code						C - C	GLXMA	C -	C -
Crop Name							Soybean		
Rating Type						Control	Stunting	Control	Control
Rating Unit						%	%	%	%
Rating Date						06/29/16	07/07/16	07/07/16	07/07/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
6	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	100.0 a	0.0 c
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A		
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	7EPP	A		
	Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	2"wds	B		
	Clarity.....dicamba	4	L	0.5	lb ai/a	2"wds	B		
	Nonionic Surfactant	100	L	0.25	% v/v	2"wds	B		
LSD	P=.05							4.94	2.34
	Standard Deviation							2.71	1.29
	CV							3.84	79.86
	Replicate F							2.059	4.060
	Replicate Prob(F)							0.1783	0.0512
	Treatment F							760.181	7.040
	Treatment Prob(F)							0.0001	0.0046
									0.481
									0.6315
									1075.963
									0.000
									1.0000
									0.000
									1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=15  
Could not calculate LSD (% mean diff) for columns 8 because error mean square = 0.

Pest Code Pest Name		AMAPA PalmerAm	IPOSS Morngrly	GGGAN AnnGrass							
Crop Type, Code	C GLXMA	C -	C -	C -							
Crop Name	Soybean										
Rating Type	Stunting	Control	Control	Control							
Rating Unit	%	%	%	%							
Rating Date	07/13/16	07/13/16	07/13/16	07/13/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code				
6	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	1.0 bc	100.0 a	100.0 a	100.0 a
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A				
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	7EPP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	2"wds	B				
	Clarity.....dicamba	4	L	0.5	lb ai/a	2"wds	B				
	Nonionic Surfactant	100	L	0.25	% v/v	2"wds	B				
LSD P=.05				3.21					6.26	2.14	1.40
Standard Deviation				1.77					3.44	1.18	0.77
CV				61.16					4.2	1.42	0.92
Replicate F				0.872					0.042	1.000	0.660
Replicate Prob(F)				0.4477					0.9588	0.4019	0.5378
Treatment F				20.569					408.831	3577.000	8446.114
Treatment Prob(F)				0.0001					0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=15  
Could not calculate LSD (% mean diff) for columns 8 because error mean square = 0.



Pest Code						C GLXMA		
Pest Name								
Crop Type, Code								
Crop Name								
Rating Type								
Rating Unit						Soybean		
Rating Date						Yield		
						Bu/A		
						10/27/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code	
6	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	60.4 a
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A	
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	7EPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	2"wds	B	
	Clarity.....dicamba	4	L	0.5	lb ai/a	2"wds	B	
	Nonionic Surfactant	100	L	0.25	% v/v	2"wds	B	
LSD P=.05							16.70	
Standard Deviation							9.04	
CV							16.39	
Replicate F							10.692	
Replicate Prob(F)							0.0042	
Treatment F							1.439	
Treatment Prob(F)							0.2988	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=15  
Could not calculate LSD (% mean diff) for columns 8 because error mean square = 0.

PRE Weed Control in Xtend Soybeans  
 Trial ID: Soy20-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Soy20-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Valent

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: AG47X6  
 Attributes: Xtend  
 Planting Date: 06/06/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/12/16  
 Harvest Date: 10/27/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25 FT

**Pest Description**

Pest 1 Type: W      Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass  
 Pest 2 Type: W      Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 8      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**

% Sand: 81      % OM: 1.4      Texture: LS loamy sand  
 % Silt: 12      pH: 6.7  
 % Clay: 7      CEC: 4.9      Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B
Application Date	06/08/16	07/11/16
Appl. Stop Time	10:45 AM	09:00 AM
Interval to Prev. Appl.		33 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	35DAP
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	71 F	76 F
% Relative Humidity Start, Stop	49	59
Wind Velocity+Dir. Start	5 mph W	2 mph NE
Wet Leaves (Y/N)	N no	Y yes
Soil Temperature	71 F	76 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	50	15

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC
Stage Majority, Percent		5-trif 60
Stage Minimum, Percent		5-trif 60
Stage Maximum, Percent		6-trif 40
Height Average		11 in
Height Minimum, Maximum		10 12

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent		3-tilr 50
Stage Minimum, Percent		2-tilr 15
Stage Maximum, Percent		4-tilr 35
Height Average		10 in
Density Average		50 m2
Pest 2 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		veg 65
Stage Minimum, Percent		veg 65
Stage Maximum, Percent		run 35
Height Average		5 in
Height Minimum, Maximum		3 8
Density Average		3 m2

**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	28 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

## Trial Comments

07/11/16: Crabgrass heavy in treatments 1 &amp; 2.

PRE Weed Control in Xtend Soybeans									
Trial ID: Soy20-16		Location: Field #18			Trial Year: 2016				
Protocol ID: Soy20-16		Investigator: Mark VanGessel			Study Director:				
Sponsor Contact: Valent									
Pest Code	Pest Name					AMAPA PalmerAm	IPOSS mornglry	GGGAN AnnGrass	
Crop Name	Rating Type	Rating Unit	Rating Date	Soybean Stunting %	Control %	Control %	Control %	Control %	
				07/05/16	07/05/16	07/05/16	07/05/16	07/05/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 d	0.0 c
2	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a		35DAP	B	0.0 d	64.3 b
	Clarity.....dicamba	4	L	0.5 lb ai/a		35DAP	B		
	Nonionic Surfactant	100	L	0.25 % v/v		35DAP	B		
3	Fierce Premix	76	WG	0.178 lb ai/a		PRE	A	9.0 bc	100.0 a
	----flumioxazin	33.5		0.0785					
	----pyroxasulfone	42.5		0.1					
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a		35DAP	B		
	Clarity.....dicamba	4	L	0.5 lb ai/a		35DAP	B		
	Nonionic Surfactant	100	L	0.25 % v/v		35DAP	B		
4	Authority Elite Premix	7	EC	1.53 lb ai/a		PRE	A	8.3 bc	95.7 ab
	----sulfentrazone	0.7		0.153					
	----s-metolachlor	6.3		1.38					
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a		35DAP	B		
	Clarity.....dicamba	4	L	0.5 lb ai/a		35DAP	B		
	Nonionic Surfactant	100	L	0.25 % v/v		35DAP	B		
5	Boundary Premix	6.5	EC	1.02 lb ai/a		PRE	A	5.0 cd	100.0 a
	----s-metolachlor	5.25		0.82					
	----metribuzin	1.25		0.196					
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a		35DAP	B		
	Clarity.....dicamba	4	L	0.5 lb ai/a		35DAP	B		
	Nonionic Surfactant	100	L	0.25 % v/v		35DAP	B		
6	Fierce XLT Premix	62.4	WG	0.156 lb ai/a		PRE	A	15.0 b	100.0 a
	----flumioxazin	24.57		0.0614					
	----pyroxasulfone	31.16		0.078					
	----chlorimuron	6.67		0.0167					
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a		35DAP	B		
	Clarity.....dicamba	4	L	0.5 lb ai/a		35DAP	B		
	Nonionic Surfactant	100	L	0.25 % v/v		35DAP	B		
7	Rowel.....flumioxazin	51	WG	0.064 lb ai/a		PRE	A	23.3 a	100.0 a
	Warrant.....acetochlor	3	CS	1.5 lb ai/a		PRE	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a		35DAP	B		
	Clarity.....dicamba	4	L	0.5 lb ai/a		35DAP	B		
	Nonionic Surfactant	100	L	0.25 % v/v		35DAP	B		
8	Boundary Premix	6.5	EC	1.02 lb ai/a		PRE	A	5.0 cd	100.0 a
	----s-metolachlor	5.25		0.82					
	----metribuzin	1.25		0.196					
	Unison.....2,4-D acid	1.74	L	1 lb ae/a		35DAP	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a		35DAP	B		
	Nonionic Surfactant	100	L	0.25 % v/v		35DAP	B		
LSD	P=.05							7.44	35.24
	Standard Deviation							4.25	20.12
	CV							51.76	24.39
	Replicate F							1.013	0.836
	Replicate Prob(F)							0.3882	0.4538
	Treatment F							10.228	9.359
	Treatment Prob(F)							0.0001	0.0002
								414.866	148.840
								0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						AMAPA PalmerAm	IPOSS morngrly	GGGAN AnnGrass	
Crop Name Rating Type Rating Unit Rating Date					Soybean Injury %	Control %	Control %	Control %	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Timing	Appl Code	07/12/16	07/12/16	07/12/16	
1 Untreated Check						0.0 d	0.0 c	0.0 b	0.0 d
2 Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	4.5 AS 4 L 100 L		1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v	35DAP B 35DAP B 35DAP B		0.0 d	97.0 b	97.7 a	0.0 d
3 Fierce Premix ----flumioxazin ----pyroxasulfone Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	76 WG 33.5 42.5 4.5 AS 4 L 100 L		0.178 lb ai/a 0.0785 0.1 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v	PRE A   35DAP B 35DAP B 35DAP B		3.7 cd	100.0 a	96.7 a	89.3 a
4 Authority Elite Premix ----sulfentrazone ----s-metolachlor Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	7 EC 0.7 6.3 4.5 AS 4 L 100 L		1.53 lb ai/a 0.153 1.38 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v	PRE A   35DAP B 35DAP B 35DAP B		3.7 cd	100.0 a	95.7 a	46.7 bc
5 Boundary Premix ----s-metolachlor ----metribuzin Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	6.5 EC 5.25 1.25 4.5 AS 4 L 100 L		1.02 lb ai/a 0.82 0.196 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v	PRE A   35DAP B 35DAP B 35DAP B		2.0 cd	100.0 a	95.0 a	21.7 cd
6 Fierce XLT Premix ----flumioxazin ----pyroxasulfone ----chlorimuron Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	62.4 WG 24.57 31.16 6.67 4.5 AS 4 L 100 L		0.156 lb ai/a 0.0614 0.078 0.0167 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v	PRE A   35DAP B 35DAP B 35DAP B		5.0 bc	100.0 a	96.7 a	64.0 ab
7 Rowel.....flumioxazin Warrant.....acetochlor Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	51 WG 3 CS 4.5 AS 4 L 100 L		0.064 lb ai/a 1.5 lb ai/a 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v	PRE A PRE A 35DAP B 35DAP B 35DAP B		9.0 b	100.0 a	96.7 a	68.3 ab
8 Boundary Premix ----s-metolachlor ----metribuzin Unison.....2,4-D acid Roundup PowerMax..glyphosate Nonionic Surfactant	6.5 EC 5.25 1.25 1.74 L 4.5 AS 100 L		1.02 lb ai/a 0.82 0.196 1 lb ae/a 1.13 lb ae/a 0.25 % v/v	PRE A   35DAP B 35DAP B 35DAP B		50.0 a	100.0 a	95.0 a	51.7 bc
LSD P=.05						4.02	2.14	4.50	34.65
Standard Deviation						2.30	1.22	2.57	19.78
CV						25.04	1.41	3.05	46.32
Replicate F						0.150	1.000	0.082	1.118
Replicate Prob(F)						0.8618	0.3927	0.9215	0.3543
Treatment F						159.837	2480.822	526.959	8.180
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0005

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code Pest Name						AMAPA PalmerAm	IPOSS morngrly	GGGAN AnnGrass
Crop Name Rating Type Rating Unit Rating Date						Control %	Control %	Control %
						08/04/16	08/04/16	08/05/16
Trt Treatment No. Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
1 Untreated Check							0.0 d	0.0 b
2 Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	4.5 AS 4 L 100 L		1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v		35DAP B 35DAP B 35DAP B		3.7 bcd	97.7 a
3 Fierce Premix ----flumioxazin ----pyroxasulfone Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	76 WG 33.5 42.5 4.5 AS 4 L 100 L		0.178 lb ai/a 0.0785 0.1 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v		PRE A 35DAP B 35DAP B 35DAP B		4.3 bcd	100.0 a
4 Authority Elite Premix ----sulfentrazone ----s-metolachlor Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	7 EC 0.7 6.3 4.5 AS 4 L 100 L		1.53 lb ai/a 0.153 1.38 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v		PRE A 35DAP B 35DAP B 35DAP B		5.0 bcd	100.0 a
5 Boundary Premix ----s-metolachlor ----metribuzin Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	6.5 EC 5.25 1.25 4.5 AS 4 L 100 L		1.02 lb ai/a 0.82 0.196 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v		PRE A 35DAP B 35DAP B 35DAP B		2.0 cd	100.0 a
6 Fierce XLT Premix ----flumioxazin ----pyroxasulfone ----chlorimuron Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	62.4 WG 24.57 31.16 6.67 4.5 AS 4 L 100 L		0.156 lb ai/a 0.0614 0.078 0.0167 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v		PRE A 35DAP B 35DAP B 35DAP B		8.0 b	100.0 a
7 Rowel.....flumioxazin Warrant.....acetochlor Roundup PowerMax..glyphosate Clarity.....dicamba Nonionic Surfactant	51 WG 3 CS 4.5 AS 4 L 100 L		0.064 lb ai/a 1.5 lb ai/a 1.13 lb ae/a 0.5 lb ai/a 0.25 % v/v		PRE A PRE A 35DAP B 35DAP B 35DAP B		6.7 bc	97.7 a
8 Boundary Premix ----s-metolachlor ----metribuzin Unison.....2,4-D acid Roundup PowerMax..glyphosate Nonionic Surfactant	6.5 EC 5.25 1.25 1.74 L 4.5 AS 100 L		1.02 lb ai/a 0.82 0.196 1 lb ae/a 1.13 lb ae/a 0.25 % v/v		PRE A 35DAP B 35DAP B 35DAP B		97.7 a	97.3 a
LSD P=.05							5.28	4.54
Standard Deviation							3.02	2.59
CV							18.95	2.99
Replicate F							3.152	1.050
Replicate Prob(F)							0.0741	0.3760
Treatment F							361.966	548.014
Treatment Prob(F)							0.0001	0.0001
								3.89
								2.22
								2.64
								4.84
								2.77
								3.21
								81.7 c
								96.3 a
								99.7 a
								98.0 ab
								99.7 a
								97.7 a
								97.3 a
								81.7 c
								96.3 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	Pest Name	Crop Name	Rating Type	Rating Unit	Rating Date	Soybean Yield Bu/A
1	Untreated Check					17.3 c
2	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	35DAP B		46.8 ab
	Clarity.....dicamba	4 L	0.5 lb ai/a	35DAP B		
	Nonionic Surfactant	100 L	0.25 % v/v	35DAP B		
3	Fierce Premix	76 WG	0.178 lb ai/a	PRE A		41.3 b
	----flumioxazin	33.5	0.0785			
	----pyroxasulfone	42.5	0.1			
	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	35DAP B		
	Clarity.....dicamba	4 L	0.5 lb ai/a	35DAP B		
	Nonionic Surfactant	100 L	0.25 % v/v	35DAP B		
4	Authority Elite Premix	7 EC	1.53 lb ai/a	PRE A		43.5 ab
	----sulfentrazone	0.7	0.153			
	----s-metolachlor	6.3	1.38			
	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	35DAP B		
	Clarity.....dicamba	4 L	0.5 lb ai/a	35DAP B		
	Nonionic Surfactant	100 L	0.25 % v/v	35DAP B		
5	Boundary Premix	6.5 EC	1.02 lb ai/a	PRE A		44.0 ab
	----s-metolachlor	5.25	0.82			
	----metribuzin	1.25	0.196			
	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	35DAP B		
	Clarity.....dicamba	4 L	0.5 lb ai/a	35DAP B		
	Nonionic Surfactant	100 L	0.25 % v/v	35DAP B		
6	Fierce XLT Premix	62.4 WG	0.156 lb ai/a	PRE A		48.6 a
	----flumioxazin	24.57	0.0614			
	----pyroxasulfone	31.16	0.078			
	----chlorimuron	6.67	0.0167			
	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	35DAP B		
	Clarity.....dicamba	4 L	0.5 lb ai/a	35DAP B		
7	Rowel.....flumioxazin	51 WG	0.064 lb ai/a	PRE A		42.9 ab
	Warrant.....acetochlor	3 CS	1.5 lb ai/a	PRE A		
	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	35DAP B		
	Clarity.....dicamba	4 L	0.5 lb ai/a	35DAP B		
	Nonionic Surfactant	100 L	0.25 % v/v	35DAP B		
8	Boundary Premix	6.5 EC	1.02 lb ai/a	PRE A		
	----s-metolachlor	5.25	0.82			
	----metribuzin	1.25	0.196			
	Unison.....2,4-D acid	1.74 L	1 lb ae/a	35DAP B		
	Roundup PowerMax..glyphosate	4.5 AS	1.13 lb ae/a	35DAP B		
	Nonionic Surfactant	100 L	0.25 % v/v	35DAP B		
LSD P=.05						6.67
Standard Deviation						3.81
CV						10.71
Replicate F						3.199
Replicate Prob(F)						0.0717
Treatment F						62.501
Treatment Prob(F)						0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluating Burndown Options for HR Common Ragweed  
 Trial ID: Soy21-16 Location: Dorchester Co. Trial Year: 2016  
 Protocol ID: Soy21-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C GLXMA Glycine max Soybean  
 Variety: S44LS76  
 Attributes: Liberty-Link  
 Planting Date: 06/07/16 Planting Rate: 180000 S/A  
 Depth: 1 in  
 Rows per Plot: 8 Planting Method: PLANTD planted  
 Row Spacing: 14 in Planting Equipment: FE Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 86 F Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/13/16

**Pest Description**

Pest 1 Type: W Code: AMBEL Ambrosia artemisiifolia  
 Common Name: Common ragweed  
 Pest 2 Type: W Code: VIORA Viola bicolor  
 Common Name: Field Pansy  
 Pest 3 Type: W Code: ERICA Conyza canadensis  
 Common Name: Canada horseweed

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 10 Tillage Type: NOTILL no-till  
 Replications: 3 Study Design: RAOBL Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Total EPP burndown Roundup PowerMax 1qt/A + 2,4-D ester 1pt/A on 5-4-16. Total PRE Dual Magnum 1.25 pt/A + Prowl H2O 1.8 pt/A on 6-7-16. Total early Postemergence Interline 1 qt/A + AMS on 6-22-18. Total Postemergence Interline 1 qt/A + AMS on 7-15.

**Application Description**

	A
Application Date	05/25/16
Appl. Stop Time	12:00 PM
Application Method	SPRAY
Application Timing	3-5 DPP
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	84 F
% Relative Humidity Start, Stop	30
Wind Velocity+Dir. Start	6 mph SW
Wet Leaves (Y/N)	N no
Soil Temperature	84 F
Soil Moisture	NORMAL
% Cloud Cover	20



**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	AMBEL W
Stage Majority, Percent	veg 100
Height Average	2 in
Height Minimum, Maximum	0.2 3
Density Average	2 m2
Pest 2 Code, Type, Scale	VIORA W
Stage Majority, Percent	veg 70
Stage Minimum, Percent	veg 70
Stage Maximum, Percent	flower 30
Height Average	3 in
Height Minimum, Maximum	3 4
Density Average	40 m2
Pest 3 Code, Type, Scale	ERICA W
Stage Majority, Percent	bolt 100
Height Average	2 in
Height Minimum, Maximum	1 3
Density Average	4 plot

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	21 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMCO2

**Trial Comments**

06/06/16: Treatments 6,9,10 weak on vetch.

06/22/16: Poor to no control of ERICA with Trts 2,5,6,7,9,10. No control of field pansy with trt 5; poor to fair control of pansy with trts 2,3,4,10. Excellent control of pansy with trts 6,7,8,9.

06/30/16: Broadcast application provided excellent control (>95%) of all weeds present at the time of application. Field pansy control was 85%. Soy stunting in untreated checks due to weed competition.

07/15/16: Good to excellent weed control. Some of the untreated check plots still stunted due to early season weed competition.

Evaluating Burndown Options for HR Common Ragweed							AMBEL	ERICA	VIORA	AMBEL	
Trial ID: Soy21-16      Location: Dorchester Co.      Trial Year: 2016							C.ragwd	Horsewd	FldPansy	C.ragwd	
Protocol ID: Soy21-16      Investigator: Mark VanGessel							Control	Control	Control	Control	
Study Director:							%	%	%	%	
Sponsor Contact:							06/16/16	06/16/16	06/16/16	06/22/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 e	0.0 e	0.0 f	0.0 h
2	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		3-5 DPP A	A	77.3 b	70.0 c	80.0 c	46.7 g
3	2,4-D ester	3.8 L		0.475 lb ae/a		3-5 DPP A	A	77.2 b	88.9 ab	53.3 d	86.7 bc
4	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		3-5 DPP A	A	83.3 b	87.7 ab	77.0 c	94.7 ab
	2,4-D ester	3.8 L		0.475 lb ae/a		3-5 DPP A	A				
5	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a		3-5 DPP A	A	40.0 d	100.0 a	40.0 e	66.7 e
	Crop Oil Concentrate	100 L		1.25 % v/v		3-5 DPP A	A				
	30% Urea Ammonium Nitrate	100 L		2 % v/v		3-5 DPP A	A				
6	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a		3-5 DPP A	A	84.5 b	100.0 a	89.0 b	77.3 cd
	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		3-5 DPP A	A				
	Crop Oil Concentrate	100 L		1.25 % v/v		3-5 DPP A	A				
	30% Urea Ammonium Nitrate	100 L		2 % v/v		3-5 DPP A	A				
7	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		3-5 DPP A	A	100.0 a	98.3 a	100.0 a	95.3 ab
	Crop Oil Concentrate	100 L		1.25 % v/v		3-5 DPP A	A				
8	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a		3-5 DPP A	A	100.0 a	100.0 a	100.0 a	99.7 a
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/a		3-5 DPP A	A				
	Crop Oil Concentrate	100 L		1.25 % v/v		3-5 DPP A	A				
9	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		3-5 DPP A	A	79.8 b	76.7 bc	90.3 b	69.6 de
	Crop Oil Concentrate	100 L		1.25 % v/v		3-5 DPP A	A				
	30% Urea Ammonium Nitrate	100 L		2 % v/v		3-5 DPP A	A				
10	Spartan.....sulfentrazone	4 F		0.25 lb ai/a		3-5 DPP A	A	53.3 c	54.6 d	99.3 a	56.7 f
	Crop Oil Concentrate	100 L		1.25 % v/v		3-5 DPP A	A				
	30% Urea Ammonium Nitrate	100 L		2 % v/v		3-5 DPP A	A				
LSD P=.05							8.38	13.61	7.21	9.51	
Standard Deviation							4.81	7.86	4.21	5.49	
CV							6.92	10.13	5.77	7.93	
Replicate F							0.835	1.067	3.550	0.421	
Replicate Prob(F)							0.4532	0.3673	0.0502	0.6632	
Treatment F							121.763	47.281	180.482	89.317	
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,4

Field Evaluation of HR in Common Ragweed  
 Trial ID: Soy22-16      Location: Dorchester Co.      Trial Year: 2016  
 Protocol ID: Soy22-16      Investigator: Mark VanGessel  
    Study Director:  
    Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C GLXMA Glycine max Soybean  
 Variety: S44LS76  
 Attributes: Liberty-Link  
 Planting Date: 06/07/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Rows per Plot: 8      Planting Method: PLANTD planted  
 Row Spacing: 14 in      Planting Equipment: FE      Field Equipment  
    Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/13/16

**Pest Description**

Pest 1 Type: W      Code: AMBEL Ambrosia artemisiifolia  
 Common Name: Common ragweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 14      Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: FACTOR Factorial

**Field Prep./Maintenance:**

Total EPP burndown Roundup PowerMax 1qt/A + 2,4-D ester 1pt/A on 5-4-16. Total PRE Dual Magnum 1.25 pt/A + Prowl H2O 1.8 pt/A + Gramoxone 3pt/A + COC 1 %v/v on 6-7-16. Total Postemergence Liberty 280 1 qt/A + AMS on 7-15-18.

**Application Description**

	A	B
Application Date	06/10/16	07/08/16
Appl. Stop Time	11:00 AM	12:00 PM
Application Method	SPRAY	SPRAY
Application Timing	PRE	4 WAP
Application Placement	BROADC	BROADC
Applied By	VanGessl	VanGessl
Air Temperature Start, Stop	72 F	87 F
% Relative Humidity Start, Stop	37	57
Wind Velocity+Dir. Start	5 mph NE	4 mph NW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	72 F	87 F
Soil Moisture	NORMAL	DRY
% Cloud Cover	5	5

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC
Stage Majority, Percent		3-trifol
Height Average		8 in

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	AMBEL W	AMBEL W
Stage Majority, Percent		6-leaf 100
Height Average		3 in
Density Average		40 m2

**Application Equipment**

	A	B
Appl. Equipment	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Boom Length	9 ft	9 ft
Boom Height	20 in	24 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Propellant	COMCO2	COMCO2

**Trial Comments**

07/15/16: Ratings less than 60% due to presence of resistant plants; due to mixed population of resistant and susceptible plants, data is "messy". But appears resistance with all all treatments. Need to evaluate Tricor in greenhouse for resistance.

Plots with less than 60% control contain some plants that look like they were not affected by PRE treatments (resistant plants present: trt 1, 3, 5, 7, 9, 10, 12, 13)

POST treatments with plants having a few burnt leaves but quite healthy looking include 2, 4, 6, 8.

07/22/16: Good to excellent control of common ragweed with POST applications of Liberty.

07/29/16: Excellent common ragweed control with POST applications of Liberty.

Field Evaluation of HR in Common Ragweed								
Trial ID: Soy22-16		Location: Dorchester Co.		Trial Year: 2016				
Protocol ID: Soy22-16		Investigator: Mark VanGessel		Study Director:				
		Sponsor Contact:						
Pest Code	Pest Name	Crop Type, Code	C	GLXMA	C	GLXMA	C	GLXMA
Crop Name	Rating Type	Rating Unit	Rating Date	Soybean	Lf Burn	%	Soybean	Stunting
				06/22/16	06/22/16	06/30/16	07/08/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
1	Reflex.....fomesafen Preemergence PRE	2 L		0.313 lb ai/a	PRE	A		0.0 b 1.7 cd 0.0 b 10.7 a
2	Reflex.....fomesafen Nonionic Surfactant Postemergence POST	2 L 100 L		0.313 lb ai/a 0.25 % v/v	4 WAP 4 WAP	B B		
3	Cobra.....lactofen Preemergence PRE	2 EC		0.2 lb ai/a	PRE	A		1.0 b 4.7 bcd 2.3 b 12.3 a
4	Cobra.....lactofen Nonionic Surfactant Postemergence POST	2 EC 100 L		0.2 lb ai/a 0.25 % v/v	4 WAP 4 WAP	B B		
5	Firstate.....cloransulam Preemergence PRE	84 WG		0.0263 lb ai/a	PRE	A		0.0 b 1.7 cd 3.3 b 3.9 a
6	Firstate.....cloransulam 30% Urea Ammonium Nitrate Nonionic Surfactant Postemergence POST	84 WG 100 L 100 L		0.0263 lb ai/a 2.5 % v/v 0.25 % v/v	4 WAP 4 WAP 4 WAP	B B B		
7	Classic.....chlorimuron Preemergence PRE	25 WG		0.0208 lb ai/a	PRE	A		0.0 b 4.7 bcd 8.0 a 0.0 a
8	Classic.....chlorimuron 30% Urea Ammonium Nitrate Nonionic Surfactant Postemergence POST	25 WG 100 L 100 L		0.0117 lb ai/a 2.5 % v/v 0.25 % v/v	4 WAP 4 WAP 4 WAP	B B B		
9	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PRE	A		1.0 b 7.0 abc 3.1 b 12.1 a
10	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a	PRE	A		10.0 a 10.3 a 9.7 a 19.7 a
11	Spartan.....sulfentrazone	4 F		0.25 lb ai/a	PRE	A		0.0 b 4.7 bcd 2.3 b 8.7 a
12	Ultra Blazer....acifluorfen Nonionic Surfactant	100 L 100 L		0.25 % v/v 0.25 % v/v	4 WAP 4 WAP	B B		
13	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a	PRE	A		0.0 b 8.0 ab 0.0 b 5.7 a
14	Untreated Check							0.0 b 0.0 d 0.0 b 0.0 a
LSD P=.05				3.08	5.52	4.51	13.67	
Standard Deviation				1.77	3.17	2.59	7.80	
CV				132.92	66.89	81.14	96.13	
Replicate F				2.370	0.158	1.893	0.872	
Replicate Prob(F)				0.1275	0.8549	0.1850	0.4398	
Treatment F				10.268	3.297	5.420	2.028	
Treatment Prob(F)				0.0001	0.0222	0.0025	0.1181	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,3,4

Pest Code						AMBEL	AMBEL		
Pest Name						C.ragwd	C.ragwd		
Crop Type, Code						C -	C -		
Crop Name									
Rating Type						Control	Control		
Rating Unit						%	%		
Rating Date						07/08/16	07/15/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1	Reflex.....fomesafen Preemergence PRE	2 L		0.313 lb ai/a		PRE	A	75.0 a	69.0 abc
2	Reflex.....fomesafen Nonionic Surfactant Postemergence POST	2 L 100 L		0.313 lb ai/a 0.25 % v/v		4 WAP 4 WAP	B B		73.3 ab
3	Cobra.....lactofen Preemergence PRE	2 EC		0.2 lb ai/a		PRE	A	36.0 bcd	30.0 def
4	Cobra.....lactofen Nonionic Surfactant Postemergence POST	2 EC 100 L		0.2 lb ai/a 0.25 % v/v		4 WAP 4 WAP	B B		74.0 a
5	Firstrate.....cloransulam Preemergence PRE	84 WG		0.0263 lb ai/a		PRE	A	36.7 bcd	40.0 b-e
6	Firstrate.....cloransulam 30% Urea Ammonium Nitrate Nonionic Surfactant Postemergence POST	84 WG 100 L 100 L		0.0263 lb ai/a 2.5 % v/v 0.25 % v/v		4 WAP 4 WAP 4 WAP	B B B		46.7 a-e
7	Classic.....chlorimuron Preemergence PRE	25 WG		0.0208 lb ai/a		PRE	A	26.7 cd	33.3 def
8	Classic.....chlorimuron 30% Urea Ammonium Nitrate Nonionic Surfactant Postemergence POST	25 WG 100 L 100 L		0.0117 lb ai/a 2.5 % v/v 0.25 % v/v		4 WAP 4 WAP 4 WAP	B B B		36.7 cde
9	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a		PRE	A	43.3 abc	46.7 a-e
10	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a		PRE	A	65.0 ab	46.7 a-e
11	Spartan.....sulfentrazone	4 F		0.25 lb ai/a		PRE	A	56.7 abc	13.3 ef
12	Ultra Blazer....acifluorfen Nonionic Surfactant	100 L 100 L		0.25 % v/v 0.25 % v/v		4 WAP 4 WAP	B B		75.0 a
13	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		PRE	A	75.0 a	60.0 a-d
14	Untreated Check							0.0 d	0.0 f
LSD P=.05								37.15	33.93
Standard Deviation								21.46	20.22
CV								46.62	43.9
Replicate F								0.535	1.214
Replicate Prob(F)								0.5960	0.3133
Treatment F								3.941	3.851
Treatment Prob(F)								0.0094	0.0017

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=1,2,3,4

Field Evaluation of HR in Common Ragweed  
 Trial ID: Soy22-16 Location: Dorchester Co. Trial Year: 2016  
 Protocol ID: Soy22-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Pest Code	C	GLXMA	C	GLXMA	C	GLXMA	C	GLXMA
Pest Name								
Crop Type, Code								
Crop Name	Soybean		Soybean		Soybean		Soybean	
Rating Type	Lf Burn		Stunting		Stunting		Stunting	
Rating Unit	%		%		%		%	
Rating Date	06/22/16		06/22/16		06/30/16		07/08/16	
Trt Treatment No. Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code		
TABLE OF R MEANS								
Replicate 1								
Replicate 2								
Replicate 3								
TABLE OF A (Herbicide) MEANS								
1 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE	A			
2 Cobra.....lactofen	2 EC		0.2 lb ai/a	PRE	A			
3 Firstrate.....cloransulam	84 WG		0.0263 lb ai/a	PRE	A			
4 Classic.....chlorimuron	25 WG		0.0208 lb ai/a	PRE	A			
LSD P=.05								
Standard Deviation								
CV								
TABLE OF B (Application Timing) MEANS								
1 Preemergence PRE								
2 Postemergence POST								
LSD P=.05								
Standard Deviation								
CV								
TABLE OF A (Herbicide) B (Application Timing) MEANS								
1 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE	A	0.0 a	1.7 a	0.0 a
1 Preemergence PRE								10.7 a
2 Cobra.....lactofen	2 EC		0.2 lb ai/a	PRE	A	1.0 a	4.7 a	2.3 a
1 Preemergence PRE								12.3 a
3 Firstrate.....cloransulam	84 WG		0.0263 lb ai/a	PRE	A	0.0 a	1.7 a	3.3 a
1 Preemergence PRE								3.9 a
4 Classic.....chlorimuron	25 WG		0.0208 lb ai/a	PRE	A	0.0 a	4.7 a	8.0 a
1 Preemergence PRE								0.0 a
1 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE	A	.	.	.
2 Postemergence POST								.
2 Cobra.....lactofen	2 EC		0.2 lb ai/a	PRE	A	.	.	.
2 Postemergence POST								.
3 Firstrate.....cloransulam	84 WG		0.0263 lb ai/a	PRE	A	.	.	.
2 Postemergence POST								.
4 Classic.....chlorimuron	25 WG		0.0208 lb ai/a	PRE	A	.	.	.
2 Postemergence POST								.
LSD P=.05								
Standard Deviation								
CV								
			3.08			5.52		4.51
			1.77			3.17		2.59
			708.89			100.13		75.86
								13.67
								7.80
								115.91

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code	AMBEL	AMBEL
Pest Name	C.ragwd	C.ragwd
Crop Type, Code	C -	C -
Crop Name		
Rating Type	Control	Control
Rating Unit	%	%
Rating Date	07/08/16	07/15/16
Trt Treatment No. Name	Form Form Conc Type Rate	Rate Appl Appl Unit Timing Code
TABLE OF R MEANS		
Replicate 1		47.8
Replicate 2		57.8
Replicate 3		45.6
TABLE OF A (Herbicide) MEANS		
1 Reflex.....fomesafen	2 L 0.313 lb ai/a	PRE A 71.2 a
2 Cobra.....lactofen	2 EC 0.2 lb ai/a	PRE A 52.0 a
3 Firstrate.....cloransulam	84 WG 0.0263 lb ai/a	PRE A 43.3 a
4 Classic.....chlorimuron	25 WG 0.0208 lb ai/a	PRE A 35.0 a
LSD P=.05		31.91
Standard Deviation		25.77
CV		51.16
TABLE OF B (Application Timing) MEANS		
1 Preemergence PRE		43.1 a
2 Postemergence POST		57.7 a
LSD P=.05		22.57
Standard Deviation		25.77
CV		51.16
TABLE OF A (Herbicide) B (Application Timing) MEANS		
1 Reflex.....fomesafen	2 L 0.313 lb ai/a	PRE A 75.0 a 69.0 a
1 Preemergence PRE		
2 Cobra.....lactofen	2 EC 0.2 lb ai/a	PRE A 36.0 a 30.0 a
1 Preemergence PRE		
3 Firstrate.....cloransulam	84 WG 0.0263 lb ai/a	PRE A 36.7 a 40.0 a
1 Preemergence PRE		
4 Classic.....chlorimuron	25 WG 0.0208 lb ai/a	PRE A 26.7 a 33.3 a
1 Preemergence PRE		
1 Reflex.....fomesafen	2 L 0.313 lb ai/a	PRE A . 73.3 a
2 Postemergence POST		
2 Cobra.....lactofen	2 EC 0.2 lb ai/a	PRE A . 74.0 a
2 Postemergence POST		
3 Firstrate.....cloransulam	84 WG 0.0263 lb ai/a	PRE A . 46.7 a
2 Postemergence POST		
4 Classic.....chlorimuron	25 WG 0.0208 lb ai/a	PRE A . 36.7 a
2 Postemergence POST		
LSD P=.05		37.15 45.13
Standard Deviation		21.46 25.77
CV		49.24 51.16

Means followed by same letter or symbol do not significantly differ (P=.05, LSD). Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Randomized Complete Block (RCB) AOV For C GLXMA Soybean Lf Burn % 06/22/16 Missing factor B levels prevents analyzing column 1 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	25	320.000000			
Replicate	2	14.888889	7.444444	2.370	0.1275
Treatment	8	258.000000	32.250000	10.268	0.0001
ERROR	15	47.111111	3.140741		

Randomized Complete Block (RCB) AOV For C GLXMA Soybean Stunting % 06/22/16 Missing factor B levels prevents analyzing column 2 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	25	419.185185			
Replicate	2	3.185185	1.592593	0.158	0.8549
Treatment	8	265.185185	33.148148	3.297	0.0222
ERROR	15	150.814815	10.054321		

Randomized Complete Block (RCB) AOV For C GLXMA Soybean Stunting % 06/30/16 Missing factor B levels prevents analyzing column 3 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	25	417.541667			
Replicate	2	25.430556	12.715278	1.893	0.1850
Treatment	8	291.333333	36.416667	5.420	0.0025
ERROR	15	100.777778	6.718519		

Randomized Complete Block (RCB) AOV For C GLXMA Soybean Stunting % 07/08/16 Missing factor B levels prevents analyzing column 4 as Factorial design; Missing values in column 4 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	24	1946.868926			
Replicate	2	106.153910	53.076955	0.872	0.4398
Treatment	8	988.158153	123.519769	2.028	0.1181
ERROR	14	852.556863	60.896919		

Randomized Complete Block (RCB) AOV For AMBEL C.ragwd C Control % 07/08/16 Missing factor B levels prevents analyzing column 5 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	26	22384.962963			
Replicate	2	492.518519	246.259259	0.535	0.5960
Treatment	8	14522.296296	1815.287037	3.941	0.0094
ERROR	16	7370.148148	460.634259		

FACTORIAL/POOLED ERROR AOV For AMBEL C.ragwd C Control % 07/15/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	17309.625000				
R	2	670.750000	335.375000	0.505	0.6141	
A	3	4325.458333	1441.819444	2.171	0.1370	31.9
B	1	1276.041667	1276.041667	1.921	0.1874	22.6
AB	3	1739.458333	579.819444	0.873	0.4784	45.1
ERROR	14	9297.916667	664.136905			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

PRE Herbicide Programs for HR Common Ragweed  
 Trial ID: Soy23-16      Location: Dorchester Co.      Trial Year: 2016  
 Protocol ID: Soy23-16      Investigator: Mark VanGessel  
    Study Director:  
    Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C GLXMA Glycine max Soybean  
 Variety: S44LS76  
 Attributes: Liberty-Link  
 Planting Date: 06/07/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Rows per Plot: 8      Planting Method: PLANTD planted  
 Row Spacing: 14 in      Planting Equipment: FE      Field Equipment  
    Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/13/16

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 16      Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: RAOBL Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Total EPP burndown Roundup PowerMax 1qt/A + 2,4-D ester 1pt/A on 5-4-16. Total PRE Dual Magnum 1.25 pt/A + Prowl H<sub>2</sub>O 1.8 pt/A + Gramoxone 3pt/A + COC 1 %v/v on 6-7-16. Total Postemergence Liberty 280 1 qt/A + AMS on 7-15-18.

**Application Description**

	A
Application Date	06/10/16
Appl. Stop Time	11:45 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	73 F
% Relative Humidity Start, Stop	37
Wind Velocity+Dir. Start	4 mph NE
Wet Leaves (Y/N)	N no
Soil Temperature	73 F
Soil Moisture	NORMAL
% Cloud Cover	5

**Application Equipment**

	A
Appl. Equipment	Bckpck6Nozl
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMCO2

**Trial Comments**

06/29/16: ~20% stunting observed with treatment 15; ~10% stunting with treatments 3, 6, 8, 9. Tricor at 5 oz appears to cause too much damage with certain tankmixtures. Injury was not observed with Tricor alone, but was apparent with some tankmixtures.

06/30/16: Common ragweed only has 2 true leaves, less than 1" tall, lots of newly emerged seedlings. Stunting was difficult to assess due to deer feeding.

07/08/16: Injury ratings are variable due to uneven emergence of soys and field variability. Ragweed density was much lower on side of field nearest the corn

Treatments 1 and 3 were sprayed with Liberty because common ragweed plants were getting large and needed to be controlled.

PRE Herbicide Programs for HR Common Ragweed				
Trial ID: Soy23-16		Location: Dorchester Co.		Trial Year: 2016
Protocol ID: Soy23-16		Investigator: Mark VanGessel		
Study Director:				
Sponsor Contact:				

Pest Code	C	GLXMA	C	GLXMA	C	GLXMA	AMBEL C.ragwd C -
Pest Name							
Crop Type, Code							
Crop Name	Soybean		Soybean		Soybean		Control
Rating Type	Lf Burn		Stunting		Stunting		%
Rating Unit	%		%		%		%
Rating Date	06/22/16		06/22/16		06/30/16		06/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Check						
2	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a	PRE	A	0.0 d
3	Spartan.....sulfentrazone	4 F		0.25 lb ai/a	PRE	A	2.2 b
4	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PRE	A	3.5 c
5	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a	PRE	A	0.0 d
6	Linex.....linuron	4 L		0.875 lb ai/a	PRE	A	1.7 d
7	Command.....clomazone	3 ME		0.47 lb ai/a	PRE	A	2.7 b
8	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a	PRE	A	3.5 c
	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a	PRE	A	88.3 bcd
9	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a	PRE	A	9.7 c
	Linex.....linuron	4 L		0.875 lb ai/a	PRE	A	8.7 a
10	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a	PRE	A	7.5 bc
	Command.....clomazone	3 ME		0.47 lb ai/a	PRE	A	6.3 bc
11	Spartan.....sulfentrazone	4 F		0.25 lb ai/a	PRE	A	0.0 d
	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a	PRE	A	2.2 b
12	Spartan.....sulfentrazone	4 F		0.25 lb ai/a	PRE	A	8.5 bc
	Linex.....linuron	4 L		0.875 lb ai/a	PRE	A	20.0 a
13	Spartan.....sulfentrazone	4 F		0.25 lb ai/a	PRE	A	99.0 a
	Command.....clomazone	3 ME		0.47 lb ai/a	PRE	A	0.0 c
14	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a	PRE	A	3.2 b
	Linex.....linuron	4 L		0.875 lb ai/a	PRE	A	0.0 c
15	Tricor DF.....metribuzin	75 DF		0.234 lb ai/a	PRE	A	8.7 a
	Command.....clomazone	3 ME		0.47 lb ai/a	PRE	A	13.5 ab
16	Linex.....linuron	4 L		0.875 lb ai/a	PRE	A	87.3 cde
	Command.....clomazone	3 ME		0.47 lb ai/a	PRE	A	1.0 d
							0.2 b
							0.0 c
							6.0 bc
							81.7 def
							14.0 ab
							10.0 a
							20.0 a
							99.0 a
							9.0 a
							20.0 a
							96.7 a
							2.3 d
							0.0 b
							0.0 c
							78.2 f
LSD P=.05							4.16
Standard Deviation							2.49
CV							59.23
Replicate F							0.506
Replicate Prob(F)							0.6077
Treatment F							16.947
Treatment Prob(F)							0.0001
							4.07
							2.40
							62.41
							0.911
							0.4167
							9.671
							0.0001
							0.0008
							0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4,6,8; Average=3,5,7

Pest Code Pest Name Crop Type, Code	C	GLXMA	AMBEL C.ragwd C -	C	GLXMA	AMBEL C.ragwd C -	
Crop Name Rating Type Rating Unit Rating Date		Soybean Stunting %	Control %		Soybean Stunting %	Control %	
	07/08/16	07/08/16	07/15/16	07/15/16			
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
1 Untreated Check							0.0 f 0.0 g 0.0 f 0.0 h
2 Valor SX.....flumioxazin	51 WG		0.096 lb ai/a	PRE	A		2.3 ef 86.1 cd 0.0 f 78.8 de
3 Spartan.....sulfentrazone	4 F		0.25 lb ai/a	PRE	A		2.3 ef 30.0 f
4 Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PRE	A		17.0 ab 76.0 e 0.0 f 61.7 g
5 Tricor DF.....metribuzin	75 DF		0.234 lb ai/a	PRE	A		6.0 c-f 76.0 e 0.0 f 70.0 efg
6 Linex.....linuron	4 L		0.875 lb ai/a	PRE	A		2.3 ef 90.2 bc 7.3 de 81.3 cd
7 Command.....clomazone	3 ME		0.47 lb ai/a	PRE	A		0.0 f 79.3 de 2.3 ef 82.5 cd
8 Valor SX.....flumioxazin Tricor DF.....metribuzin	51 WG 75 DF		0.096 lb ai/a 0.234 lb ai/a	PRE PRE	A A		14.7 abc 99.9 a 15.7 abc 98.5 a
9 Valor SX.....flumioxazin Linex.....linuron	51 WG 4 L		0.096 lb ai/a 0.875 lb ai/a	PRE PRE	A A		12.0 a-d 96.7 ab 17.5 ab 93.3 ab
10 Valor SX.....flumioxazin Command.....clomazone	51 WG 3 ME		0.096 lb ai/a 0.47 lb ai/a	PRE PRE	A A		8.5 b-f 94.7 ab 11.0 bcd 98.3 a
11 Spartan.....sulfentrazone Tricor DF.....metribuzin	4 F 75 DF		0.25 lb ai/a 0.234 lb ai/a	PRE PRE	A A		9.7 b-e 75.0 e 9.7 cd 61.6 g
12 Spartan.....sulfentrazone Linex.....linuron	4 F 4 L		0.25 lb ai/a 0.875 lb ai/a	PRE PRE	A A		5.0 def 92.7 abc 8.5 de 81.7 cd
13 Spartan.....sulfentrazone Command.....clomazone	4 F 3 ME		0.25 lb ai/a 0.47 lb ai/a	PRE PRE	A A		10.0 a-e 75.2 e 9.5 cd 65.8 fg
14 Tricor DF.....metribuzin Linex.....linuron	75 DF 4 L		0.234 lb ai/a 0.875 lb ai/a	PRE PRE	A A		19.0 a 95.3 ab 21.0 a 89.1 abc
15 Tricor DF.....metribuzin Command.....clomazone	75 DF 3 ME		0.234 lb ai/a 0.47 lb ai/a	PRE PRE	A A		17.3 ab 94.3 ab 18.0 ab 85.0 bcd
16 Linex.....linuron Command.....clomazone	4 L 3 ME		0.875 lb ai/a 0.47 lb ai/a	PRE PRE	A A		0.0 f 91.2 bc 2.3 ef 75.0 def
LSD P=.05							9.08 8.05 7.05 10.01
Standard Deviation							5.40 4.75 4.13 5.88
CV							68.46 6.07 50.38 7.85
Replicate F							0.684 0.074 5.567 4.105
Replicate Prob(F)							0.5137 0.9291 0.0125 0.0321
Treatment F							4.513 94.542 9.474 49.510
Treatment Prob(F)							0.0005 0.0001 0.0001 0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,4,6,8; Average=3,5,7

POST Control of HR Common Ragweed  
 Trial ID: Soy24-16      Location: Dorchester Co.      Trial Year: 2016  
 Protocol ID: Soy24-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: S44LS76  
 Attributes: Liberty-Link  
 Planting Date: 06/07/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Rows per Plot: 8      Planting Method: PLANTD planted  
 Row Spacing: 14 in      Planting Equipment: FE      Field Equipment  
    Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/13/16

**Pest Description**

Pest 1 Type: W      Code: AMBEL Ambrosia artemisiifolia  
 Common Name: Common ragweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 14      Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: FACTOR Factorial

**Field Prep./Maintenance:**

Total EPP burndown Roundup PowerMax 1qt/A + 2,4-D ester 1pt/A on 5-4-16. Total PRE Dual Magnum 1.25 pt/A + Prowl H2O 1.8 pt/A + Gramoxone 3pt/A + COC 1 %v/v on 6-7-16.

**Application Description**

	A	B	C	D
Application Date	06/29/16	07/08/16	07/15/16	07/22/16
Appl. Stop Time	01:30 PM	12:00 PM	11:45 AM	10:15 AM
Interval to Prev. Appl.		9 DAYS	7 DAYS	7 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	3WAP	4WAP	5WAP	6WAP
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	VanGessl	VanGessl	VanGessl	VanGessl
Air Temperature Start, Stop	84 F	87 F	90 F	90 F
% Relative Humidity Start, Stop	47	57	54	65
Wind Velocity+Dir. Start	2 mph NW	4 mph NW	5 mph N	5 mph SW
Wet Leaves (Y/N)	N no	N no	N no	N no
Soil Temperature	84 F	87 F	90 F	90 F
Soil Moisture	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover	10	5	10	0

**Crop Stage At Each Application**

	A	B	C	D
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used	DESC	DESC	DESC	DESC
Stage Majority, Percent	1-trifol 100	3-trifol 100	5-trifol 100	7-trifol 65
Stage Minimum, Percent				7-trifol 65
Stage Maximum, Percent				8-trifol 35
Height Average	6 in	8 in	11 in	12 in

**Pest Stage At Each Application**

	A	B	C	D
Pest 1 Code, Type, Scale	AMBEL W	AMBEL W	AMBEL W	AMBEL W
Stage Majority, Percent	2-leaf 100	6-leaf 100	8-leaf 100	veg 100
Height Average	0.8 in	3 in	7 in	8 in
Height Minimum, Maximum			6 8	7 9
Density Average	30 m2	30 m2	30 m2	30 m2

**Application Equipment**

	A	B	C	D
Appl. Equipment	Backpack	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	18 in	18 in	18 in	18 in
Boom Length	9 ft	9 ft	9 ft	9 ft
Boom Height	22 in	24 in	28 in	30 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Propellant	COMCO2	COMCO2	COMCO2	COMCO2

**Trial Comments**

07/08/16: Plots treated with Basagran today were noticeably lighter green and appear to be taller at 1 hr after treatment.

07/15/16: Liberty was excellent on carpetweed, while Reflex and Basagran were poor on carpetweed. Common ragweed seedlings have emerged in treatments 1 and 9 since applicaiton was made. Reduced control with Reflex (less than 90%) due to presence of resistant plants. Appears to have more deer feeding in plots with a herbicide application made at 3&4 weeks after planting than untreated plots.

07/22/16: Control ratings include POST as well as emergence since last application. Reflex ratings were inconsistent due to mixed population of resistant and susceptible plants.

07/29/16: Ratings for weeks 3 and 4 based mainly on weeds emerging after applicaiton for bentazon and glufosinate. Ratings on week 5 and 6 almost all based on POST activity.

POST Control of HR Common Ragweed				
Trial ID: Soy24-16		Location: Dorchester Co.		Trial Year: 2016
Protocol ID: Soy24-16		Investigator: Mark VanGessel		
Study Director:				
Sponsor Contact:				

Pest Code					C	GLXMA	AMBEL	C	GLXMA	AMBEL
Pest Name							C.ragwd			C.ragwd
Crop Type, Code							C -			C -
Crop Name					Soybean			Soybean		
Rating Type					LeafBrn		Control	Stunting		Control
Rating Unit					%		%	%		%
Rating Date					07/08/16		07/08/16	07/15/16		07/15/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code				
1	Reflex.....fomesafen Nonionic Surfactant 3 WAP	2 L		0.313 lb ai/a 0.25 % v/v	3 WAP A 3WAP A 3 WAP A		10.7 a	96.0 a	6.4 ab	95.0 a
2	Reflex.....fomesafen Nonionic Surfactant 4 WAP	2 L		0.313 lb ai/a 0.25 % v/v	4 WAP B 4WAP B 4 WAP B				8.0 a	70.7 c
3	Reflex.....fomesafen Nonionic Surfactant 5 WAP	2 L		0.313 lb ai/a 0.25 % v/v	5 WAP C 5WAP C 5 WAP C					
4	Reflex.....fomesafen Nonionic Surfactant 6 WAP	2 L		0.313 lb ai/a 0.25 % v/v	6 WAP D 6WAP D 6 WAP D					
5	Basagran.....bentazon Crop Oil Concentrate 3 WAP	4 L		1 lb ai/a 1.25 % v/v	3 WAP A 3WAP A 3 WAP A		5.8 a	100.0 a	1.7 bc	100.0 a
6	Basagran.....bentazon Crop Oil Concentrate 4 WAP	4 L		1 lb ai/a 1.25 % v/v	4 WAP B 4WAP B 4 WAP B				9.7 a	86.0 b
7	Basagran.....bentazon Crop Oil Concentrate 5 WAP	4 L		1 lb ai/a 1.25 % v/v	5 WAP C 5WAP C 5 WAP C					
8	Basagran.....bentazon Crop Oil Concentrate 6 WAP	4 L		1 lb ai/a 1.25 % v/v	6 WAP D 6WAP D 6 WAP D					
9	Liberty 280.....glufosinate Dry Ammonium Sulfate 3 WAP	2.34 SL 100 D		0.585 lb ai/a 15 lb/100 gal	3 WAP A 3WAP A 3 WAP A		12.0 a	99.0 a	0.0 c	95.7 a
10	Liberty 280.....glufosinate Dry Ammonium Sulfate 4 WAP	2.34 SL 100 D		0.585 lb ai/a 15 lb/100 gal	4 WAP B 4WAP B 4 WAP B				9.7 a	99.0 a
11	Liberty 280.....glufosinate Dry Ammonium Sulfate 5 WAP	2.34 SL 100 D		0.585 lb ai/a 15 lb/100 gal	5 WAP C 5WAP C 5 WAP C					
12	Liberty 280.....glufosinate Dry Ammonium Sulfate 6 WAP	2.34 SL 100 D		0.585 lb ai/a 15 lb/100 gal	6 WAP D 6WAP D 6 WAP D					
13	Interline.....glufosinate Dry Ammonium Sulfate	100 D 100 D		15 lb/100 gal 15 lb/100 gal	5 WAP C 5 WAP C					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,3



Pest Code					AMBEL	AMBEL
Pest Name					C.ragwd	C.ragwd
Crop Type, Code					C -	C -
Crop Name						
Rating Type					Control	Control
Rating Unit					%	%
Rating Date					07/22/16	07/29/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code
1	Reflex.....fomesafen Nonionic Surfactant 3 WAP	2 L 100 L		0.313 lb ai/a 0.25 % v/v	3 WAP A 3WAP A 3 WAP A	93.7 ab 92.3 ab
2	Reflex.....fomesafen Nonionic Surfactant 4 WAP	2 L 100 L		0.313 lb ai/a 0.25 % v/v	4 WAP B 4WAP B 4 WAP B	82.0 c 80.7 cd
3	Reflex.....fomesafen Nonionic Surfactant 5 WAP	2 L 100 L		0.313 lb ai/a 0.25 % v/v	5 WAP C 5WAP C 5 WAP C	72.7 d 73.3 de
4	Reflex.....fomesafen Nonionic Surfactant 6 WAP	2 L 100 L		0.313 lb ai/a 0.25 % v/v	6 WAP D 6WAP D 6 WAP D	56.7 f
5	Basagran.....bentazon Crop Oil Concentrate 3 WAP	4 L 100 L		1 lb ai/a 1.25 % v/v	3 WAP A 3WAP A 3 WAP A	95.3 ab 93.3 ab
6	Basagran.....bentazon Crop Oil Concentrate 4 WAP	4 L 100 L		1 lb ai/a 1.25 % v/v	4 WAP B 4WAP B 4 WAP B	89.7 bc 87.3 bc
7	Basagran.....bentazon Crop Oil Concentrate 5 WAP	4 L 100 L		1 lb ai/a 1.25 % v/v	5 WAP C 5WAP C 5 WAP C	71.7 d 56.7 f
8	Basagran.....bentazon Crop Oil Concentrate 6 WAP	4 L 100 L		1 lb ai/a 1.25 % v/v	6 WAP D 6WAP D 6 WAP D	68.3 e
9	Liberty 280.....glufosinate Dry Ammonium Sulfate 3 WAP	2.34 SL 100 D		0.585 lb ai/a 15 lb/100 gal	3 WAP A 3WAP A 3 WAP A	97.7 ab 95.7 ab
10	Liberty 280.....glufosinate Dry Ammonium Sulfate 4 WAP	2.34 SL 100 D		0.585 lb ai/a 15 lb/100 gal	4 WAP B 4WAP B 4 WAP B	98.7 a 97.7 a
11	Liberty 280.....glufosinate Dry Ammonium Sulfate 5 WAP	2.34 SL 100 D		0.585 lb ai/a 15 lb/100 gal	5 WAP C 5WAP C 5 WAP C	95.3 ab 96.7 a
12	Liberty 280.....glufosinate Dry Ammonium Sulfate 6 WAP	2.34 SL 100 D		0.585 lb ai/a 15 lb/100 gal	6 WAP D 6WAP D 6 WAP D	95.3 ab
13	Interline.....glufosinate Dry Ammonium Sulfate	100 D 100 D		15 lb/100 gal 15 lb/100 gal	5 WAP C 5 WAP C	96.3 ab 97.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,3

Pest Code					AMBEL					AMBEL						
Pest Name					C.ragwd					C.ragwd						
Crop Type, Code	C	GLXMA			C	GLXMA			C	GLXMA						
Crop Name	Soybean				Soybean				Soybean							
Rating Type	LeafBrn				Stunting				Control							
Rating Unit	%				%				%							
Rating Date	07/08/16				07/08/16				07/15/16							
Trt Treatment	Form	Form	Rate	Appl	Appl											
No. Name	Conc	Type	Rate	Unit	Timing	Code										
14 Untreated Check	0.0 a				0.0 b				0.0 c				0.0 d			
LSD P=.05	12.54				6.55				5.58				8.81			
Standard Deviation	5.53				3.28				3.10				4.95			
CV	77.64				4.45				61.34				6.34			
Replicate F	0.039				1.744				2.340				3.045			
Replicate Prob(F)	0.9624				0.2529				0.1423				0.0852			
Treatment F	2.898				675.419				6.003				157.661			
Treatment Prob(F)	0.1653				0.0001				0.0053				0.0001			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,3

Pest Code					AMBEL	AMBEL
Pest Name					C.ragwd	C.ragwd
Crop Type, Code					C -	C -
Crop Name						
Rating Type					Control	Control
Rating Unit					%	%
Rating Date					07/22/16	07/29/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code
14 Untreated Check						
					0.0 e	0.0 g
LSD P=.05					8.88	8.64
Standard Deviation					5.21	5.15
CV					6.42	6.6
Replicate F					1.780	1.918
Replicate Prob(F)					0.1943	0.1671
Treatment F					90.448	81.515
Treatment Prob(F)					0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,3

POST Control of HR Common Ragweed  
 Trial ID: Soy24-16      Location: Dorchester Co.      Trial Year: 2016  
 Protocol ID: Soy24-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Pest Code	C	GLXMA	AMBEL C.ragwd C -	C	GLXMA	AMBEL C.ragwd C -
Pest Name						
Crop Type, Code						
Crop Name		Soybean			Soybean	
Rating Type		LeafBrn	Control		Stunting	Control
Rating Unit		%	%		%	%
Rating Date		07/08/16	07/08/16		07/15/16	07/15/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code
<b>TABLE OF R MEANS</b>						
Replicate 1					3.5	86.7
Replicate 2					6.9	93.0
Replicate 3					7.3	93.5
<b>TABLE OF A (Herbicide) MEANS</b>						
1 Reflex.....fomesafen	2 L		0.313 lb ai/a		3 WAP A	
1 Nonionic Surfactant	100 L		0.25 % v/v		3WAP A	
2 Basagran.....bentazon	4 L		1 lb ai/a		3 WAP A	
2 Crop Oil Concentrate	100 L		1.25 % v/v		3WAP A	
3 Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a		3 WAP A	
3 Dry Ammonium Sulfate	100 D		15 lb/100 gal		3WAP A	
LSD P=.05					3.05	4.72
Standard Deviation					3.31	5.19
CV					56.03	5.70
<b>TABLE OF B (Application Timing) MEANS</b>						
1 3 WAP					3 WAP A	
2 4 WAP					4 WAP B	
3 5 WAP					5 WAP C	
4 6 WAP					6 WAP D	
LSD P=.05					2.7 b	96.9 a
Standard Deviation					9.1 a	85.2 b
CV					.	.
<b>TABLE OF A (Herbicide) B (Application Timing) MEANS</b>						
1 Reflex.....fomesafen	2 L		0.313 lb ai/a		3 WAP A	
1 Nonionic Surfactant	100 L		0.25 % v/v		3WAP A	
1 3 WAP					3 WAP A	
2 Basagran.....bentazon	4 L		1 lb ai/a		3 WAP A	
2 Crop Oil Concentrate	100 L		1.25 % v/v		3WAP A	
1 3 WAP					3 WAP A	
3 Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a		3 WAP A	
3 Dry Ammonium Sulfate	100 D		15 lb/100 gal		3WAP A	
1 3 WAP					3 WAP A	
1 Reflex.....fomesafen	2 L		0.313 lb ai/a		3 WAP A	
1 Nonionic Surfactant	100 L		0.25 % v/v		3WAP A	
2 4 WAP					4 WAP B	
2 Basagran.....bentazon	4 L		1 lb ai/a		3 WAP A	
2 Crop Oil Concentrate	100 L		1.25 % v/v		3WAP A	
2 4 WAP					4 WAP B	
3 Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a		3 WAP A	
3 Dry Ammonium Sulfate	100 D		15 lb/100 gal		3WAP A	
2 4 WAP					4 WAP B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code					AMBEL	AMBEL
Pest Name					C.ragwd	C.ragwd
Crop Type, Code					C -	C -
Crop Name						
Rating Type					Control	Control
Rating Unit					%	%
Rating Date					07/22/16	07/29/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Appl Timing	Appl Code
TABLE OF R MEANS						
Replicate 1					85.9	82.1
Replicate 2					91.3	85.2
Replicate 3					88.3	81.3
TABLE OF A (Herbicide) MEANS						
1	Reflex.....fomesafen	2 L		0.313 lb ai/a	3 WAP A	82.8 b
1	Nonionic Surfactant	100 L		0.25 % v/v	3WAP A	75.8 b
2	Basagran.....bentazon	4 L		1 lb ai/a	3 WAP A	85.6 b
2	Crop Oil Concentrate	100 L		1.25 % v/v	3WAP A	76.4 b
3	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	3 WAP A	97.2 a
3	Dry Ammonium Sulfate	100 D		15 lb/100 gal	3WAP A	96.3 a
LSD P=.05					4.85	4.71
Standard Deviation					5.60	5.56
CV					6.32	6.71
TABLE OF B (Application Timing) MEANS						
1	3 WAP				3 WAP A	95.6 a
2	4 WAP				4 WAP B	90.1 a
3	5 WAP				5 WAP C	79.9 b
4	6 WAP				6 WAP D	73.4 b
LSD P=.05					5.59	5.43
Standard Deviation					5.60	5.56
CV					6.32	6.71
TABLE OF A (Herbicide) B (Application Timing) MEANS						
1	Reflex.....fomesafen	2 L		0.313 lb ai/a	3 WAP A	93.7 a
1	Nonionic Surfactant	100 L		0.25 % v/v	3WAP A	92.3 ab
1	3 WAP				3 WAP A	
2	Basagran.....bentazon	4 L		1 lb ai/a	3 WAP A	95.3 a
2	Crop Oil Concentrate	100 L		1.25 % v/v	3WAP A	93.3 ab
2	3 WAP				3 WAP A	
3	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	3 WAP A	97.7 a
3	Dry Ammonium Sulfate	100 D		15 lb/100 gal	3WAP A	95.7 ab
3	3 WAP				3 WAP A	
1	Reflex.....fomesafen	2 L		0.313 lb ai/a	3 WAP A	82.0 bc
1	Nonionic Surfactant	100 L		0.25 % v/v	3WAP A	80.7 cd
2	4 WAP				4 WAP B	
2	Basagran.....bentazon	4 L		1 lb ai/a	3 WAP A	89.7 ab
2	Crop Oil Concentrate	100 L		1.25 % v/v	3WAP A	87.3 bc
2	4 WAP				4 WAP B	
3	Liberty 280.....glufosinate	2.34 SL		0.585 lb ai/a	3 WAP A	98.7 a
3	Dry Ammonium Sulfate	100 D		15 lb/100 gal	3WAP A	97.7 a
2	4 WAP				4 WAP B	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

					C	GLXMA	AMBEL C.ragwd C -	C	GLXMA	AMBEL C.ragwd C -
Pest Code										
Pest Name										
Crop Type, Code										
Crop Name						Soybean			Soybean	
Rating Type						LeafBrn	Control		Stunting	Control
Rating Unit						%	%		%	%
Rating Date						07/08/16	07/08/16		07/15/16	07/15/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code				
1	Reflex.....fomesafen	2	L	0.313 lb ai/a	3 WAP	A	.	.	.	.
1	Nonionic Surfactant	100	L	0.25 % v/v	3WAP	A				
3	5 WAP				5 WAP	C				
2	Basagran.....bentazon	4	L	1 lb ai/a	3 WAP	A	.	.	.	.
2	Crop Oil Concentrate	100	L	1.25 % v/v	3WAP	A				
3	5 WAP				5 WAP	C				
3	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/a	3 WAP	A	.	.	.	.
3	Dry Ammonium Sulfate	100	D	15 lb/100 gal	3WAP	A				
3	5 WAP				5 WAP	C				
1	Reflex.....fomesafen	2	L	0.313 lb ai/a	3 WAP	A	.	.	.	.
1	Nonionic Surfactant	100	L	0.25 % v/v	3WAP	A				
4	6 WAP				6 WAP	D				
2	Basagran.....bentazon	4	L	1 lb ai/a	3 WAP	A	.	.	.	.
2	Crop Oil Concentrate	100	L	1.25 % v/v	3WAP	A				
4	6 WAP				6 WAP	D				
3	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/a	3 WAP	A	.	.	.	.
3	Dry Ammonium Sulfate	100	D	15 lb/100 gal	3WAP	A				
4	6 WAP				6 WAP	D				
LSD P=.05						12.54	6.55		6.11	9.44
Standard Deviation						5.53	3.28		3.31	5.19
CV						58.23	3.33		56.03	5.70

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pest Code						AMBEL	AMBEL		
Pest Name						C.ragwd	C.ragwd		
Crop Type, Code						C -	C -		
Crop Name									
Rating Type						Control	Control		
Rating Unit						%	%		
Rating Date						07/22/16	07/29/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
1	Reflex.....fomesafen	2	L	0.313	lb ai/a	3 WAP	A	72.7	cd
1	Nonionic Surfactant	100	L	0.25	% v/v	3WAP	A		
3	5 WAP					5 WAP	C		73.3
2	Basagran.....bentazon	4	L	1	lb ai/a	3 WAP	A	71.7	d
2	Crop Oil Concentrate	100	L	1.25	% v/v	3WAP	A		
3	5 WAP					5 WAP	C		56.7
3	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	3 WAP	A	95.3	a
3	Dry Ammonium Sulfate	100	D	15	lb/100 gal	3WAP	A		
3	5 WAP					5 WAP	C		96.7
1	Reflex.....fomesafen	2	L	0.313	lb ai/a	3 WAP	A	.	
1	Nonionic Surfactant	100	L	0.25	% v/v	3WAP	A		56.7
4	6 WAP					6 WAP	D		f
2	Basagran.....bentazon	4	L	1	lb ai/a	3 WAP	A	.	
2	Crop Oil Concentrate	100	L	1.25	% v/v	3WAP	A		68.3
4	6 WAP					6 WAP	D		e
3	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	3 WAP	A	.	
3	Dry Ammonium Sulfate	100	D	15	lb/100 gal	3WAP	A		95.3
4	6 WAP					6 WAP	D		ab
LSD P=.05								9.69	9.41
Standard Deviation								5.60	5.56
CV								6.32	6.71

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Randomized Complete Block (RCB) AOV For C GLXMA Soybean LeafBrn % 07/08/16 Missing factor B levels prevents analyzing column 1 as Factorial design; Missing values in column 1 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	9	391.007042			
Replicate	2	2.366476	1.183238	0.039	0.9624
Treatment	3	266.184944	88.728315	2.898	0.1653
ERROR	4	122.455623	30.613906		

Randomized Complete Block (RCB) AOV For AMBEL C.ragwd C Control % 07/08/16 Missing factor B levels prevents analyzing column 2 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	21884.250000			
Replicate	2	37.500000	18.750000	1.744	0.2529
Treatment	3	21782.250000	7260.750000	675.419	0.0001
ERROR	6	64.500000	10.750000		

FACTORIAL/POOLED ERROR AOV For C GLXMA Soybean Stunting % 07/15/16 Analysis will skip factor level B3 for column 3 - all B3 treatments are missing; Analysis will skip factor level B4 for column 3 - all B4 treatments are missing; Missing values in column 3 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	16	408.392361				
R	2	52.590278	26.295139	2.404	0.1457	
A	2	17.423611	8.711806	0.796	0.4803	3.1
B	1	185.281250	185.281250	16.938	0.0026	3.5
AB	2	54.645833	27.322917	2.498	0.1371	6.1
ERROR	9	98.451389	10.939043			

FACTORIAL/POOLED ERROR AOV For AMBEL C.ragwd C Control % 07/15/16 Analysis will skip factor level B3 for column 4 - all B3 treatments are missing; Analysis will skip factor level B4 for column 4 - all B4 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	17	2306.944444				
R	2	174.111111	87.055556	3.234	0.0826	
A	2	664.777778	332.388889	12.346	0.0020	4.7
B	1	612.500000	612.500000	22.751	0.0008	5.4
AB	2	586.333333	293.166667	10.889	0.0031	9.4
ERROR	10	269.222222	26.922222			

FACTORIAL/POOLED ERROR AOV For AMBEL C.ragwd C Control % 07/22/16 Analysis will skip factor level B4 for column 5 - all B4 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	26	3290.740741				
R	2	133.851852	66.925926	2.135	0.1507	
A	2	1057.407407	528.703704	16.869	0.0001	4.8
B	2	1138.740741	569.370370	18.166	0.0001	5.6
AB	4	459.259259	114.814815	3.663	0.0266	9.7
ERROR	16	501.481481	31.342593			

FACTORIAL/POOLED ERROR AOV For AMBEL C.ragwd C Control % 07/29/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	8665.000000				
R	2	102.166667	51.083333	1.653	0.2144	
A	2	3283.166667	1641.583333	53.123	0.0001	4.7
B	3	2642.777778	880.925926	28.508	0.0001	5.4
AB	6	1957.055556	326.175926	10.555	0.0001	9.4
ERROR	22	679.833333	30.901515			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Engenia Weed Control Systems in DT Soybeans  
 Trial ID: Soy25-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Soy25-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: BASF

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: AG45X6  
 Attributes: Xtend  
 Planting Date: 05/24/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 81 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/31/16  
 Harvest Date: 10/17/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25 FT

**Pest Description**

Pest 1 Type: W      Code: AMAPA Amaranthus palmeri  
 Common Name: Palmer amaranth  
 Pest 2 Type: W      Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 6      Tillage Type: NOTILL no-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Early Preplant burndown application of Roundup PowerMax 1 qt/A + 2,4-D ester 1 pt/A applied to study area on 4-18-16 to kill existing vegetation.

**Soil Description**

% Sand: 79      % OM: 0.9      Texture: SL sandy loam  
 % Silt: 10      pH: 6.1  
 % Clay: 11      CEC: 4.7      Fert. Level: G good  
 Soil Drainage: F fair

<b>Application Description</b>				
	A	B	C	D
Application Date	05/09/16	05/24/16	06/14/16	07/06/16
Appl. Stop Time	10:35 AM	03:20 PM	11:00 AM	09:45 AM
Interval to Prev. Appl.		15 DAYS	21 DAYS	22 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	14EPP	PRE	3-4"wds	3-4"wds
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson	Johnson
Air Temperature Start, Stop	68 F	78 F	73 F	84 F
% Relative Humidity Start, Stop	39	37	40	71
Wind Velocity+Dir. Start	4 mph SW	2 mph W	4 mph N	1 mph SE
Wet Leaves (Y/N)	Y yes	N no	N no	Y yes
Soil Temperature	68 F	78 F	73 F	83 F
Soil Moisture	WET	NORMAL	NORMAL	NORMAL
% Cloud Cover	100	40	20	50

<b>Crop Stage At Each Application</b>				
	A	B	C	D
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used			DESC	DESC
Stage Majority, Percent			1-trif 70	6-trif 65
Stage Minimum, Percent			1-trif 70	6-trif 65
Stage Maximum, Percent			2-trif 30	7-trif 35
Height Average			4 in	13 in
Height Minimum, Maximum			3.5 4.5	12 14

<b>Pest Stage At Each Application</b>				
	A	B	C	D
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent			veg 100	run 100
Height Average			1.5 in	15 in
Height Minimum, Maximum			1 2.5	12 18
Density Average			5 m2	2 m2
Pest 2 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent			3-4 lf 70	3-tilr 70
Stage Minimum, Percent			2-leaf 20	2-tilr 30
Stage Maximum, Percent			1-tilr 10	3-tilr 70
Height Average			2 in	8 in
Height Minimum, Maximum			1 2	7 10
Density Average			8 m2	5 m2

<b>Application Equipment</b>				
	A	B	C	D
Appl. Equipment	Tractor	Tractor	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	20 in	20 in	20 in	20 in
Boom Length	10 ft	10 ft	10 ft	10 ft
Boom Height	18 in	18 in	20 in	30 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR	COMAIR	COMAIR

#### Trial Comments

06/13/16: Treatment 2 (glyphosate alone) has large crabgrass, Palmer amaranth, and morningglory seedlings present. Horseweed were small at time of PRE applications since field was treated early pre-plant with glyphosate + 2,4-D. Morningglory cotyledons present in all treatments. Palmer amaranth and primrose in untreated check, but 100% control in all PRE applications

06/25/16: Ratings for treatment 2 based on overall control, POST activity as well as newly emerged seedlings. Large crabgrass in treatment 3 (averaged 85% control) but all other treatments were 100%. No winter annual weeds observed in treatments other than untreated check. Primrose, horseweed, and groundsel observed in untreated check.

07/14/16: Horseweed observed in treatment 2, but not in any other treatment.

Engenia Weed Control Systems in DT Soybeans										
Trial ID: Soy25-16		Location: Field #14		Trial Year: 2016						
Protocol ID: Soy25-16		Investigator: Mark VanGessel		Study Director:						
		Sponsor Contact: BASF								
Pest Code	Pest Name						ERICA	Horsewd		
Crop Type, Code	Crop Name	Form	Form	Rate	Appl	Appl	C	-	C	
	Rating Type	Conc	Type	Unit	Timing	Code	GLXMA		GLXMA	
	Rating Unit						Soybean	Control	Soybean	
	Rating Date						Stunting	%	Stunting	
							%	%	%	
							06/13/16	06/13/16	06/25/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code			
1	Untreated Check							0.0 b	0.0 d	0.0 a
2	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		0.0 b	78.5 c	0.0 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	C				
3	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	14EPP	A		10.7 a	100.0 a	4.0 a
	2,4-D ester	3.8 L		0.475 lb ae/a	14EPP	A				
	Envive Premix	41.3 WG		0.09 lb ai/a	14EPP	A				
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Reflex.....fomesafen	2 L		0.375 lb ai/a	3-4"wds	D				
4	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		8.7 a	98.0 ab	1.7 a
	Engenia	5 SL		0.5 lb ai/a	PRE	B				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D				
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	3-4"wds	D				
5	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		10.7 a	87.7 bc	2.3 a
	Engenia	5 SL		0.5 lb ai/a	PRE	B				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D				
6	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		7.3 a	93.3 ab	3.3 a
	Engenia	5 SL		0.5 lb ai/a	PRE	B				
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	B				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D				
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	3-4"wds	D				
LSD P=.05							5.86	11.76	5.50	
Standard Deviation							3.22	6.37	3.03	
CV							51.8	8.35	160.19	
Replicate F							1.481	2.117	0.024	
Replicate Prob(F)							0.2732	0.1764	0.9761	
Treatment F							7.170	107.656	0.913	
Treatment Prob(F)							0.0043	0.0001	0.5103	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=2,5,12

Could not calculate LSD (% mean diff) for columns 11 because error mean square = 0.

Pest Code Pest Name			AMAPA PalmerAm	IPOSS Mornglry			
Crop Type, Code			C -	C -	C	GLXMA	
Crop Name			Control	Control	Soybean		
Rating Type			%	%	Stunting		
Rating Unit					%		
Rating Date			06/25/16	06/25/16	07/04/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Check						
2	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B	87.3 bc
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	C	90.7 a
3	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	14EPP	A	81.0 c
	2,4-D ester	3.8 L		0.475 lb ae/a	14EPP	A	87.7 a
	Envive Premix	41.3 WG		0.09 lb ai/a	14EPP	A	2.3 a
	----chlorimuron	9.199999		0.02			
	----flumioxazin	29.2		.0636			
	----thifensulfuron	2.9		0.0063			
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D	
	Reflex.....fomesafen	2 L		0.375 lb ai/a	3-4"wds	D	
4	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B	97.3 ab
	Engenia	5 SL		0.5 lb ai/a	PRE	B	91.0 a
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B	7.3 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D	
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D	
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	3-4"wds	D	
5	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B	100.0 a
	Engenia	5 SL		0.5 lb ai/a	PRE	B	76.3 b
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B	6.7 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D	
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D	
6	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B	92.3 abc
	Engenia	5 SL		0.5 lb ai/a	PRE	B	84.0 a
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	B	2.3 a
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B	
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D	
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D	
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	3-4"wds	D	
LSD P=.05				11.97	7.56	7.66	
Standard Deviation				6.58	4.09	4.21	
CV				8.62	5.72	135.31	
Replicate F				0.358	2.210	0.492	
Replicate Prob(F)				0.7077	0.1657	0.6254	
Treatment F				100.139	225.502	1.728	
Treatment Prob(F)				0.0001	0.0001	0.2158	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=2,5,12

Could not calculate LSD (% mean diff) for columns 11 because error mean square = 0.

Pest Code Pest Name			AMAPA PalmerAm	IPOSS Mornglry	DIGSA L.crbgrs					
Crop Type, Code			C -	C -	C -					
Crop Name			Control	Control	Control					
Rating Type			%	%	%					
Rating Unit			07/04/16	07/04/16	07/04/16					
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 c	0.0 c	0.0 c
2	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		76.7 b	85.0 a	98.0 a
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	C				
3	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	14EPP	A		80.7 b	77.0 ab	83.3 b
	2,4-D ester	3.8 L		0.475 lb ae/a	14EPP	A				
	Envive Premix	41.3 WG		0.09 lb ai/a	14EPP	A				
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Reflex.....fomesafen	2 L		0.375 lb ai/a	3-4"wds	D				
4	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		100.0 a	77.0 ab	99.0 a
	Engenia	5 SL		0.5 lb ai/a	PRE	B				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D				
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	3-4"wds	D				
5	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		98.3 a	71.7 b	100.0 a
	Engenia	5 SL		0.5 lb ai/a	PRE	B				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D				
6	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		97.3 a	72.3 b	99.0 a
	Engenia	5 SL		0.5 lb ai/a	PRE	B				
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	B				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D				
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	3-4"wds	D				
LSD P=.05								9.23	8.26	3.02
Standard Deviation								5.08	4.54	1.66
CV								6.72	7.12	2.08
Replicate F								1.184	1.042	1.290
Replicate Prob(F)								0.3456	0.3881	0.3173
Treatment F								170.607	145.485	1710.807
Treatment Prob(F)								0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=2,5,12

Could not calculate LSD (% mean diff) for columns 11 because error mean square = 0.

Pest Code Pest Name			AMAPA PalmerAm	IPOSS Morngrly						
Crop Type, Code	C	GLXMA	C -	C -						
Crop Name	Soybean									
Rating Type	Stunting		Control	Control						
Rating Unit	%		%	%						
Rating Date	07/14/16		07/14/16	07/14/16						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 d	0.0 c	0.0 d
2	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		0.0 d	60.0 b	83.0 bc
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	C				
3	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	14EPP	A		18.3 a	100.0 a	100.0 a
	2,4-D ester	3.8 L		0.475 lb ae/a	14EPP	A				
	Envive Premix	41.3 WG		0.09 lb ai/a	14EPP	A				
	----chlorimuron	9.199999		0.02						
	----flumioxazin	29.2		.0636						
	----thifensulfuron	2.9		0.0063						
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Reflex.....fomesafen	2 L		0.375 lb ai/a	3-4"wds	D				
4	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		14.0 ab	100.0 a	93.3 ab
	Engenia	5 SL		0.5 lb ai/a	PRE	B				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D				
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	3-4"wds	D				
5	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		10.7 bc	100.0 a	100.0 a
	Engenia	5 SL		0.5 lb ai/a	PRE	B				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D				
6	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PRE	B		7.3 c	100.0 a	75.1 c
	Engenia	5 SL		0.5 lb ai/a	PRE	B				
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/a	PRE	B				
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	B				
	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	3-4"wds	D				
	Engenia	5 SL		0.5 lb ai/a	3-4"wds	D				
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	3-4"wds	D				
LSD P=.05				4.65						16.08
Standard Deviation				2.55					0.00	8.71
CV				30.44					0.0	11.57
Replicate F				0.213					0.000	0.003
Replicate Prob(F)				0.8118					1.0000	0.9968
Treatment F				25.521					0.000	57.584
Treatment Prob(F)				0.0001					1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns:Yates=2,5,12

Could not calculate LSD (% mean diff) for columns 11 because error mean square = 0.

Pest Code Pest Name Crop Type, Code						DIGSA L.crbgrs C - C	GLXMA
Crop Name Rating Type Rating Unit Rating Date						Control % 07/14/16	Soybean Yield Bu/A 10/17/16
Trt No.	Treatment Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing	Appl Code	
1	Untreated Check						0.0 c 31.4 a
2	Roundup PowerMax..glyphosate Roundup PowerMax..glyphosate	4.5 AS 4.5 AS		1.13 lb ae/a 1.13 lb ae/a	PRE 3-4"wds	B C	83.3 b 49.7 a
3	Roundup PowerMax..glyphosate 2,4-D ester Envive Premix ----chlorimuron ----flumioxazin ----thifensulfuron Roundup PowerMax..glyphosate Reflex.....fomesafen	4.5 AS 3.8 L 41.3 WG 9.199999 29.2 2.9 4.5 AS 2 L		1.13 lb ae/a 0.475 lb ae/a 0.09 lb ai/a 0.02 .0636 0.0063 1.13 lb ae/a 0.375 lb ai/a	14EPP 14EPP 14EPP    3-4"wds 3-4"wds	A A A    D D	100.0 a 41.7 a
4	Roundup PowerMax..glyphosate Engenia Zidua.....pyroxasulfone Roundup PowerMax..glyphosate Engenia Outlook.....dimethenamid-p	4.5 AS 5 SL 85 WG 4.5 AS 5 SL 6 L		1.13 lb ae/a 0.5 lb ai/a 0.106 lb ai/a 1.13 lb ae/a 0.5 lb ai/a 0.56 lb ai/a	PRE PRE PRE 3-4"wds 3-4"wds 3-4"wds	B B B D D D	100.0 a 50.0 a
5	Roundup PowerMax..glyphosate Engenia Zidua.....pyroxasulfone Roundup PowerMax..glyphosate Engenia	4.5 AS 5 SL 85 WG 4.5 AS 5 SL		1.13 lb ae/a 0.5 lb ai/a 0.106 lb ai/a 1.13 lb ae/a 0.5 lb ai/a	PRE PRE PRE 3-4"wds 3-4"wds	B B B D D	100.0 a 46.0 a
6	Roundup PowerMax..glyphosate Engenia Metribuzin.....metribuzin Zidua.....pyroxasulfone Roundup PowerMax..glyphosate Engenia Outlook.....dimethenamid-p	4.5 AS 5 SL 75 DF 85 WG 4.5 AS 5 SL 6 L		1.13 lb ae/a 0.5 lb ai/a 0.188 lb ai/a 0.106 lb ai/a 1.13 lb ae/a 0.5 lb ai/a 0.56 lb ai/a	PRE PRE PRE PRE 3-4"wds 3-4"wds 3-4"wds	B B B B D D D	100.0 a 51.1 a
LSD P=.05						2.14	17.00
Standard Deviation						1.18	9.35
CV						1.46	20.79
Replicate F						1.000	21.012
Replicate Prob(F)						0.4019	0.0003
Treatment F						3460.000	1.927
Treatment Prob(F)						0.0001	0.1765

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=2,5,12  
 Could not calculate LSD (% mean diff) for columns 11 because error mean square = 0.



FMC Extend Soybean Systems  
 Trial ID: Soy26-16      Location: Field #18      Trial Year: 2016  
 Protocol ID: Soy26-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: FMC

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjbv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: AG30X6  
 Attributes: Xtend  
 Planting Date: 06/06/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/12/16  
 Harvest Date: 10/27/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25 FT

**Pest Description**

Pest 1 Type: W      Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory  
 Pest 2 Type: W      Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 12      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**

% Sand: 81      % OM: 1.4      Texture: LS loamy sand  
 % Silt: 12      pH: 6.7  
 % Clay: 7      CEC: 4.9      Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B	C
Application Date	06/08/16	06/30/16	07/06/16
Appl. Stop Time	08:30 AM	09:45 AM	09:15 AM
Interval to Prev. Appl.		22 DAYS	6 DAYS
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRE	1-2 trif	3-4"wds
Application Placement	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson
Air Temperature Start, Stop	71 F	76 F	84 F
% Relative Humidity Start, Stop	49	61	71
Wind Velocity+Dir. Start	4 mph W	0 mph N/A	1 mph SE
Wet Leaves (Y/N)	N no	N no	Y yes
Soil Temperature	71 F	75 F	83 F
Soil Moisture	NORMAL	NORMAL	NORMAL
% Cloud Cover	50	0	50

**Crop Stage At Each Application**

	A	B	C
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC	DESC
Stage Majority, Percent		2-trifol 100	4-trifol 65
Stage Minimum, Percent			4-trifol 65
Stage Maximum, Percent			5-trifol 45
Height Average		5 in	8 in
Height Minimum, Maximum			7 9

**Pest Stage At Each Application**

	A	B	C
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent		veg 100	veg 90
Stage Minimum, Percent			veg 90
Stage Maximum, Percent			run 10
Height Average		4 in	6 in
Height Minimum, Maximum		2 5	4 7
Density Average		15 m2	8 m2
Pest 2 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent		4-leaf 55	1-2tlr 50
Stage Minimum, Percent		4-leaf 55	4-leaf 20
Stage Maximum, Percent		1-tilr 45	3-tilr 30
Height Average		3 in	4 in
Height Minimum, Maximum		2 4	3 5
Density Average		25 m2	25 m2

**Application Equipment**

	A	B	C
Appl. Equipment	Tractor	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002
Nozzle Spacing	20 in	20 in	20 in
Boom Length	10 ft	10 ft	10 ft
Boom Height	18 in	22 in	26 in
Ground Speed	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR	COMAIR

Trial Comments

FMC Extend Soybean Systems		
Trial ID: Soy26-16	Location: Field #18	Trial Year: 2016
Protocol ID: Soy26-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact: FMC	

Pest Code							IPOSS	DIGSA
Pest Name							Morninglry	L.crbgrs
Crop Type, Code							C -	C -
Crop Name							Soybean	
Rating Type							Stunting	Control
Rating Unit							%	%
Rating Date							06/29/16	06/29/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code		
1	Untreated Check						0.0 d	0.0 c
2	Authority First Premix	70 DF		0.219 lb ai/a	PRE	A	1.7 cd	95.7 a
	----sulfentrazone	62.1		0.194				
	----cloransulam	7.9		0.0247				
	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	3-4"wds	C		
	----pyroxasulfone	4.174		0.098				
	----fluthiacet	0.126		0.00296				
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C		
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C		
3	Rowel.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A	10.0 ab	93.0 a
	Warrant.....acetochlor	3 CS		1.13 lb ai/a	3-4"wds	C		77.7 ab
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C		
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C		
4	Authority Elite Premix	7 EC		1.42 lb ai/a	PRE	A	3.3 cd	89.0 a
	----sulfentrazone	0.7		0.142				
	----s-metolachlor	6.3		1.28				
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C		
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C		
5	Anthem Maxx Premix	4.3 SC		0.134 lb ai/a	1-2trif	B	0.0 d	26.7 bc
	----pyroxasulfone	4.174		0.13				
	----fluthiacet	0.126		0.00393				
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	1-2trif	B		
	Clarity.....dicamba	4 L		0.5 lb ai/a	1-2trif	B		
6	Warrant.....acetochlor	3 CS		1.13 lb ai/a	1-2trif	B	0.0 d	56.7 b
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	1-2trif	B		8.3 de
	Clarity.....dicamba	4 L		0.5 lb ai/a	1-2trif	B		
7	Rowel.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A	6.0 bc	90.0 a
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C		66.7 abc
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C		
8	Authority XL Premix	70 DG		0.28 lb ai/a	PRE	A	11.7 a	95.0 a
	----sulfentrazone	62.2		0.25				
	----chlorimuron	7.8		0.0312				
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C		
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C		
9	Authority XL Premix	70 DG		0.175 lb ai/a	PRE	A	2.7 cd	91.3 a
	----sulfentrazone	62.2		0.156				
	----chlorimuron	7.8		0.0195				
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C		38.3 cd
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=4,5,6

Pest Code Pest Name										
Crop Type, Code							C GLXMA	C GLXMA	C GLXMA	
Crop Name							Soybean	Soybean	Soybean	
Rating Type							LeafBrn	Stunting	Injury	
Rating Unit							%	%	%	
Rating Date							07/07/16	07/07/16	07/07/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code			
1	Untreated Check							0.0 e	0.0 d	0.0 f
2	Authority First Premix	70 DF		0.219 lb ai/a		PRE	A	25.0 b	2.3 cd	25.0 a
	----sulfentrazone	62.1		0.194						
	----cloransulam	7.9		0.0247						
	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a		3-4"wds	C			
	----pyroxasulfone	4.174		0.098						
	----fluthiacet	0.126		0.00296						
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a		3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a		3-4"wds	C			
3	Rowel.....flumioxazin	51 WG		0.064 lb ai/a		PRE	A	5.0 cd	2.0 cd	3.0 e
	Warrant.....acetochlor	3 CS		1.13 lb ai/a		3-4"wds	C			
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a		3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a		3-4"wds	C			
4	Authority Elite Premix	7 EC		1.42 lb ai/a		PRE	A	3.0 d	4.3 bc	3.7 de
	----sulfentrazone	0.7		0.142						
	----s-metolachlor	6.3		1.28						
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a		3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a		3-4"wds	C			
5	Anthem Maxx Premix	4.3 SC		0.134 lb ai/a		1-2trif	B	6.7 c	5.0 bc	6.7 bc
	----pyroxasulfone	4.174		0.13						
	----fluthiacet	0.126		0.00393						
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a		1-2trif	B			
	Clarity.....dicamba	4 L		0.5 lb ai/a		1-2trif	B			
6	Warrant.....acetochlor	3 CS		1.13 lb ai/a		1-2trif	B	3.0 d	4.3 bc	3.0 e
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a		1-2trif	B			
	Clarity.....dicamba	4 L		0.5 lb ai/a		1-2trif	B			
7	Rowel.....flumioxazin	51 WG		0.064 lb ai/a		PRE	A	3.7 d	3.3 cd	4.3 de
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a		3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a		3-4"wds	C			
8	Authority XL Premix	70 DG		0.28 lb ai/a		PRE	A	4.0 d	10.0 a	7.0 b
	----sulfentrazone	62.2		0.25						
	----chlorimuron	7.8		0.0312						
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a		3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a		3-4"wds	C			
9	Authority XL Premix	70 DG		0.175 lb ai/a		PRE	A	3.7 d	8.0 ab	6.3 bc
	----sulfentrazone	62.2		0.156						
	----chlorimuron	7.8		0.0195						
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a		3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a		3-4"wds	C			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4,5,6

Pest Code Pest Name							IPOSS Morngrly	GGGAN AnnGrass	
Crop Type, Code							C GLXMA	C -	C -
Crop Name							Soybean	Control	Control
Rating Type							Injury	%	%
Rating Unit							07/13/16	07/13/16	07/13/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
1	Untreated Check						0.0 f	0.0 c	0.0 c
2	Authority First Premix	70 DF		0.219 lb ai/a	PRE	A	16.0 b	99.3 a	100.0 a
	----sulfentrazone	62.1		0.194					
	----cloransulam	7.9		0.0247					
	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	3-4"wds	C			
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C			
3	Rowel.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A	5.7 de	99.3 a	100.0 a
	Warrant.....acetochlor	3 CS		1.13 lb ai/a	3-4"wds	C			
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C			
4	Authority Elite Premix	7 EC		1.42 lb ai/a	PRE	A	5.7 de	99.7 a	100.0 a
	----sulfentrazone	0.7		0.142					
	----s-metolachlor	6.3		1.28					
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C			
5	Anthem Maxx Premix	4.3 SC		0.134 lb ai/a	1-2trif	B	6.3 de	70.0 b	100.0 a
	----pyroxasulfone	4.174		0.13					
	----fluthiacet	0.126		0.00393					
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	1-2trif	B			
	Clarity.....dicamba	4 L		0.5 lb ai/a	1-2trif	B			
6	Warrant.....acetochlor	3 CS		1.13 lb ai/a	1-2trif	B	3.0 ef	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	1-2trif	B			
	Clarity.....dicamba	4 L		0.5 lb ai/a	1-2trif	B			
7	Rowel.....flumioxazin	51 WG		0.064 lb ai/a	PRE	A	4.3 de	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C			
8	Authority XL Premix	70 DG		0.28 lb ai/a	PRE	A	11.7 c	99.0 a	100.0 a
	----sulfentrazone	62.2		0.25					
	----chlorimuron	7.8		0.0312					
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C			
9	Authority XL Premix	70 DG		0.175 lb ai/a	PRE	A	8.0 cd	99.0 a	100.0 a
	----sulfentrazone	62.2		0.156					
	----chlorimuron	7.8		0.0195					
	Roundup PowerMax..glyphosate	4.5 AS		1.3 lb ae/a	3-4"wds	C			
	Clarity.....dicamba	4 L		0.5 lb ai/a	3-4"wds	C			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=4,5,6

Pest Code Pest Name Crop Type, Code						C GLXMA
Crop Name Rating Type Rating Unit Rating Date						Soybean Yield Bu/A 10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code
1	Untreated Check					21.2 b
2	Authority First Premix	70	DF	0.219 lb ai/a	PRE	A
	----sulfentrazone	62.1		0.194		
	----cloransulam	7.9		0.0247		
	Anthem Maxx Premix	4.3	SC	0.101 lb ai/a	3-4"wds	C
	----pyoxasulfone	4.174		0.098		
	----fluthiacet	0.126		0.00296		
	Roundup PowerMax..glyphosate	4.5	AS	1.3 lb ae/a	3-4"wds	C
	Clarity.....dicamba	4	L	0.5 lb ai/a	3-4"wds	C
3	Rowel.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	3-4"wds	C
	Roundup PowerMax..glyphosate	4.5	AS	1.3 lb ae/a	3-4"wds	C
	Clarity.....dicamba	4	L	0.5 lb ai/a	3-4"wds	C
4	Authority Elite Premix	7	EC	1.42 lb ai/a	PRE	A
	----sulfentrazone	0.7		0.142		
	----s-metolachlor	6.3		1.28		
	Roundup PowerMax..glyphosate	4.5	AS	1.3 lb ae/a	3-4"wds	C
	Clarity.....dicamba	4	L	0.5 lb ai/a	3-4"wds	C
5	Anthem Maxx Premix	4.3	SC	0.134 lb ai/a	1-2trif	B
	----pyoxasulfone	4.174		0.13		
	----fluthiacet	0.126		0.00393		
	Roundup PowerMax..glyphosate	4.5	AS	1.3 lb ae/a	1-2trif	B
	Clarity.....dicamba	4	L	0.5 lb ai/a	1-2trif	B
6	Warrant.....acetochlor	3	CS	1.13 lb ai/a	1-2trif	B
	Roundup PowerMax..glyphosate	4.5	AS	1.3 lb ae/a	1-2trif	B
	Clarity.....dicamba	4	L	0.5 lb ai/a	1-2trif	B
7	Rowel.....flumioxazin	51	WG	0.064 lb ai/a	PRE	A
	Roundup PowerMax..glyphosate	4.5	AS	1.3 lb ae/a	3-4"wds	C
	Clarity.....dicamba	4	L	0.5 lb ai/a	3-4"wds	C
8	Authority XL Premix	70	DG	0.28 lb ai/a	PRE	A
	----sulfentrazone	62.2		0.25		
	----chlorimuron	7.8		0.0312		
	Roundup PowerMax..glyphosate	4.5	AS	1.3 lb ae/a	3-4"wds	C
	Clarity.....dicamba	4	L	0.5 lb ai/a	3-4"wds	C
9	Authority XL Premix	70	DG	0.175 lb ai/a	PRE	A
	----sulfentrazone	62.2		0.156		
	----chlorimuron	7.8		0.0195		
	Roundup PowerMax..glyphosate	4.5	AS	1.3 lb ae/a	3-4"wds	C
	Clarity.....dicamba	4	L	0.5 lb ai/a	3-4"wds	C

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4,5,6

Pest Code Pest Name							IPOSS Mornglry	DIGSA L.crbgrs		
Crop Type, Code	C GLXMA						C -	C -		
Crop Name	Soybean						Control	Control		
Rating Type	Stunting						%	%		
Rating Unit							%	%		
Rating Date	06/29/16						06/29/16	06/29/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code			
10	Authority MTZ Premix	45	DF	0.394	lb ai/a	PRE	A	4.3 cd	91.0 a	60.0 abc
	----sulfentrazone	18		0.158						
	----metribuzin	27		0.236						
	Roundup PowerMax..glyphosate	4.5	AS	1.3	lb ae/a	3-4"wds	C			
	Clarity.....dicamba	4	L	0.5	lb ai/a	3-4"wds	C			
11	Authority MTZ Premix	45	DF	0.28	lb ai/a	PRE	A	0.0 d	90.7 a	0.0 e
	----sulfentrazone	18		0.112						
	----metribuzin	27		0.168						
	Roundup PowerMax..glyphosate	4.5	AS	1.3	lb ae/a	3-4"wds	C			
	Clarity.....dicamba	4	L	0.5	lb ai/a	3-4"wds	C			
12	Authority MTZ Premix	45	DF	0.366	lb ai/a	PRE	A	6.7 abc	88.0 a	93.3 a
	----sulfentrazone	18		0.146						
	----metribuzin	27		0.22						
	Command.....clomazone	3	ME	0.49	lb ai/a	PRE	A			
	Flexstar.....fomesafen	1.88	ME	0.353	lb ai/a	3-4"wds	C			
	Crop Oil Concentrate	100	L	1	% v/v	3-4"wds	C			
	Dry Ammonium Sulfate	100	D	1.5	% w/v	3-4"wds	C			
LSD P=.05								5.10	30.93	35.93
Standard Deviation								3.01	18.27	21.22
CV								77.95	24.17	49.54
Replicate F								3.241	3.509	0.435
Replicate Prob(F)								0.0584	0.0476	0.6524
Treatment F								5.342	8.831	8.117
Treatment Prob(F)								0.0004	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4,5,6

Pest Code							C	GLXMA	C	GLXMA	C	GLXMA	
Pest Name													
Crop Type, Code							C	GLXMA	C	GLXMA	C	GLXMA	
Crop Name							Soybean		Soybean		Soybean		
Rating Type							LeafBrn		Stunting		Injury		
Rating Unit							%		%		%		
Rating Date							07/07/16		07/07/16		07/07/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code						
10	Authority MTZ Premix	45	DF	0.394	lb ai/a	PRE	A	2.8	d	5.3	bc	5.0	cd
	----sulfentrazone	18		0.158									
	----metribuzin	27		0.236									
	Roundup PowerMax..glyphosate	4.5	AS	1.3	lb ae/a	3-4"wds	C						
	Clarity.....dicamba	4	L	0.5	lb ai/a	3-4"wds	C						
11	Authority MTZ Premix	45	DF	0.28	lb ai/a	PRE	A	3.0	d	2.7	cd	3.0	e
	----sulfentrazone	18		0.112									
	----metribuzin	27		0.168									
	Roundup PowerMax..glyphosate	4.5	AS	1.3	lb ae/a	3-4"wds	C						
	Clarity.....dicamba	4	L	0.5	lb ai/a	3-4"wds	C						
12	Authority MTZ Premix	45	DF	0.366	lb ai/a	PRE	A	28.3	a	4.0	c	25.0	a
	----sulfentrazone	18		0.146									
	----metribuzin	27		0.22									
	Command.....clomazone	3	ME	0.49	lb ai/a	PRE	A						
	Flexstar.....fomesafen	1.88	ME	0.353	lb ai/a	3-4"wds	C						
	Crop Oil Concentrate	100	L	1	% v/v	3-4"wds	C						
	Dry Ammonium Sulfate	100	D	1.5	% w/v	3-4"wds	C						
	LSD P=.05							2.37		3.83		1.80	
	Standard Deviation							1.39		2.25		1.06	
	CV							18.98		52.69		13.79	
	Replicate F							1.089		0.722		0.532	
	Replicate Prob(F)							0.3547		0.4974		0.5951	
	Treatment F							130.313		4.246		185.849	
	Treatment Prob(F)							0.0001		0.0022		0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4,5,6



Pest Code Pest Name							IPOSS Mornglry	GGGAN AnnGrass					
Crop Type, Code	C GLXMA						C -	C -					
Crop Name	Soybean						Control	Control					
Rating Type	Injury						%	%					
Rating Unit							%	%					
Rating Date	07/13/16						07/13/16	07/13/16					
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code						
10	Authority MTZ Premix	45	DF	0.394	lb ai/a	PRE	A	7.7	cd	99.0	a	100.0	a
	----sulfentrazone	18		0.158									
	----metribuzin	27		0.236									
	Roundup PowerMax..glyphosate	4.5	AS	1.3	lb ae/a	3-4"wds	C						
	Clarity.....dicamba	4	L	0.5	lb ai/a	3-4"wds	C						
11	Authority MTZ Premix	45	DF	0.28	lb ai/a	PRE	A	4.3	de	100.0	a	100.0	a
	----sulfentrazone	18		0.112									
	----metribuzin	27		0.168									
	Roundup PowerMax..glyphosate	4.5	AS	1.3	lb ae/a	3-4"wds	C						
	Clarity.....dicamba	4	L	0.5	lb ai/a	3-4"wds	C						
12	Authority MTZ Premix	45	DF	0.366	lb ai/a	PRE	A	22.7	a	99.7	a	92.0	b
	----sulfentrazone	18		0.146									
	----metribuzin	27		0.22									
	Command.....clomazone	3	ME	0.49	lb ai/a	PRE	A						
	Flexstar.....fomesafen	1.88	ME	0.353	lb ai/a	3-4"wds	C						
	Crop Oil Concentrate	100	L	1	% v/v	3-4"wds	C						
	Dry Ammonium Sulfate	100	D	1.5	% w/v	3-4"wds	C						
LSD P=.05							4.12	25.04	0.85				
Standard Deviation							2.44	14.79	0.50				
CV							30.65	16.66	0.55				
Replicate F							0.244	1.400	1.000				
Replicate Prob(F)							0.7859	0.2677	0.3840				
Treatment F							19.419	11.702	9918.546				
Treatment Prob(F)							0.0001	0.0001	0.0001				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=4,5,6



FMC Products for Weed Contrl in Liberty Link Soys  
 Trial ID: Soy27-16 Location: Field #18 Trial Year: 2016  
 Protocol ID: Soy27-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: FMC

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C GLXMA Glycine max Soybean BBCH Scale: BSOY  
 Variety: S44LS76  
 Attributes: Liberty Link  
 Planting Date: 06/06/16 Planting Rate: 180000 S/A  
 Depth: 1 in  
 Row Spacing: 15 in Planting Method: PLANTD planted  
 Planting Equipment: FE Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/12/16  
 Harvest Date: 10/27/16 Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0 Harvested Length: 25 FT

**Pest Description**

Pest 1 Type: W Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory  
 Pest 2 Type: W Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 10 Tillage Type: CONTIL conventional-till  
 Replications: 3 Study Design: RACOB L Randomized Complete Block (RCB)

**Soil Description**

% Sand: 81 % OM: 1.4 Texture: LS loamy sand  
 % Silt: 12 pH: 6.7  
 % Clay: 7 CEC: 4.9 Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B
Application Date	06/08/16	07/06/16
Appl. Stop Time	09:15 AM	03:25 PM
Interval to Prev. Appl.		28 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	3-4"wds
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	71 F	87 F
% Relative Humidity Start, Stop	49	72
Wind Velocity+Dir. Start	4 mph W	1 mph SE
Wet Leaves (Y/N)	N no	N no
Soil Temperature	71 F	87 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	50	60

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC
Stage Majority, Percent		4-trifol 100
Height Average		7 in

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		veg 85
Stage Minimum, Percent		veg 85
Stage Maximum, Percent		run 15
Height Average		5 in
Height Minimum, Maximum		3 8
Density Average		6 m2
Pest 2 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent		3-tilr 60
Stage Minimum, Percent		2-tilr 20
Stage Maximum, Percent		4-tilr 20
Height Average		4 in
Height Minimum, Maximum		3 5
Density Average		25 m2

**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	18 in	24 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

Trial Comments

FMC Products for Weed Contrl in Liberty Link Soys						AMAPA		GGGAN	
Trial ID: Soy27-16		Location: Field #18		Trial Year: 2016		PalmerAm		AnnGrass	
Protocol ID: Soy27-16		Investigator: Mark VanGessel		Study Director:					
		Sponsor Contact: FMC							
Pest Code	Pest Name	Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date			
		C GLXMA	Soybean	Stunting	%	07/06/16	C -	C -	C GLXMA
							Control	Control	Soybean Injury
							%	%	%
							07/06/16	07/06/16	07/12/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 f	0.0 d
2	Authority XL Premix	70 DG		0.175 lb ai/a	PRE	A		19.3 ab	68.3 b
	----sulfentrazone	62.2		0.156					66.7 bc
	----chlorimuron	7.8		0.0195					6.3 abc
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	3-4"wds	B			
3	Authority MTZ Premix	45 DF		0.338 lb ai/a	PRE	A		13.3 cde	97.7 a
	----sulfentrazone	18		0.135					75.0 abc
	----metribuzin	27		0.203					3.7 c
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	3-4"wds	B			
4	Authority XL Premix	70 DG		0.175 lb ai/a	PRE	A		20.0 a	100.0 a
	----sulfentrazone	62.2		0.156					76.7 abc
	----chlorimuron	7.8		0.0195					5.3 bc
	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	PRE	A			
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	3-4"wds	B			
5	Authority MTZ Premix	45 DF		0.338 lb ai/a	PRE	A		18.3 ab	100.0 a
	----sulfentrazone	18		0.135					90.7 a
	----metribuzin	27		0.203					8.3 a
	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	PRE	A			
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	3-4"wds	B			
6	Authority XL Premix	70 DG		0.175 lb ai/a	PRE	A		18.0 abc	96.7 ab
	----sulfentrazone	62.2		0.156					62.3 c
	----chlorimuron	7.8		0.0195					7.7 ab
	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	3-4"wds	B			
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	3-4"wds	B			
7	Authority MTZ Premix	45 DF		0.338 lb ai/a	PRE	A		15.0 bcd	97.7 a
	----sulfentrazone	18		0.135					86.3 ab
	----metribuzin	27		0.203					8.0 ab
	Anthem Maxx Premix	4.3 SC		0.101 lb ai/a	3-4"wds	B			
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	3-4"wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 6 because error mean square = 0.

Pest Code Pest Name						AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Morngrly	GGGAN AnnGrass
Crop Type, Code						C -	C -	C -	C -
Crop Name						Control	Control	Control	Control
Rating Type						%	%	%	%
Rating Unit						07/12/16	07/12/16	07/12/16	07/12/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 c	0.0 b
2	Authority XL Premix	70	DG	0.175 lb ai/a	PRE	A		100.0 a	100.0 a
	----sulfentrazone	62.2		0.156					
	----chlorimuron	7.8		0.0195					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100	D	1.5 % w/v	3-4"wds	B			
3	Authority MTZ Premix	45	DF	0.338 lb ai/a	PRE	A		100.0 a	100.0 a
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100	D	1.5 % w/v	3-4"wds	B			
4	Authority XL Premix	70	DG	0.175 lb ai/a	PRE	A		100.0 a	100.0 a
	----sulfentrazone	62.2		0.156					
	----chlorimuron	7.8		0.0195					
	Anthem Maxx Premix	4.3	SC	0.101 lb ai/a	PRE	A			
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100	D	1.5 % w/v	3-4"wds	B			
5	Authority MTZ Premix	45	DF	0.338 lb ai/a	PRE	A		100.0 a	100.0 a
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Anthem Maxx Premix	4.3	SC	0.101 lb ai/a	PRE	A			
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100	D	1.5 % w/v	3-4"wds	B			
6	Authority XL Premix	70	DG	0.175 lb ai/a	PRE	A		100.0 a	100.0 a
	----sulfentrazone	62.2		0.156					
	----chlorimuron	7.8		0.0195					
	Anthem Maxx Premix	4.3	SC	0.101 lb ai/a	3-4"wds	B			
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100	D	1.5 % w/v	3-4"wds	B			
7	Authority MTZ Premix	45	DF	0.338 lb ai/a	PRE	A		70.0 b	100.0 a
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Anthem Maxx Premix	4.3	SC	0.101 lb ai/a	3-4"wds	B			
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100	D	1.5 % w/v	3-4"wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 6 because error mean square = 0.

Pest Code									
Pest Name									
Crop Type, Code									C GLXMA
Crop Name									Soybean
Rating Type									Yield
Rating Unit									Bu/A
Rating Date									10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
1	Untreated Check								22.0 a
2	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A		42.6 a
	----sulfentrazone	62.2		0.156					
	----chlorimuron	7.8		0.0195					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	3-4"wds	B		
	Dry Ammonium Sulfate	100	D	1.5	% w/v	3-4"wds	B		
3	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A		42.4 a
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	3-4"wds	B		
	Dry Ammonium Sulfate	100	D	1.5	% w/v	3-4"wds	B		
4	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A		39.6 a
	----sulfentrazone	62.2		0.156					
	----chlorimuron	7.8		0.0195					
	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A		
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	3-4"wds	B		
	Dry Ammonium Sulfate	100	D	1.5	% w/v	3-4"wds	B		
5	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A		35.8 a
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	PRE	A		
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	3-4"wds	B		
	Dry Ammonium Sulfate	100	D	1.5	% w/v	3-4"wds	B		
6	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A		40.1 a
	----sulfentrazone	62.2		0.156					
	----chlorimuron	7.8		0.0195					
	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	3-4"wds	B		
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	3-4"wds	B		
	Dry Ammonium Sulfate	100	D	1.5	% w/v	3-4"wds	B		
7	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A		41.5 a
	----sulfentrazone	18		0.135					
	----metribuzin	27		0.203					
	Anthem Maxx Premix	4.3	SC	0.101	lb ai/a	3-4"wds	B		
	----pyroxasulfone	4.174		0.098					
	----fluthiacet	0.126		0.00296					
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	3-4"wds	B		
	Dry Ammonium Sulfate	100	D	1.5	% w/v	3-4"wds	B		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 6 because error mean square = 0.

Pest Code Pest Name		AMAPA PalmerAm	GGGAN AnnGrass												
Crop Type, Code	C GLXMA	C -	C -	C GLXMA											
Crop Name	Soybean			Soybean											
Rating Type	Stunting	Control	Control	Injury											
Rating Unit	%	%	%	%											
Rating Date	07/06/16	07/06/16	07/06/16	07/12/16											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code								
8	Command.....clomazone	3	ME	0.375 lb	ai/a	PRE	A	16.0	a-d	99.0	a	91.7	a	5.7	abc
	Authority MTZ Premix	45	DF	0.366 lb	ai/a	PRE	A								
	----sulfentrazone	18		0.146											
	----metribuzin	27		0.22											
	Liberty 280.....glufosinate	2.34	SL	0.53 lb	ai/a	3-4"wds	B								
	Dry Ammonium Sulfate	100	D	1.5 %	w/v	3-4"wds	B								
9	Command.....clomazone	3	ME	0.49 lb	ai/a	PRE	A	11.3	de	87.3	ab	87.3	ab	5.7	abc
	Reflex.....fomesafen	2	L	0.25 lb	ai/a	PRE	A								
	Liberty 280.....glufosinate	2.34	SL	0.53 lb	ai/a	3-4"wds	B								
	Dry Ammonium Sulfate	100	D	1.5 %	w/v	3-4"wds	B								
10	Trivence Premix	61.3	WG	0.257 lb	ai/a	PRE	A	9.3	e	100.0	a	79.0	abc	6.7	ab
	----chlorimuron	3.9		0.0164											
	----metribuzin	44.6		0.187											
	----flumioxazin	12.8		0.0537											
	Liberty 280.....glufosinate	2.34	SL	0.53 lb	ai/a	3-4"wds	B								
	Dry Ammonium Sulfate	100	D	1.5 %	w/v	3-4"wds	B								
LSD P=.05				4.68				28.37		22.51		2.98			
Standard Deviation				2.73				16.54		13.12		1.74			
CV				19.4				19.54		18.34		30.34			
Replicate F				2.502				1.083		2.736		0.143			
Replicate Prob(F)				0.1100				0.3597		0.0917		0.8676			
Treatment F				14.747				10.764		12.695		5.968			
Treatment Prob(F)				0.0001				0.0001		0.0001		0.0007			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Could not calculate LSD (% mean diff) for columns 6 because error mean square = 0.



Pest Code Pest Name						AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Morngrly	GGGAN AnnGrass
Crop Type, Code						C -	C -	C -	C -
Crop Name						Control	Control	Control	Control
Rating Type						%	%	%	%
Rating Unit						07/12/16	07/12/16	07/12/16	07/12/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
8	Command.....clomazone	3	ME	0.375 lb ai/a	PRE	A	100.0 a	100.0 a	100.0 a
	Authority MTZ Premix	45	DF	0.366 lb ai/a	PRE	A			
	----sulfentrazone	18		0.146					
	----metribuzin	27		0.22					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100	D	1.5 % w/v	3-4"wds	B			
9	Command.....clomazone	3	ME	0.49 lb ai/a	PRE	A	99.3 a	100.0 a	99.0 a
	Reflex.....fomesafen	2	L	0.25 lb ai/a	PRE	A			
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100	D	1.5 % w/v	3-4"wds	B			
10	Trivence Premix	61.3	WG	0.257 lb ai/a	PRE	A	100.0 a	100.0 a	100.0 a
	----chlorimuron	3.9		0.0164					
	----metribuzin	44.6		0.187					
	----flumioxazin	12.8		0.0537					
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a	3-4"wds	B			
	Dry Ammonium Sulfate	100	D	1.5 % w/v	3-4"wds	B			
LSD P=.05						28.23	.	28.32	2.15
Standard Deviation						16.46	0.00	16.51	1.25
CV						18.93	0.0	19.02	1.42
Replicate F						0.975	0.000	0.929	1.613
Replicate Prob(F)						0.3961	1.0000	0.4131	0.2268
Treatment F						11.316	0.000	11.203	1848.264
Treatment Prob(F)						0.0001	1.0000	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Could not calculate LSD (% mean diff) for columns 6 because error mean square = 0.

Pest Code							C GLXMA
Pest Name							
Crop Type, Code							
Crop Name							
Rating Type							
Rating Unit							Soybean
Rating Date							Yield Bu/A 10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
8	Command.....clomazone	3	ME	0.375 lb ai/a		PRE	A
	Authority MTZ Premix	45	DF	0.366 lb ai/a		PRE	A
	----sulfentrazone	18		0.146			
	----metribuzin	27		0.22			
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a		3-4"wds	B
	Dry Ammonium Sulfate	100	D	1.5 % w/v		3-4"wds	B
9	Command.....clomazone	3	ME	0.49 lb ai/a		PRE	A
	Reflex.....fomesafen	2	L	0.25 lb ai/a		PRE	A
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a		3-4"wds	B
	Dry Ammonium Sulfate	100	D	1.5 % w/v		3-4"wds	B
10	Trivence Premix	61.3	WG	0.257 lb ai/a		PRE	A
	----chlorimuron	3.9		0.0164			
	----metribuzin	44.6		0.187			
	----flumioxazin	12.8		0.0537			
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/a		3-4"wds	B
	Dry Ammonium Sulfate	100	D	1.5 % w/v		3-4"wds	B
LSD P=.05							12.94
Standard Deviation							7.54
CV							19.7
Replicate F							1.933
Replicate Prob(F)							0.1736
Treatment F							1.964
Treatment Prob(F)							0.1065

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Could not calculate LSD (% mean diff) for columns 6 because error mean square = 0.

Weed Control in No-Till Double-Crop Soybeans  
 Trial ID: Soy28-16      Location: Field #16      Trial Year: 2016  
 Protocol ID: Soy28-16      Investigator: Mark VanGessel  
    Study Director:  
    Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max      Soybean      BBCH Scale: BSOY  
                          Variety: AG4135  
                          Attributes: Roundup Ready  
 Planting Date: 07/12/16      Planting Rate: 180000      S/A  
                          Depth: 1      in  
                          Row Spacing: 15      in  
                          Planting Method: PLANTD      planted  
                          Planting Equipment: FE      Field Equipment  
                          Seed Bed: MEDTRA      medium/trashy  
 Soil Temperature: 87      F      Soil Moisture: NORMAL      normal, adequate  
 Emergence Date: 07/17/16  
 Harvest Date: 11/11/16      Harvest Equipment: Plot combine  
                          Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25      FT

**Pest Description**

Pest 1 Type: W      Code: AMBEL      Ambrosia artemisiifolia  
                          Common Name: Common ragweed  
 Pest 2 Type: W      Code: IPOSS      Ipomoea sp.  
                          Common Name: Morning glory  
 Pest 3 Type: W      Code: DIGSA      Digitaria sanguinalis  
                          Common Name: large crabgrass  
 Pest 4 Type: W      Code: OEOLA      Oenothera laciniata  
                          Common Name: Cutleaf eveningprimrose

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 8      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RACOB      Randomized Complete Block (RCB)

**Soil Description**

% Sand: 77      % OM: 1.6      Texture: SL      sandy loam  
                          % Silt: 12      pH: 6.4  
                          % Clay: 11      CEC: 6.7      Fert. Level: G      good  
 Soil Drainage: G      good

**Application Description**

	A	B
Application Date	07/05/16	08/10/16
Appl. Stop Time	11:45 AM	10:30 AM
Interval to Prev. Appl.		36 DAYS
Application Method	SPRAY	SPRAY
Application Timing	7EPP	28DAP
Application Placement	BROADC	BROADC
Applied By	Johnson	Johnson
Air Temperature Start, Stop	86 F	83 F
% Relative Humidity Start, Stop	60	85
Wind Velocity+Dir. Start	4 mph W	2 mph S
Wet Leaves (Y/N)	Y yes	Y yes
Soil Temperature	86 F	82 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	55	40

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC
Stage Majority, Percent		4-trifol 70
Stage Minimum, Percent		4-trifol 70
Stage Maximum, Percent		5-trifol 30
Height Average		10 in
Height Minimum, Maximum		9 12

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	AMBEL W	AMBEL W
Stage Majority, Percent	veg 100	
Height Average	9 in	
Height Minimum, Maximum	6 12	
Density Average	5 m2	
Pest 2 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent	veg 70	veg 20
Stage Minimum, Percent	veg 70	veg 20
Stage Maximum, Percent	run 30	run 80
Height Average	5 in	9 in
Height Minimum, Maximum	2 8	5 12
Density Average	1 m2	1 m2
Pest 3 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent	4-leaf 60	tiller 100
Stage Minimum, Percent	3-leaf 20	
Stage Maximum, Percent	5-leaf 20	
Height Average	4 in	15 in
Height Minimum, Maximum	2 6	12 18
Density Average	10 m2	10 m2
Pest 4 Code, Type, Scale	OEOLA W	OEOLA W
Stage Majority, Percent	roset 100	
Diameter	5 in	
Height Minimum, Maximum	3 7	
Density Average	5 m2	

**Application Equipment**

	A	B
Appl. Equipment	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	20 in
Boom Length	10 ft	10 ft
Boom Height	28 in	32 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Mix Size	0.7 GAL	0.7 GAL
Propellant	COMAIR	COMAIR

## Trial Comments

07/23/16: Ratings based on burndown control of weeds present at time of application. Morningglory seedlings have emerged in a few plots.

08/02/16: Horseweed is in treatment 8 and untreated check, but not in any other treatment.

08/12/16: Treatments with no glyphosate at 7EPP had very poor grass control, and in plots with high grass density, grasses are outcompeting broadleaf weeds (notably rep 3). Soybean stand was poor.

08/30/16: Common ragweed was present in untreated checks, but not was observed in any treated plot.

Weed Control in No-Till Double-Crop Soybeans			
Trial ID: Soy28-16	Location: Field #16	Trial Year: 2016	
Protocol ID: Soy28-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Pest Code	AMBEL	IPOSS	DIGSA	OEOLA							
Pest Name	C.ragwd	Morngrly	L.crbgrs	CEprmrse							
Crop Type, Code	C -	C -	C -	C -							
Crop Name	Control	Control	Control	Control							
Rating Type	%	%	%	%							
Rating Unit	07/23/16	07/23/16	07/23/16	08/02/16							
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Envive Premix	41.3	WG	0.103	lb ai/a	7EPP	A	100.0 a	100.0 a	100.0 a	100.0 a
	----chlorimuron	9.199999		0.023							
	----flumioxazin	29.2		0.073							
	----thifensulfuron	2.9		0.0072							
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A				
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	7EPP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
2	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a	100.0 a	99.0 a	100.0 a
	----chlorimuron	3.9		0.017							
	----metribuzin	44.6		0.195							
	----flumioxazin	12.8		0.056							
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Classic.....chlorimuron	25	WG	0.0047	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B				
3	Afforia Premix	50.8	DG	0.119	lb ai/a	7EPP	A	100.0 a	100.0 a	100.0 a	100.0 a
	----flumioxazin	40.8		0.096							
	----thifensulfuron	5		0.0117							
	----tribenuron	5		0.0117							
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Harmony SG.....thifensulfuron	50	SG	0.0039	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B				
4	Untreated Check							0.0 b	0.0 b	0.0 c	0.0 b
5	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A	100.0 a	100.0 a	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A				
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,9,10,17  
 Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.

Pest Code Pest Name							AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Morngrly	DIGSA L.crbgrs	
Crop Type, Code							C -	C -	C -	C -	
Crop Name							Control	Control	Control	Control	
Rating Type							%	%	%	%	
Rating Unit							08/02/16	08/02/16	08/02/16	08/02/16	
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	Envive Premix	41.3	WG	0.103	lb ai/a	7EPP	A	100.0 a	100.0 a	81.7 ab	99.0 a
	----chlorimuron	9.199999		0.023							
	----flumioxazin	29.2		0.073							
	----thifensulfuron	2.9		0.0072							
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A				
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	7EPP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
2	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a	100.0 a	79.3 ab	94.7 a
	----chlorimuron	3.9		0.017							
	----metribuzin	44.6		0.195							
	----flumioxazin	12.8		0.056							
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Classic.....chlorimuron	25	WG	0.0047	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B				
3	Afforia Premix	50.8	DG	0.119	lb ai/a	7EPP	A	100.0 a	100.0 a	88.0 a	95.7 a
	----flumioxazin	40.8		0.096							
	----thifensulfuron	5		0.0117							
	----tribenuron	5		0.0117							
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Harmony SG.....thifensulfuron	50	SG	0.0039	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B				
4	Untreated Check							0.0 b	0.0 b	0.0 d	0.0 d
5	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A	91.7 a	100.0 a	82.3 ab	94.0 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A				
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=7,9,10,17  
Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.

Pest Code Pest Name							AMAPA PalmerAm	IPOSS Morngrly	DIGSA L.crbgrs	
Crop Type, Code							C -	C -	C -	
Crop Name							Control	Control	Control	
Rating Type							%	%	%	
Rating Unit							08/12/16	08/12/16	08/12/16	
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	Envive Premix	41.3	WG	0.103	lb ai/a	7EPP	A	99.0 ab	66.0 ab	95.3 a
	----chlorimuron	9.199999		0.023						
	----flumioxazin	29.2		0.073						
	----thifensulfuron	2.9		0.0072						
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A			
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	7EPP	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A			
2	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a	77.3 a	92.3 a
	----chlorimuron	3.9		0.017						
	----metribuzin	44.6		0.195						
	----flumioxazin	12.8		0.056						
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B			
	Classic.....chlorimuron	25	WG	0.0047	lb ai/a	28DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B			
3	Afforia Premix	50.8	DG	0.119	lb ai/a	7EPP	A	100.0 a	74.0 ab	93.0 a
	----flumioxazin	40.8		0.096						
	----thifensulfuron	5		0.0117						
	----tribenuron	5		0.0117						
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B			
	Harmony SG.....thifensulfuron	50	SG	0.0039	lb ai/a	28DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B			
4	Untreated Check							0.0 c	0.0 c	0.0 b
5	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A	81.3 b	62.7 ab	88.3 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,17

Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.



Pest Code Pest Name							AMAPA PalmerAm	IPOSS Mornlry		
Crop Type, Code	C GLXMA						C -	C -		
Crop Name	Soybean						Control	Control		
Rating Type	LeafBrn						%	%		
Rating Unit							08/30/16	08/30/16		
Rating Date	08/14/16									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code			
1	Envive Premix	41.3	WG	0.103	lb ai/a	7EPP	A	0.0 a	100.0 a	53.3 c
	----chlorimuron	9.199999		0.023						
	----flumioxazin	29.2		0.073						
	----thifensulfuron	2.9		0.0072						
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A			
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	7EPP	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A			
2	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	1.7 a	100.0 a	87.7 b
	----chlorimuron	3.9		0.017						
	----metribuzin	44.6		0.195						
	----flumioxazin	12.8		0.056						
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B			
	Classic.....chlorimuron	25	WG	0.0047	lb ai/a	28DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B			
3	Afforia Premix	50.8	DG	0.119	lb ai/a	7EPP	A	0.0 a	100.0 a	88.3 b
	----flumioxazin	40.8		0.096						
	----thifensulfuron	5		0.0117						
	----tribenuron	5		0.0117						
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B			
	Harmony SG.....thifensulfuron	50	SG	0.0039	lb ai/a	28DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B			
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B			
4	Untreated Check							0.0 a	0.0 b	0.0 d
5	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A		100.0 a	99.0 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A			
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=7,9,10,17  
Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.

Pest Code Pest Name Crop Type, Code  Crop Name Rating Type Rating Unit Rating Date							DIGSA L.crbgrs C - C  Control % 08/30/16	GLXMA  Soybean Yield Bu/A 11/11/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
1	Envive Premix	41.3	WG	0.103	lb ai/a	7EPP	A	77.7 b	13.7 a
	----chlorimuron	9.199999		0.023					
	----flumioxazin	29.2		0.073					
	----thifensulfuron	2.9		0.0072					
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A		
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	7EPP	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A		
2	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	99.7 a	10.8 a
	----chlorimuron	3.9		0.017					
	----metribuzin	44.6		0.195					
	----flumioxazin	12.8		0.056					
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B		
	Classic.....chlorimuron	25	WG	0.0047	lb ai/a	28DAP	B		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B		
3	Afforia Premix	50.8	DG	0.119	lb ai/a	7EPP	A	100.0 a	16.4 a
	----flumioxazin	40.8		0.096					
	----thifensulfuron	5		0.0117					
	----tribenuron	5		0.0117					
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B		
	Harmony SG.....thifensulfuron	50	SG	0.0039	lb ai/a	28DAP	B		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B		
	Scanner Nonionic Surfactant	100	L	0.25	% v/v	28DAP	B		
4	Untreated Check							0.0 c	2.1 b
5	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A	99.7 a	0.0 b
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A		
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,9,10,17  
 Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.

Pest Code Pest Name Crop Type, Code Crop Name Rating Type Rating Unit Rating Date						AMBEL C.ragwd	IPOSS Mornglry	DIGSA L.crbgrs	OEOLA CEpmrse
						C -	C -	C -	C -
						Control %	Control %	Control %	Control %
						07/23/16	07/23/16	07/23/16	08/02/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
6	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a	100.0 a
	----chlorimuron	3.9		0.017					
	----metribuzin	44.6		0.195					
	----flumioxazin	12.8		0.056					
	2,4-D ester	3.8	L	0.95	lb ae/a	7EPP	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A		
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B		
7	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a	100.0 a
	----chlorimuron	3.9		0.017					
	----metribuzin	44.6		0.195					
	----flumioxazin	12.8		0.056					
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A		
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B		
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	100.0 a	100.0 a
	Tricor DF.....metribuzin	75	DF	0.188	lb ai/a	7EPP	A		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	7EPP	A		
	Crop Oil Concentrate	100	L	1.25	% v/v	7EPP	A		
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B		
LSD P=.05								4.91	
Standard Deviation						0.00	0.00	2.81	0.00
CV						0.0	0.0	4.06	0.0
Replicate F						0.000	0.000	1.847	0.000
Replicate Prob(F)						1.0000	1.0000	0.1942	1.0000
Treatment F						0.000	0.000	712.338	0.000
Treatment Prob(F)						1.0000	1.0000	0.0001	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,9,10,17  
 Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.

Pest Code Pest Name						AMAPA PalmerAm	AMBEL C.ragwd	IPOSS Mornnglry	DIGSA L.crbgrs		
Crop Type, Code						C -	C -	C -	C -		
Crop Name Rating Type Rating Unit Rating Date						Control % 08/02/16	Control % 08/02/16	Control % 08/02/16	Control % 08/02/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
6	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a	100.0 a	67.6 bc	50.0 c
	----chlorimuron	3.9		0.017							
	----metribuzin	44.6		0.195							
	----flumioxazin	12.8		0.056							
	2,4-D ester	3.8	L	0.95	lb ae/a	7EPP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B				
7	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a	100.0 a	89.7 a	99.0 a
	----chlorimuron	3.9		0.017							
	----metribuzin	44.6		0.195							
	----flumioxazin	12.8		0.056							
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A				
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B				
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	97.3 a	100.0 a	63.3 c	66.7 b
	Tricor DF.....metribuzin	75	DF	0.188	lb ai/a	7EPP	A				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	7EPP	A				
	Crop Oil Concentrate	100	L	1.25	% v/v	7EPP	A				
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B				
LSD P=.05						8.99	.	15.08	8.09		
Standard Deviation						5.13	0.00	8.55	4.62		
CV						5.96	0.0	12.39	6.17		
Replicate F						1.723	0.000	0.066	1.896		
Replicate Prob(F)						0.2142	1.0000	0.9362	0.1867		
Treatment F						138.961	0.000	35.344	173.503		
Treatment Prob(F)						0.0001	1.0000	0.0001	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=7,9,10,17  
 Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.

						AMAPA	IPOSS	DIGSA
Pest Code						PalmerAm	Morngrly	L.crbgrs
Pest Name								
Crop Type, Code						C -	C -	C -
Crop Name								
Rating Type						Control	Control	Control
Rating Unit						%	%	%
Rating Date						08/12/16	08/12/16	08/12/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
6	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a
	----chlorimuron	3.9		0.017				79.0 a
	----metribuzin	44.6		0.195				
	----flumioxazin	12.8		0.056				
	2,4-D ester	3.8	L	0.95	lb ae/a	7EPP	A	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A	
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B	
7	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a
	----chlorimuron	3.9		0.017				75.0 a
	----metribuzin	44.6		0.195				
	----flumioxazin	12.8		0.056				
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B	
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	97.0 ab
	Tricor DF.....metribuzin	75	DF	0.188	lb ai/a	7EPP	A	53.3 b
	30% Urea Ammonium Nitrate	100	L	2	% v/v	7EPP	A	
	Crop Oil Concentrate	100	L	1.25	% v/v	7EPP	A	
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B	
LSD P=.05						17.68	20.82	10.16
Standard Deviation						10.02	11.80	5.59
CV						11.84	19.38	7.19
Replicate F						0.862	0.018	0.769
Replicate Prob(F)						0.4452	0.9819	0.4889
Treatment F						36.177	14.652	140.038
Treatment Prob(F)						0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=7,9,10,17  
 Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.

Pest Code Pest Name								AMAPA PalmerAm	IPOSS Morngrly
Crop Type, Code							C GLXMA	C -	C -
Crop Name							Soybean		
Rating Type							LeafBrn	Control	Control
Rating Unit							%	%	%
Rating Date							08/14/16	08/30/16	08/30/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
6	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A		
	----chlorimuron	3.9		0.017					
	----metribuzin	44.6		0.195					
	----flumioxazin	12.8		0.056					
	2,4-D ester	3.8	L	0.95	lb ae/a	7EPP	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A		
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B		
7	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a	98.3 a
	----chlorimuron	3.9		0.017					
	----metribuzin	44.6		0.195					
	----flumioxazin	12.8		0.056					
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A		
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B		
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	100.0 a	96.7 ab
	Tricor DF.....metribuzin	75	DF	0.188	lb ai/a	7EPP	A		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	7EPP	A		
	Crop Oil Concentrate	100	L	1.25	% v/v	7EPP	A		
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B		
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B		
LSD P=.05							1.53	.	9.77
Standard Deviation							0.76	0.00	5.58
CV							183.3	0.0	7.22
Replicate F							1.000	0.000	0.450
Replicate Prob(F)							0.4219	1.0000	0.6468
Treatment F							3.571	0.000	115.167
Treatment Prob(F)							0.0864	1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,17

Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.

Pest Code							DIGSA	
Pest Name							L.crbgrs	
Crop Type, Code							C -	C GLXMA
Crop Name								Soybean
Rating Type							Control	Yield
Rating Unit							%	Bu/A
Rating Date							08/30/16	11/11/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	
6	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	99.0 a
	----chlorimuron	3.9		0.017				0.0 b
	----metribuzin	44.6		0.195				
	----flumioxazin	12.8		0.056				
	2,4-D ester	3.8	L	0.95	lb ae/a	7EPP	A	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A	
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B	
7	Trivence Premix	61.3	WG	0.268	lb ai/a	7EPP	A	100.0 a
	----chlorimuron	3.9		0.017				0.0 b
	----metribuzin	44.6		0.195				
	----flumioxazin	12.8		0.056				
	Clarity.....dicamba	4	L	0.5	lb ai/a	7EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	7EPP	A	
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B	
8	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	A	99.3 a
	Tricor DF.....metribuzin	75	DF	0.188	lb ai/a	7EPP	A	0.0 b
	30% Urea Ammonium Nitrate	100	L	2	% v/v	7EPP	A	
	Crop Oil Concentrate	100	L	1.25	% v/v	7EPP	A	
	Clarity.....dicamba	4	L	0.5	lb ai/a	28DAP	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	B	
LSD P=.05							2.10	8.00
Standard Deviation							1.20	4.50
CV							1.42	83.48
Replicate F							0.203	0.437
Replicate Prob(F)							0.8184	0.6559
Treatment F							2556.664	7.365
Treatment Prob(F)							0.0001	0.0015

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=7,9,10,17

Could not calculate LSD (% mean diff) for columns 1,2,4,6,13 because error mean square = 0.

Control of Grape Hyacinth for NT Soybean  
 Trial ID: Soy29-16      Location: Georgetown      Trial Year: 2016  
 Protocol ID: Soy29-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**Contacts**  
 Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States  
**Cooperator/Landowner**  
**Other Contacts**

**Pest Description**  
 Pest 1 Type: W      Code: MUSAR      Muscari armeniacum  
 Common Name: Armenian grape-hyacinth

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 12      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RAOBL Randomized Complete Block (RCB)

Field Prep./Maintenance:  
 Total preemergence burndown application Roundup 1 qt/A + Prefix 1 qt/A on 5-12-16.

**Application Description**

	A
Application Date	04/20/16
Appl. Stop Time	12:30 PM
Application Method	SPRAY
Application Timing	PrePlant
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	65 F
% Relative Humidity Start, Stop	22
Wind Velocity+Dir. Start	4 mph NE
Wet Leaves (Y/N)	N no
Soil Temperature	65 F
Soil Moisture	NORMAL
% Cloud Cover	0

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	MUSAR W
Stage Majority, Percent	veg 75
Stage Minimum, Percent	flower 25
Stage Maximum, Percent	flower 25
Height Average	3.5 in
Height Minimum, Maximum	3 4



**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	22 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMCO2

## Trial Comments

04/20/16: Number of bulblets collected in soil cores for background comparisons - 101: 5; 104: 1; 109 2; 201: 4; 205: 19; 208: 0; 210: 1; 302: 4; 308: 0; 312: 1

More detail for % ground cover in excel file for Soy29-16

05/05/16: Grape hyacinth starting to senesce in untreated plots.

Control of Grape Hyacinth for NT Soybean							MUSAR	MUSAR	MUSAR
Trial ID: Soy29-16		Location: Georgetown		Trial Year: 2016			GrpHynch	GrpHynch	GrpHynch
Protocol ID: Soy29-16		Investigator: Mark VanGessel			Study Director:		GrndCovr	transects	Burndown
Sponsor Contact:						%	0-7	%	
Pest Code						04/20/16	04/20/16	05/05/16	
Pest Name									
Rating Type									
Rating Unit									
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
1	Untreated Check							5.3 a	
2	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a		PrePlant A		3.0 a	
	Nonionic Surfactant	100 L		0.25 % v/v		PrePlant A		6.0	
3	Aim.....carfentrazone	2 EC		0.0313 lb ai/a		PrePlant A		7.0	
	Nonionic Surfactant	100 L		0.25 % v/v		PrePlant A		36.7 c	
4	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		PrePlant A		5.3 a	
5	Clarity.....dicamba	4 L		0.5 lb ae/a		PrePlant A		2.0	
	Nonionic Surfactant	100 L		0.25 % v/v		PrePlant A		33.3 c	
6	Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a		PrePlant A		4.0 a	
	Clarity.....dicamba	4 L		0.5 lb ae/a		PrePlant A		56.7 b	
7	Metsulfuron	60 WG		0.0075 lb ai/a		PrePlant A		5.7 a	
	Nonionic Surfactant	100 L		0.25 % v/v		PrePlant A		4.0	
8	Maverick.....sulfosulfuron	75 WG		0.0314 lb ai/a		PrePlant A		5.7 a	
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a		PrePlant A		94.7 a	
	Nonionic Surfactant	100 L		0.25 % v/v		PrePlant A			
9	Maverick.....sulfosulfuron	75 WG		0.0314 lb ai/a		PrePlant A		4.3 a	
	Nonionic Surfactant	100 L		0.25 % v/v		PrePlant A		3.5	
10	Finesse Premix	75 DF		0.0188 lb ai/a		PrePlant A		3.3 a	
	----chlorsulfuron	62.5		0.0157					
	----metsulfuron	12.5		0.00313					
	Nonionic Surfactant	100 L		0.25 % v/v		PrePlant A		40.0 c	
11	Huskie Premix	2.05 EC		0.24 lb ae/a		PrePlant A		2.7 a	
	----pyrasulfotole	0.3		0.035				2.0	
	----bromoxynil	1.75		0.205				36.7 c	
	Dry Ammonium Sulfate	100 D		0.6 % w/v		PrePlant A			
12	Quelex Premix	20 WG		0.0094 lb ai/a		PrePlant A		5.3 a	
	----florasulam	10		0.0047				3.0	
	----halauxifen	10		0.0047				56.7 b	
	Crop Oil Concentrate	100 L		1 % v/v		PrePlant A			
LSD P=.05								3.99	
Standard Deviation								2.36	
CV								53.35	
Replicate F								7.608	
Replicate Prob(F)								0.0031	
Treatment F								1.213	
Treatment Prob(F)								0.3351	
								0.256	
								0.7761	
								40.186	
								0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 2: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns:Yates=7

Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

Pest Code Pest Name	Form Form		Rate	Appl	Appl	MUSAR GrpHynch	MUSAR GrpHynch	MUSAR GrpHynch
Rating Type Rating Unit Rating Date	Conc	Type	Unit	Timing	Code	Cover % 12/09/16	Counts # 12/09/16	Bulb Cts # 12/13/16
1 Untreated Check						43.3 a	4.8 a	7.6 a
2 Gramoxone SL....paraquat Nonionic Surfactant	2 SL 100 L		0.5 lb ai/a 0.25 % v/v	PrePlant A PrePlant A		16.7 bcd	3.2 a	6.9 a
3 Aim.....carfentrazone Nonionic Surfactant	2 EC 100 L		0.0313 lb ai/a 0.25 % v/v	PrePlant A PrePlant A		12.7 bcd	3.2 a	8.4 a
4 Roundup PowerMax..glyphosate	4.5 AS		1.13 lb ae/a	PrePlant A		7.0 d	2.4 a	2.4 a
5 Clarity.....dicamba Nonionic Surfactant	4 L 100 L		0.5 lb ae/a 0.25 % v/v	PrePlant A PrePlant A		10.7 cd	2.3 a	1.5 a
6 Roundup PowerMax..glyphosate Clarity.....dicamba	4.5 AS 4 L		1.13 lb ae/a 0.5 lb ae/a	PrePlant A PrePlant A		9.7 d	3.2 a	5.2 a
7 Metsulfuron Nonionic Surfactant	60 WG 100 L		0.0075 lb ai/a 0.25 % v/v	PrePlant A PrePlant A		6.3 d	2.6 a	1.5 a
8 Maverick.....sulfosulfuron Gramoxone SL....paraquat Nonionic Surfactant	75 WG 2 SL 100 L		0.0314 lb ai/a 0.5 lb ai/a 0.25 % v/v	PrePlant A PrePlant A PrePlant A		13.3 bcd	4.8 a	5.4 a
9 Maverick.....sulfosulfuron Nonionic Surfactant	75 WG 100 L		0.0314 lb ai/a 0.25 % v/v	PrePlant A PrePlant A		25.0 b	2.8 a	7.8 a
10 Finesse Premix ----chlorsulfuron ----metsulfuron Nonionic Surfactant	75 DF 62.5 12.5 100 L		0.0188 lb ai/a 0.0157 0.00313 0.25 % v/v	PrePlant A PrePlant A PrePlant A		8.0 d	1.9 a	1.9 a
11 Huskie Premix ----pyrasulfotole ----bromoxynil Dry Ammonium Sulfate	2.05 EC 0.3 1.75 100 D		0.24 lb ae/a 0.035 0.205 0.6 % w/v	PrePlant A PrePlant A PrePlant A		12.3 bcd	2.4 a	5.1 a
12 Quelex Premix ----florasulam ----halauxifen Crop Oil Concentrate	20 WG 10 10 100 L		0.0094 lb ai/a 0.0047 0.0047 1 % v/v	PrePlant A PrePlant A PrePlant A		23.3 bc	3.6 a	7.4 a
LSD P=.05						13.13	2.87 - 2.91	7.06 - 7.47
Standard Deviation						7.75	0.18t	0.36t
CV						49.41	29.33t	48.53t
Replicate F						1.156	0.783	6.637
Replicate Prob(F)						0.3331	0.4694	0.0056
Treatment F						5.533	0.844	1.207
Treatment Prob(F)						0.0003	0.6014	0.3388

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
t=Mean descriptions are reported in transformed data units, and are not de-transformed.  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Due to missing data, larger LSD values (col. 2: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.  
Missing data estimates are included in columns:Yates=7  
Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

Pest Code						MUSAR
Pest Name						GrpHynch
Rating Type						Bulb Wt
Rating Unit						grams
Rating Date						12/15/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Appl Timing	Appl Code
1	Untreated Check					2.790 a
2	Gramoxone SL....paraquat Nonionic Surfactant	2 100	SL L	0.5 lb ai/a 0.25 % v/v	PrePlant A PrePlant A	1.324 a
3	Aim.....carfentrazone Nonionic Surfactant	2 100	EC L	0.0313 lb ai/a 0.25 % v/v	PrePlant A PrePlant A	3.334 a
4	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	PrePlant A	0.525 a
5	Clarity.....dicamba Nonionic Surfactant	4 100	L L	0.5 lb ae/a 0.25 % v/v	PrePlant A PrePlant A	0.903 a
6	Roundup PowerMax..glyphosate Clarity.....dicamba	4.5 4	AS L	1.13 lb ae/a 0.5 lb ae/a	PrePlant A PrePlant A	1.255 a
7	Metsulfuron Nonionic Surfactant	60 100	WG L	0.0075 lb ai/a 0.25 % v/v	PrePlant A PrePlant A	0.419 a
8	Maverick.....sulfosulfuron Gramoxone SL....paraquat Nonionic Surfactant	75 2 100	WG SL L	0.0314 lb ai/a 0.5 lb ai/a 0.25 % v/v	PrePlant A PrePlant A PrePlant A	1.901 a
9	Maverick.....sulfosulfuron Nonionic Surfactant	75 100	WG L	0.0314 lb ai/a 0.25 % v/v	PrePlant A PrePlant A	2.626 a
10	Finesse Premix ----chlorsulfuron ----metsulfuron Nonionic Surfactant	75 62.5 12.5 100	DF	0.0188 lb ai/a 0.0157 0.00313 0.25 % v/v	PrePlant A	0.437 a
11	Huskie Premix ----pyrasulfotole ----bromoxynil Dry Ammonium Sulfate	2.05 0.3 1.75 100	EC	0.24 lb ae/a 0.035 0.205 0.6 % w/v	PrePlant A	2.528 a
12	Quelex Premix ----florasulam ----halauxifen Crop Oil Concentrate	20 10 10 100	WG	0.0094 lb ai/a 0.0047 0.0047 1 % v/v	PrePlant A	1.798 a
LSD P=.05						2.9442 - 3.0073
Standard Deviation						0.2900t
CV						73.68t
Replicate F						2.744
Replicate Prob(F)						0.0885
Treatment F						1.057
Treatment Prob(F)						0.4388

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 2: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Missing data estimates are included in columns: Yates=7

Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

Tank Mix Evaluations in Xtend Soybeans - Crop Safety  
 Trial ID: Soy40-16      Location: Field #14      Trial Year: 2016  
 Protocol ID: Soy40-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Monsanto

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      GLXMA Glycine max Soybean      BBCH Scale: BSOY  
 Variety: AG38X6  
 Attributes: Xtend  
 Planting Date: 05/24/16      Planting Rate: 180000      S/A  
 Depth: 1 in  
 Row Spacing: 15 in      Planting Method: PLANTD planted  
 Planting Equipment: FE      Field Equipment  
 Seed Bed: MEDTRA medium/trashy  
 Soil Temperature: 81 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 05/31/16  
 Harvest Date: 10/27/16      Harvest Equipment: Plot combine  
 Harvested Width: 6.25 FT  
 % Standard Moisture: 13.0      Harvested Length: 25 FT

**Pest Description**

Pest 1 Type: W      Code: PANDI      Panicum dichotomiflorum  
 Common Name: Fall panicum  
 Pest 2 Type: W      Code: DIGSA      Digitaria sanguinalis  
 Common Name: large crabgrass  
 Pest 3 Type: W      Code: AMAPA      Amaranthus palmeri  
 Common Name: Palmer amaranth  
 Pest 4 Type: W      Code: IPOSS      Ipomoea sp.  
 Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 10      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RACOB      Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Early Preplant burndown application of Roundup PowerMax 1 qt/A + 2,4-D ester 1 pt/A applied to study area on 4-18-16 to kill existing vegetation.

**Soil Description**

% Sand: 79      % OM: 0.9      Texture: SL      sandy loam  
 % Silt: 10      pH: 6.1  
 % Clay: 11      CEC: 4.7      Fert. Level: G good  
 Soil Drainage: F      fair

<b>Application Description</b>			
	A	B	C
Application Date	05/25/16	06/24/16	07/06/16
Appl. Stop Time	04:00 PM	08:30 AM	07:30 AM
Interval to Prev. Appl.		30 DAYS	12 DAYS
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRE	V3	3"wds
Application Placement	BROADC	BROADC	BROADC
Applied By	VanGessl	VanGessl	VanGessl
Air Temperature Start, Stop	85 F	76 F	77 F
% Relative Humidity Start, Stop	32	80	85
Wind Velocity+Dir. Start	4 mph W	2 mph N	1 mph SE
Wet Leaves (Y/N)	N no	N no	N no
Soil Temperature	85 F	76 F	77 F
Soil Moisture	NORMAL	NORMAL	NORMAL
% Cloud Cover	40	70	50

<b>Crop Stage At Each Application</b>			
	A	B	C
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		DESC	DESC
Stage Majority, Percent		3-trifol 100	7-trifol 100
Height Average		7 in	13 in
Height Minimum, Maximum			12 14

<b>Pest Stage At Each Application</b>			
	A	B	C
Pest 1 Code, Type, Scale	PANDI W	PANDI W	PANDI W
Stage Majority, Percent		tillr 100	tillr 100
Height Average		8 in	11 in
Density Average		10 m2	2 m2
Pest 2 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent		tillr 100	tillr 100
Height Average		7 in	9 in
Height Minimum, Maximum		6 8	7 10
Density Average		10 m2	5 m2
Pest 3 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent		veg 100	veg 100
Height Average		4 in	14 in
Height Minimum, Maximum		4 5	12 16
Density Average		1 m2	1 m2
Pest 4 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent		veg 90	run 100
Stage Minimum, Percent		veg 90	
Stage Maximum, Percent		run 10	
Height Average		4 in	8 in
Height Minimum, Maximum		4 5	5 12
Density Average		1 m2	1 m2

**Application Equipment**

	A	B	C
Appl. Equipment	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	14 psi	14 psi	14 psi
Nozzle Type	TTI	TTI	TTI
Nozzle Size	11002	11002	11002
Nozzle Spacing	18 in	18 in	18 in
Boom Length	9 ft	9 ft	9 ft
Boom Height	18 in	24 in	30 in
Ground Speed	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER
Application Amount	15 gal/ac	15 gal/ac	15 gal/ac
Mix Size	2 L	2 L	2 L
Propellant	COMCO2	COMCO2	COMCO2

**Trial Comments**

06/13/16: No check treatment to evaluate injury from PRE treatments. Morningglory seedlings are emerging. Burndown control of fall panicum, Carolina geranium, field pansy was poor; horseweed control was good, but not excellent.

06/26/16: Large crabgrass, fall panicum, morningglory and carpetweed are throughout the study area

07/01/16: Stunting and weed control based on plant size and weeds in border rows. Weed control based on weeds emerged at time of application as well as activity of PRE treatments.

07/14/16: Weed control was >95% for all species.

Tank Mix Evaluations in Xtend Soybeans - Crop Safety						
Trial ID: Soy40-16		Location: Field #14		Trial Year: 2016		
Protocol ID: Soy40-16		Investigator: Mark VanGessel			Study Director:	
Sponsor Contact: Monsanto						
Pest Code	Pest Name	Crop Type, Code	C	GLXMA	C	GLXMA
Crop Name	Rating Type	Rating Unit	Rating Date	Soybean LeafBrn %	Soybean Stunting %	Soybean LeafBrn %
				06/22/16	06/22/16	07/01/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing Code
1	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C
						0.0 d
						0.0 c
						3.3 c
2	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C
						28.3 b
						11.3 bc
						17.0 b
3	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A
	Warrant Ultra Premix	3.45	SC	1.35 lb ai/a	V3	B
	----acetochlor	2.82		1.1		
	----fomesafen	0.6300001		0.247		
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C
						8.0 c
						0.0 c
						13.0 b
4	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C
						36.7 a
						40.0 a
						23.3 a
5	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	V3	B
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C
						5.7 cd
						0.0 c
						5.7 c
6	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A
	Select Max.....clethodim	1	EC	0.047 lb ai/a	V3	B
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C
						6.3 cd
						0.0 c
						5.7 c

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,3,4,5,6,7,8,9



Pest Code Pest Name Crop Type, Code	C GLXMA						AMAPA PalmerAm C -	IPOSS Morgngly C -	
Crop Name Rating Type Rating Unit Rating Date	Soybean Stunting % 07/01/16						Control % 07/01/16	Control % 07/01/16	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code			
1 MON 76980 Warrant.....acetochlor MON 76980 Roundup PowerMax..glyphosate MON 76980 Roundup PowerMax..glyphosate	2.91 3 2.91 4.5 2.91 4.5	SL CS SL AS SL AS	0.5 1.13 0.5 1.13 0.5 1.13	lb ae/a lb ai/a lb ae/a lb ae/a lb ae/a lb ae/a	PRE PRE V3 V3 3"wds 3"wds	A A B B C C	5.7 de	99.7 a	97.7 a
2 MON 76980 Warrant.....acetochlor Cobra.....lactofen MON 76980 Roundup PowerMax..glyphosate	2.91 3 2 2.91 4.5	SL CS EC SL AS	0.5 1.13 0.156 0.5 1.13	lb ae/a lb ai/a lb ai/a lb ae/a lb ae/a	PRE PRE V3 3"wds 3"wds	A A B C C	20.0 bc	99.3 a	81.0 c
3 MON 76980 Warrant.....acetochlor Warrant Ultra Premix ----acetochlor ----fomesafen MON 76980 Roundup PowerMax..glyphosate	2.91 3 3.45 2.82 0.6300001 2.91 4.5	SL CS SC SL SL SL AS	0.5 1.13 1.35 1.1 0.247 0.5 1.13	lb ae/a lb ai/a lb ai/a lb ae/a lb ae/a lb ae/a lb ae/a	PRE PRE V3 3"wds 3"wds	A A B C C	12.3 cd	94.3 a	70.0 d
4 MON 76980 Warrant.....acetochlor Cobra.....lactofen MON 76980 Roundup PowerMax..glyphosate MON 76980 Roundup PowerMax..glyphosate	2.91 3 2 2.91 4.5 2.91 4.5	SL CS EC SL AS SL AS	0.5 1.13 0.156 0.5 1.13 0.5 1.13	lb ae/a lb ai/a lb ai/a lb ae/a lb ae/a lb ae/a lb ae/a	PRE PRE V3 V3 V3 3"wds 3"wds	A A B B B C C	31.7 a	99.0 a	98.3 a
5 MON 76980 Warrant.....acetochlor Warrant.....acetochlor MON 76980 Roundup PowerMax..glyphosate MON 76980 Roundup PowerMax..glyphosate	2.91 3 3 2.91 4.5 2.91 4.5	SL CS CS SL AS SL AS	0.5 1.13 1.13 0.5 1.13 0.5 1.13	lb ae/a lb ai/a lb ai/a lb ae/a lb ae/a lb ae/a lb ae/a	PRE PRE V3 V3 V3 3"wds 3"wds	A A B B B C C	7.3 de	98.3 a	94.0 ab
6 MON 76980 Warrant.....acetochlor Select Max.....clethodim MON 76980 Roundup PowerMax..glyphosate MON 76980 Roundup PowerMax..glyphosate	2.91 3 1 2.91 4.5 2.91 4.5	SL CS EC SL AS SL AS	0.5 1.13 0.047 0.5 1.13 0.5 1.13	lb ae/a lb ai/a lb ai/a lb ae/a lb ae/a lb ae/a lb ae/a	PRE PRE V3 V3 V3 3"wds 3"wds	A A B B B C C	2.3 e	99.3 a	97.0 ab

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,3,4,5,6,7,8,9

Pest Code Pest Name Crop Type, Code						DIGSA L.crbgrs C -	PANDI F.panicm C -	C GLXMA	
Crop Name Rating Type Rating Unit Rating Date						Control % 07/01/16	Control % 07/01/16	Soybean Stunting % 07/14/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
1	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	99.3 a	98.3 a	0.0 e
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			
2	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	63.3 b	49.9 c	13.7 ab
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			
3	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	63.3 b	54.8 b	5.7 cde
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	Warrant Ultra Premix	3.45	SC	1.35 lb ai/a	V3	B			
	----acetochlor	2.82		1.1					
	----fomesafen	0.6300001		0.247					
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			
4	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	99.0 a	98.3 a	19.7 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			
5	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	99.7 a	98.3 a	5.7 cde
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			
6	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	99.7 a	97.7 a	0.0 e
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	Select Max.....clethodim	1	EC	0.047 lb ai/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,3,4,5,6,7,8,9

Pest Code						C GLXMA	
Pest Name							
Crop Type, Code							
Crop Name							
Rating Type						Soybean	
Rating Unit						Yield	
Rating Date						Bu/A	
						10/27/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing Code	
1	MON 76980	2.91	SL	0.5	lb ae/a	PRE A	46.8 a
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE A	
	MON 76980	2.91	SL	0.5	lb ae/a	V3 B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3 B	
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds C	
2	MON 76980	2.91	SL	0.5	lb ae/a	PRE A	54.0 a
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE A	
	Cobra.....lactofen	2	EC	0.156	lb ai/a	V3 B	
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds C	
3	MON 76980	2.91	SL	0.5	lb ae/a	PRE A	50.6 a
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE A	
	Warrant Ultra Premix	3.45	SC	1.35	lb ai/a	V3 B	
	----acetochlor	2.82		1.1			
	----fomesafen	0.6300001		0.247			
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds C	
4	MON 76980	2.91	SL	0.5	lb ae/a	PRE A	51.2 a
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE A	
	Cobra.....lactofen	2	EC	0.156	lb ai/a	V3 B	
	MON 76980	2.91	SL	0.5	lb ae/a	V3 B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3 B	
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds C	
5	MON 76980	2.91	SL	0.5	lb ae/a	PRE A	51.4 a
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE A	
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	V3 B	
	MON 76980	2.91	SL	0.5	lb ae/a	V3 B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3 B	
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds C	
6	MON 76980	2.91	SL	0.5	lb ae/a	PRE A	49.7 a
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE A	
	Select Max.....clethodim	1	EC	0.047	lb ai/a	V3 B	
	MON 76980	2.91	SL	0.5	lb ae/a	V3 B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3 B	
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds C	

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 Missing data estimates are included in columns:Yates=1,2,3,4,5,6,7,8,9

Pest Code						C	GLXMA	C	GLXMA	C	GLXMA
Pest Name											
Crop Type, Code											
Crop Name						Soybean		Soybean		Soybean	
Rating Type						LeafBrn		Stunting		LeafBrn	
Rating Unit						%		%		%	
Rating Date						06/22/16		06/22/16		07/01/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
7	MON 76980	2.91	SL	0.5	lb ae/a	PRE	A	0.0	d	0.0	c
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A				
	Firstate.....cloransulam	84	WG	0.0315	lb ai/a	V3	B				
	MON 76980	2.91	SL	0.5	lb ae/a	V3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds	C				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds	C				
8	MON 76980	2.91	SL	0.5	lb ae/a	PRE	A	28.3	b	17.3	b
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A				
	Warrant Ultra Premix	3.45	SC	1.35	lb ai/a	V3	B				
	----acetochlor	2.82		1.1							
	----fomesafen	0.630	0001	0.247							
	MON 76980	2.91	SL	0.5	lb ae/a	V3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds	C				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds	C				
9	MON 76980	2.91	SL	0.5	lb ae/a	PRE	A	27.5	b	16.9	b
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A				
	Cobra.....lactofen	2	EC	0.156	lb ai/a	V3	B				
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	V3	B				
	MON 76980	2.91	SL	0.5	lb ae/a	V3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds	C				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds	C				
10	MON 76980	2.91	SL	0.5	lb ae/a	PRE	A	38.3	a	23.3	b
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A				
	Select Max.....clethodim	1	EC	0.047	lb ai/a	V3	B				
	Cobra.....lactofen	2	EC	0.156	lb ai/a	V3	B				
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	V3	B				
	MON 76980	2.91	SL	0.5	lb ae/a	V3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	MON 76980	2.91	SL	0.5	lb ae/a	3"wds	C				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	3"wds	C				
LSD P=.05						7.65		12.44		4.64	
Standard Deviation						4.44		7.22		2.69	
CV						24.79		66.29		18.76	
Replicate F						0.127		0.190		2.383	
Replicate Prob(F)						0.8814		0.8291		0.1224	
Treatment F						35.509		10.697		31.392	
Treatment Prob(F)						0.0001		0.0001		0.0001	

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 Missing data estimates are included in columns:Yates=1,2,3,4,5,6,7,8,9

Pest Code Pest Name Crop Type, Code  Crop Name Rating Type Rating Unit Rating Date						C GLXMA  Soybean Stunting % 07/01/16	AMAPA PalmerAm C -  Control % 07/01/16	IPOSS Morngrly C -  Control % 07/01/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit Timing	Appl Code			
7	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	5.7 de	99.3 a	91.7 b
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	Firstate.....cloransulam	84	WG	0.0315 lb ai/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			
8	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	25.7 ab	99.7 a	99.0 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	Warrant Ultra Premix	3.45	SC	1.35 lb ai/a	V3	B			
	----acetochlor	2.82		1.1					
	----fomesafen	0.630	0001	0.247					
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			
9	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	31.6 a	99.7 a	97.6 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B			
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			
10	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	28.3 ab	99.3 a	98.3 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A			
	Select Max.....clethodim	1	EC	0.047 lb ai/a	V3	B			
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B			
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B			
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C			
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C			
LSD P=.05							9.35	5.09	5.42
Standard Deviation							5.43	2.95	3.15
CV							31.82	2.99	3.4
Replicate F							2.948	0.562	2.243
Replicate Prob(F)							0.0796	0.5803	0.1366
Treatment F							13.890	0.902	27.746
Treatment Prob(F)							0.0001	0.5443	0.0001

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Pest Code						DIGSA	PANDI	
Pest Name						L.crbgrs	F.panicm	
Crop Type, Code						C -	C -	C GLXMA
Crop Name								Soybean
Rating Type						Control	Control	Stunting
Rating Unit						%	%	%
Rating Date						07/01/16	07/01/16	07/14/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
7	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	A	99.3 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A	A	97.7 a
	Firstrate.....cloransulam	84	WG	0.0315 lb ai/a	V3	B	B	2.3 de
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B	B	
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C	C	
8	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	A	99.0 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A	A	98.3 a
	Warrant Ultra Premix	3.45	SC	1.35 lb ai/a	V3	B	B	8.0 bcd
	----acetochlor	2.82		1.1				
	----fomesafen	0.630	0001	0.247				
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B	B	
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C	C	
9	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	A	97.6 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A	A	97.9 a
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B	B	14.5 ab
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	V3	B	B	
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B	B	
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C	C	
10	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	A	99.3 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A	A	97.0 a
	Select Max.....clethodim	1	EC	0.047 lb ai/a	V3	B	B	11.7 bc
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B	B	
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	V3	B	B	
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B	B	
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C	C	
LSD P=.05						9.45	3.57	7.28
Standard Deviation						5.49	2.05	4.23
CV						5.97	2.31	52.12
Replicate F						0.466	0.605	1.916
Replicate Prob(F)						0.6354	0.5590	0.1776
Treatment F						22.712	264.054	7.351
Treatment Prob(F)						0.0001	0.0001	0.0002

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 Missing data estimates are included in columns:Yates=1,2,3,4,5,6,7,8,9

University of Delaware							C GLXMA
Pest Code							
Pest Name							
Crop Type, Code							
Crop Name							Soybean
Rating Type							Yield
Rating Unit							Bu/A
Rating Date							10/27/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code
7	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	50.3 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A	
	Firstrate.....cloransulam	84	WG	0.0315 lb ai/a	V3	B	
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B	
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C	
8	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	54.8 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A	
	Warrant Ultra Premix	3.45	SC	1.35 lb ai/a	V3	B	
	----acetochlor	2.82		1.1			
	----fomesafen	0.6300001		0.247			
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B	
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C	
9	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	46.3 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A	
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B	
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	V3	B	
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B	
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C	
10	MON 76980	2.91	SL	0.5 lb ae/a	PRE	A	46.1 a
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	PRE	A	
	Select Max.....clethodim	1	EC	0.047 lb ai/a	V3	B	
	Cobra.....lactofen	2	EC	0.156 lb ai/a	V3	B	
	Warrant.....acetochlor	3	CS	1.13 lb ai/a	V3	B	
	MON 76980	2.91	SL	0.5 lb ae/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	V3	B	
	MON 76980	2.91	SL	0.5 lb ae/a	3"wds	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13 lb ae/a	3"wds	C	
LSD P=.05							13.45
Standard Deviation							7.84
CV							15.65
Replicate F							3.734
Replicate Prob(F)							0.0440
Treatment F							0.444
Treatment Prob(F)							0.8927

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 Missing data estimates are included in columns:Yates=1,2,3,4,5,6,7,8,9





## University of Delaware

Evaluating Overlapping Residual Herbicides for Lima/Snap Beans  
 Trial ID: Bean4-16      Location: Field #30      Trial Year: 2016  
 Protocol ID: Bean4-16      Investigator: Mark VanGessel  
    Study Director:  
    Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C PHSVX Phaseolus vulgaris Snap Bean      BBCH Scale: BVBE  
 Variety: Caprice  
 Planting Date: 07/21/16      Planting Rate: 6      S/FT  
 Depth: 1 IN  
 Rows per Plot: 4      Planting Method: PLANTD planted  
 Row Spacing: 30 IN      Planting Equipment: FE      Field Equipment  
    Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 07/24/16

Crop 2: C PHSLU Phaseolus lunatus Lima bean      BBCH Scale: BVBE  
 Variety: C-elite  
 Planting Date: 07/21/16      Planting Rate: 6      S/FT  
 Depth: 1 IN  
 Rows per Plot: 4      Planting Method: PLANTD planted  
 Row Spacing: 30 IN      Planting Equipment: FE      Field Equipment  
    Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 07/24/16

**Pest Description**

Pest 1 Type: W      Code: IPOSS Ipomoea sp.  
    Common Name: Morning glory  
 Pest 2 Type: W      Code: MOLVE Mollugo verticillata  
    Common Name: Carpetweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 12      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Total Postemergence application of Poast 1.5 pt/A + COC 1 %v/v + UAN 2 %v/v on 8-19-16.

**Soil Description**

Description Name: Field 30  
 % Sand: 83      % OM: 1.0      Texture: LS      loamy sand  
 % Silt: 8      pH: 5.3      Soil Name: Rosedale loamy sand, 0-2% slopes  
 % Clay: 9      CEC: 3.3      Fert. Level: F      fair  
 Soil Drainage: G      good

<b>Application Description</b>			
	A	B	C
Application Date	07/22/16	08/04/16	08/10/16
Appl. Stop Time	10:30 AM	10:30 AM	11:40 AM
Interval to Prev. Appl.		13 DAYS	6 DAYS
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRE	POST	POST
Application Placement	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	Johnson
Air Temperature Start, Stop	85 F	79 F	85 F
% Relative Humidity Start, Stop	65	61	68
Wind Velocity+Dir. Start	2 MPH WSW	3 MPH ESE	3 MPH WSW
Wet Leaves (Y/N)	N no	Y yes	Y yes
Soil Temperature	85 F	78 C	82 F
Soil Moisture	GOOD	NORMAL	NORMAL
% Cloud Cover	40	20	40

<b>Crop Stage At Each Application</b>			
	A	B	C
Crop 1 Code, BBCH Scale	PHSVX BVBE	PHSVX BVBE	PHSVX BVBE
Stage Scale Used		GOOD	GOOD
Stage Majority, Percent		1 Trifol	2 Trifol
Height Average		5 IN	5 IN
Crop 2 Code, BBCH Scale	PHSLU BVBE	PHSLU BVBE	PHSLU BVBE
Stage Scale Used	BBCH	GOOD	GOOD
Stage Majority, Percent		2 Trifol	4 Trifol
Height Average		8 IN	8 IN

<b>Pest Stage At Each Application</b>			
	A	B	C
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent			Veg
Stage Minimum, Percent		Coty	
Stage Maximum, Percent		2 lf	
Height Average		1.5 IN	3 IN
Density Average		5 m2	5 m2
Pest 2 Code, Type, Scale	MOLVE W	MOLVE W	MOLVE W
Stage Majority, Percent			Veg
Diameter			2 IN
Density Average			20 m2

**Application Equipment**

	A	B	C
Appl. Equipment	Tractor	Tractor	Tractor
Equipment Type	TRMOSP	TRMOSP	TRMOSP
Operation Pressure	40 psi	40 psi	40 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002
Nozzle Spacing	20 in	20 in	20 in
Boom Length	10 ft	10 ft	10 ft
Boom Height	22 in	22 in	22 in
Ground Speed	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac
Propellant	COMAIR	COMAIR	COMAIR

## Trial Comments

07/29/16 and 08/05/16: Minimal chlorosis (0-3) observed. Last 2 ranges (begin 105, 106) are muddy, low end. Plot 206 has no lima center row.

09/02/16: Plot 206 - missing limas - a planting issue. Plot 304 skipped spray application? No Palmer control here. Plot 306 IPOSS extremely dense here, and along the last range of the trial.

Evaluating Overlapping Residual Herbicides for Lima/Snap Beans				
Trial ID: Bean4-16		Location: Field #30		Trial Year: 2016
Protocol ID: Bean4-16		Investigator: Mark VanGessel		
Study Director:				
Sponsor Contact:				

Pest Code								
Pest Name								
Crop Type, Code					C PHSLU	C PHSVX	C PHSLU	C PHSVX
Crop Name					Lima bean	Snap bean	Lima bean	Snap bean
Rating Type					Stunting	Stunting	Stunting	Stunting
Rating Unit					%	%	%	%
Rating Date					07/29/16	07/29/16	08/05/16	08/05/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 c
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		0.0 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		0.0 b
2	Handweeded Check							0.0 c
3	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		2.3 b
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		0.0 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		0.0 b
4	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A		0.0 c
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		0.0 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		0.0 b
5	Dual Magnum.....s-metolachlor	7.62 E		1.43 lb ai/a	PRE	A		0.0 c
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		0.0 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		0.0 b
6	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A		7.0 a
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		2.3 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		13.3 a
7	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		0.0 c
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	14DAP	B		0.0 a
8	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		0.0 c
	Zidua.....pyroxasulfone	85 WG		0.053 lb ai/a	14DAP	B		0.0 a
9	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		0.0 c
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	14DAP	B		0.0 a
10	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		0.0 c
	Warrant.....acetochlor	3 CS		0.56 lb ai/a	14DAP	B		0.0 a
11	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		0.0 c
	Reflex.....fomesafen	2 L		0.25 lb ai/a	14DAP	B		0.0 a
12	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		0.0 c
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	21DAP	C		0.0 a
LSD P=.05					1.98	1.98	1.41	4.44
Standard Deviation					1.17	1.17	0.83	2.62
CV					150.0	600.0	75.0	157.36
Replicate F					1.000	1.000	1.000	0.048
Replicate Prob(F)					0.3840	0.3840	0.3840	0.9528
Treatment F					9.455	1.000	64.000	9.463
Treatment Prob(F)					0.0001	0.4767	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=12,13

Pest Code								
Pest Name								
Crop Type, Code					C PHSLU	C PHSLU	C PHSVX	C PHSVX
Crop Name					Lima bean	Lima bean	Snap bean	Snap bean
Rating Type					Stunting	Chlorosis	Stunting	Chlorosis
Rating Unit					%	%	%	%
Rating Date					08/16/16	08/16/16	08/16/16	08/16/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 c
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		0.0 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		0.0 b
2	Handweeded Check							0.0 a
3	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		2.7 bc
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		0.0 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		5.3 b
4	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A		2.7 bc
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		2.7 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		5.0 b
5	Dual Magnum.....s-metolachlor	7.62 E		1.43 lb ai/a	PRE	A		5.0 bc
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		1.7 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		7.3 b
6	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/a	PRE	A		36.0 a
	Basagran.....bentazon	4 L		1 lb ai/a	21DAP	C		0.0 a
	Crop Oil Concentrate	100 L		0.25 % v/v	21DAP	C		57.7 a
7	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		1.7 bc
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	14DAP	B		0.0 a
								3.3 b
8	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		0.0 c
	Zidua.....pyroxasulfone	85 WG		0.053 lb ai/a	14DAP	B		0.0 a
								5.0 b
9	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		1.7 bc
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/a	14DAP	B		0.0 a
								5.3 b
10	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		5.0 bc
	Warrant.....acetochlor	3 CS		0.56 lb ai/a	14DAP	B		3.3 a
								7.7 b
11	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		11.0 b
	Reflex.....fomesafen	2 L		0.25 lb ai/a	14DAP	B		0.0 a
								12.0 b
12	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PRE	A		0.0 c
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	21DAP	C		0.0 a
								3.3 b
								0.0 a
	LSD P=.05							10.79
	Standard Deviation							6.37
	CV							116.44
	Replicate F							1.938
	Replicate Prob(F)							0.1678
	Treatment F							7.573
	Treatment Prob(F)							0.0001
								0.093
								0.9116
								12.031
								0.0001
								1.929
								0.1691
								1.979
								0.0834

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=12,13

Pest Code Pest Name		AMAPA PalmerAm	IPOSS mornglry	GGGAN AnnGrass	
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date		C - Control % 08/16/16	C - Control % 08/16/16	C - Control % 08/16/16	C PHSLU Lima bean Stunting % 09/02/16
Trt Treatment No. Name	Form Form Conc Type Rate	Rate Unit	Appl Timing	Appl Code	
1 Untreated Check					
Basagran.....bentazon	4 L	1 lb ai/a	21DAP	C	16.7 c
Crop Oil Concentrate	100 L	0.25 % v/v	21DAP	C	25.0 bc
2 Handweeded Check					23.3 b
3 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/a	PRE	A	0.0 c
Basagran.....bentazon	4 L	1 lb ai/a	21DAP	C	100.0 a
Crop Oil Concentrate	100 L	0.25 % v/v	21DAP	C	100.0 a
4 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/a	PRE	A	93.3 ab
Basagran.....bentazon	4 L	1 lb ai/a	21DAP	C	84.3 a
Crop Oil Concentrate	100 L	0.25 % v/v	21DAP	C	96.7 a
5 Dual Magnum.....s-metolachlor	7.62 E	1.43 lb ai/a	PRE	A	11.3 bc
Basagran.....bentazon	4 L	1 lb ai/a	21DAP	C	95.0 ab
Crop Oil Concentrate	100 L	0.25 % v/v	21DAP	C	89.0 a
6 Zidua.....pyroxasulfone	85 WG	0.106 lb ai/a	PRE	A	95.0 a
Basagran.....bentazon	4 L	1 lb ai/a	21DAP	C	91.7 ab
Crop Oil Concentrate	100 L	0.25 % v/v	21DAP	C	86.0 a
7 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/a	PRE	A	92.7 a
Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/a	14DAP	B	23.3 a
8 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/a	PRE	A	66.7 ab
Zidua.....pyroxasulfone	85 WG	0.053 lb ai/a	14DAP	B	0.0 c
9 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/a	PRE	A	85.0 ab
Outlook.....dimethenamid-p	6 L	0.56 lb ai/a	14DAP	B	39.3 b
10 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/a	PRE	A	99.3 a
Warrant.....acetochlor	3 CS	0.56 lb ai/a	14DAP	B	97.3 a
11 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/a	PRE	A	53.7 bc
Reflex.....fomesafen	2 L	0.25 lb ai/a	14DAP	B	28.3 bc
12 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/a	PRE	A	91.3 a
Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/a	21DAP	C	93.3 a
LSD P=.05					6.0 c
Standard Deviation					72.3 ab
CV					16.7 bc
Replicate F					93.3 a
Replicate Prob(F)					93.3 a
Treatment F					22.7 ab
Treatment Prob(F)					2.7 c
					46.16
					27.26
					35.91
					0.248
					0.7825
					2.587
					0.0278
					0.304
					0.7410
					9.502
					0.0001
					1.249
					0.3064
					8.152
					0.0001
					1.293
					0.2954
					3.610
					0.0056

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=12,13



Fall Burndown with Finesse or Sharpen

Trial ID:                    Cooperator:  
 Location: Fld #22    Investigator: Mark VanGessel

SITE AND DESIGN

Plot Width, Unit: 10 FT    Plot Length, Unit:            75 FT    Reps: 1  
 Study Design: RACOBL

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION	
	A
Application Date:	10/15/15
Application Method:	Spray
Application Timing:	11:00 am

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

05/23/16:

Overall weed control observations:

Finesse overall control was good:  
   Good to excellent control of henbit and knawel  
   Fair control of cutleaf eveningprimrose and horseweed  
   Poor control of Carolina geranium

Sharpen overall control was poor:  
   Poor to no control of cutleaf evening primrose, knawel, and parsely-piert



Lima Bean Safety from Soil-Applied Herbicides  
 Trial ID: Lima2-16      Location: Field #4      Trial Year: 2016  
 Protocol ID: Lima2-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: IR4

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C PHSLU Phaseolus lunatus Lima bean      BBCH Scale: BVBE  
 Variety: C-elite  
 Planting Date: 07/21/16      Planting Rate: 4      S/FT  
 Depth: 0.75 in  
 Rows per Plot: 4      Planting Method: PLANTE  
 Row Spacing: 30 in      Planting Equipment: FE      Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 07/24/16

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 10      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**

Description Name: Field 4  
 % Sand: 79      % OM: 1.0      Texture: LS      loamy sand  
 % Silt: 13      pH: 6.6      Soil Name: Hammonton loamy sand, 0-2% slopes  
 % Clay: 8      CEC: 5.7      Fert. Level: G      good  
 Soil Drainage: F      fair

**Application Description**

	A
Application Date	07/22/16
Appl. Stop Time	11:00 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	85 F
% Relative Humidity Start, Stop	65
Wind Velocity+Dir. Start	2 MPH WSW
Wet Leaves (Y/N)	N no
Soil Temperature	85 F
Soil Moisture	GOOD
% Cloud Cover	40

<b>Application Equipment</b>	
	A
Appl. Equipment	Tractor
Equipment Type	TRMOSP
Operation Pressure	40 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	20 in
Boom Length	10 ft
Boom Height	22 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMAIR

Trial Comments

Lima Bean Safety from Soil-Applied Herbicides			
Trial ID: Lima2-16	Location: Field #4	Trial Year: 2016	
Protocol ID: Lima2-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact: IR4			

Pest Code				C	C	C
Pest Name				PHSLU	PHSLU	PHSLU
Crop Type, Code						
Crop Name				LimaBean	LimaBean	LimaBean
Rating Type				Stunting	Chlorosis	Stunting
Rating Unit				%	%	%
Rating Date				07/29/16	07/29/16	08/05/16
Trt No.	Treatment Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing	
1	Untreated Check					0.0 c
2	Dual Magnum.....s-metolachlor Pursuit.....imazethapyr	7.62 E 2 AS	0.95 lb ai/a PRE 0.0313 lb ai/a PRE			0.0 c
3	Dual Magnum.....s-metolachlor Command.....clomazone Pursuit.....imazethapyr	7.62 E 3 ME 2 AS	0.95 lb ai/a PRE 0.094 lb ai/a PRE 0.0313 lb ai/a PRE			0.0 c
4	Dual Magnum.....s-metolachlor Command.....clomazone Pursuit.....imazethapyr	7.62 E 3 ME 2 AS	0.95 lb ai/a PRE 0.188 lb ai/a PRE 0.0313 lb ai/a PRE			0.0 c
5	Anthem Premix ----pyoxasulfone ----fluthiacet Pursuit.....imazethapyr	2.153 SE 2.09 0.06300001 2 AS	0.084 lb ai/a PRE 0.0815 0.00246 0.0313 lb ai/a PRE			0.0 c
6	Anthem Premix ----pyoxasulfone ----fluthiacet Pursuit.....imazethapyr	2.153 SE 2.09 0.06300001 2 AS	0.109 lb ai/a PRE 0.106 0.0032 0.0313 lb ai/a PRE			10.6 a
7	Dual Magnum.....s-metolachlor Spartan Charge Premix ----carfentrazone ----sulfentrazone	7.62 E 3.5 F 0.35 3.15	0.95 lb ai/a PRE 0.082 lb ai/a PRE 0.0082 0.074			0.0 c
8	Dual Magnum.....s-metolachlor Pursuit.....imazethapyr	7.62 E 2 AS	1.43 lb ai/a PRE 0.0313 lb ai/a PRE			0.0 c
9	Tolpyralate Dual Magnum.....s-metolachlor	3.34 SC 7.62 E	0.04 lb ai/a PRE 0.95 lb ai/a PRE			0.0 c
10	Tolpyralate Dual Magnum.....s-metolachlor	3.34 SC 7.62 E	0.08 lb ai/a PRE 0.95 lb ai/a PRE			7.2 b
LSD P=.05				1.52 - 1.67	.	7.75 - 19.98
Standard Deviation				0.94t	0.00	6.93t
CV				27.11t	0.0	57.81t
Replicate F				0.948	0.000	0.699
Replicate Prob(F)				0.4060	1.0000	0.5098
Treatment F				183.717	0.000	13.325
Treatment Prob(F)				0.0001	1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 2,6 because error mean square = 0.

Pest Code Pest Name			AMAPA PalmerAm	MOLVE Carpetwd				
Crop Type, Code	C	PHSLU	C -	C -				
Crop Name	LimaBean	LimaBean						
Rating Type	LeafBurn	Stunting	Control	Control				
Rating Unit	%	%	%	%				
Rating Date	08/05/16	08/15/16	08/15/16	08/15/16				
Trt Treatment No. Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing				
1 Untreated Check					0.0 b	0.0 e	0.0 b	0.0 f
2 Dual Magnum.....s-metolachlor Pursuit.....imazethapyr	7.62 E 2 AS	0.95 lb ai/a PRE 0.0313 lb ai/a PRE			0.0 b	0.0 e	100.0 a	88.3 cde
3 Dual Magnum.....s-metolachlor Command.....clomazone Pursuit.....imazethapyr	7.62 E 3 ME 2 AS	0.95 lb ai/a PRE 0.094 lb ai/a PRE 0.0313 lb ai/a PRE			0.0 b	0.0 e	100.0 a	86.7 de
4 Dual Magnum.....s-metolachlor Command.....clomazone Pursuit.....imazethapyr	7.62 E 3 ME 2 AS	0.95 lb ai/a PRE 0.188 lb ai/a PRE 0.0313 lb ai/a PRE			0.0 b	2.3 e	100.0 a	90.7 bcd
5 Anthem Premix ----pyoxasulfone ----fluthiacet Pursuit.....imazethapyr	2.153 SE 2.09 0.06300001 2 AS	0.084 lb ai/a PRE 0.0815 0.00246 0.0313 lb ai/a PRE			0.0 b	17.3 c	100.0 a	99.3 a
6 Anthem Premix ----pyoxasulfone ----fluthiacet Pursuit.....imazethapyr	2.153 SE 2.09 0.06300001 2 AS	0.109 lb ai/a PRE 0.106 0.0032 0.0313 lb ai/a PRE			0.0 b	16.0 cd	100.0 a	100.0 a
7 Dual Magnum.....s-metolachlor Spartan Charge Premix ----carfentrazone ----sulfentrazone	7.62 E 3.5 F 0.35 3.15	0.95 lb ai/a PRE 0.082 lb ai/a PRE 0.0082 0.074			0.0 b	11.0 d	100.0 a	82.7 e
8 Dual Magnum.....s-metolachlor Pursuit.....imazethapyr	7.62 E 2 AS	1.43 lb ai/a PRE 0.0313 lb ai/a PRE			0.0 b	0.0 e	100.0 a	95.0 abc
9 Tolpyralate Dual Magnum.....s-metolachlor	3.34 SC 7.62 E	0.04 lb ai/a PRE 0.95 lb ai/a PRE			35.3 a	71.7 b	100.0 a	91.7 bcd
10 Tolpyralate Dual Magnum.....s-metolachlor	3.34 SC 7.62 E	0.08 lb ai/a PRE 0.95 lb ai/a PRE			40.0 a	91.7 a	100.0 a	96.7 ab
LSD P=.05					20.37	6.06	.	6.87
Standard Deviation					11.88	3.53	0.00	4.01
CV					157.67	16.83	0.0	4.82
Replicate F					1.146	3.754	0.000	1.240
Replicate Prob(F)					0.3401	0.0434	1.0000	0.3130
Treatment F					5.389	261.803	0.000	165.156
Treatment Prob(F)					0.0012	0.0001	1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 2,6 because error mean square = 0.

Pest Code Pest Name Crop Type, Code				C PHSLU	AMAPA PalmerAm C -	C PHSLU
Crop Name Rating Type Rating Unit Rating Date				LimaBean Stunting % 08/30/16	Control % 08/30/16	LimaBean wt pods grams 10/03/16
Trt Treatment No. Name	Form Conc	Form Type Rate	Rate Unit	Appl Timing		
1 Untreated Check					0.0 e	0.0 c
2 Dual Magnum.....s-metolachlor Pursuit.....imazethapyr	7.62 E 2 AS		0.95 lb ai/a PRE 0.0313 lb ai/a PRE		5.3 de	96.0 ab 840.3 a
3 Dual Magnum.....s-metolachlor Command.....clomazone Pursuit.....imazethapyr	7.62 E 3 ME 2 AS		0.95 lb ai/a PRE 0.094 lb ai/a PRE 0.0313 lb ai/a PRE		0.0 e	100.0 a 997.3 a
4 Dual Magnum.....s-metolachlor Command.....clomazone Pursuit.....imazethapyr	7.62 E 3 ME 2 AS		0.95 lb ai/a PRE 0.188 lb ai/a PRE 0.0313 lb ai/a PRE		2.7 de	100.0 a 851.3 a
5 Anthem Premix ----pyoxasulfone ----fluthiacet Pursuit.....imazethapyr	2.153 SE 2.09 0.06300001 2 AS		0.084 lb ai/a PRE 0.0815 0.00246 0.0313 lb ai/a PRE		13.3 c	97.7 ab
6 Anthem Premix ----pyoxasulfone ----fluthiacet Pursuit.....imazethapyr	2.153 SE 2.09 0.06300001 2 AS		0.109 lb ai/a PRE 0.106 0.0032 0.0313 lb ai/a PRE		12.7 c	100.0 a
7 Dual Magnum.....s-metolachlor Spartan Charge Premix ----carfentrazone ----sulfentrazone	7.62 E 3.5 F 0.35 3.15		0.95 lb ai/a PRE 0.082 lb ai/a PRE 0.0082 0.074		8.3 cd	94.0 b 796.7 a
8 Dual Magnum.....s-metolachlor Pursuit.....imazethapyr	7.62 E 2 AS		1.43 lb ai/a PRE 0.0313 lb ai/a PRE		0.0 e	100.0 a 1028.0 a
9 Tolpyralate Dual Magnum.....s-metolachlor	3.34 SC 7.62 E		0.04 lb ai/a PRE 0.95 lb ai/a PRE		76.7 b	99.3 a
10 Tolpyralate Dual Magnum.....s-metolachlor	3.34 SC 7.62 E		0.08 lb ai/a PRE 0.95 lb ai/a PRE		95.0 a	100.0 a
LSD P=.05					5.95	5.30 565.68
Standard Deviation					3.47	3.09 300.44
CV					16.21	3.48 33.28
Replicate F					8.701	0.597 0.619
Replicate Prob(F)					0.0023	0.5611 0.5622
Treatment F					298.238	306.432 0.353
Treatment Prob(F)					0.0001	0.0001 0.8355

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 2,6 because error mean square = 0.

Horsenettle Management in Lima Bean

Trial ID: Lima3c-16 Cooperator: PictSweet  
 Location: Field 22 Investigator: Mark VanGessel

CROP AND WEED DESCRIPTION			
Weed	Common Name	Code	Scientific Name
1.	Horsenettle	SOLCA	Solanum carolinense L.

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 4  
 Site Type: Field Study Design: RACOBL  
 Tillage Type: No Tillage

SOIL DESCRIPTION

% Sand: 81 % OM: 0.7 Texture: loamy sand  
 % Silt: 12 pH: 6.3  
 % Clay: 7 CEC: 4.2 Fert. Level: Medium

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION	
	A
Application Date:	08/15/16
Time of Day:	8:15 am
Application Method:	Spray
Application Timing:	Pre-Blm
Applic. Placement:	Brdcst
Air Temp., Unit:	85 F
% Relative Humidity:	66
Wind Velocity, Unit:	4 mph
Wind Direction:	NW
Dew Presence (Y/N):	Y
Soil Temp., Unit:	85 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Moist
% Cloud Cover:	10

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	SOLCA
Growth Stage:	Veg
Height, Unit:	7 in

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	24 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

Horsenettle Management in Lima Bean											
Trial ID: Lima3c-16 Cooperator: PictSweet											
Location: Field 22 Investigator: Mark VanGessel											
Weed Code											
Weed or Crop Name											
Weed or Crop Name											
Rating Data Type											
Rating Unit											
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code	solca Horse-nettle berry #	solca Horse-nettle Fresh Wt grams	solca Horse-nettle Dry Wt grams	solca Horse-nettle BerySize #>#6	solca Horse-nettle BerySize #<#6
1	Untreated Check						5.0 a	182.0 a	33.8 a	1.0 a	4.0 a
2	Basagran.....bentazon	4 L		0.5 lb ai/a	Pre-Blm A		0.0 b	88.0 a	15.8 a		
	Raptor.....imazamox	1 AS		0.0312 lb ai/a	Pre-Blm A						
	Nonionic Surfactant	100 L		0.25 % v/v	Pre-Blm A						
3	Sandea.....halosulfuron	75 DF		0.0314 lb ai/a	Pre-Blm A		5.3 a	161.3 a	30.3 a	6.0 a	1.0 a
	Nonionic Surfactant	100 L		0.25 % v/v	Pre-Blm A						
4	FirstRate.....cloransulam	84 WG		0.0157 lb ai/a	Pre-Blm A		0.5 b	139.0 a	26.8 a	2.0 a	0.0 a
	Nonionic Surfactant	100 L		0.25 % v/v	Pre-Blm A						
	LSD P=.05						4.27	155.07	29.10	9.29	10.39
	Standard Deviation						2.67	96.94	18.19	3.06	3.42
	CV						99.27	68.0	68.32	101.84	204.94
	Replicate F						2.420	0.610	0.529	0.262	0.476
	Replicate Prob(F)						0.1332	0.6254	0.6737	0.8502	0.7310
	Treatment F						4.481	0.694	0.734	3.000	1.486
	Treatment Prob(F)						0.0347	0.5783	0.5575	0.2500	0.4023

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Average=4,5



Increasing Lima Bean Safety from Spartan Charge  
 Trial ID: Lima4-16 Location: Field #30 Trial Year: 2016  
 Protocol ID: Lima4-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C PHSLU Phaseolus lunatus Lima bean  
 Variety: C-elite  
 Planting Date: 07/21/16 Planting Rate: 4 S/FT  
 Depth: 0.75 in  
 Rows per Plot: 4 Planting Method: PLANTE  
 Row Spacing: 30 in Planting Equipment: FE Field Equipment  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 86 F Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 07/24/16  
 Harvest Date: 10/11/16

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 18 Tillage Type: MUTTIL multiple-tillage  
 Replications: 3 Study Design: SPLPLO Split-Plot

Trial Initiation Comments:  
 No-till plots were established in barley stubble.

**Field Prep./Maintenance:**

Total postemergence application of Raptor 4 oz/A + Basagran 1.5 pt/A + NIS on 8-19-16.

**Soil Description**

Description Name: Field 30  
 % Sand: 83 % OM: 1.0 Texture: LS loamy sand  
 % Silt: 8 pH: 5.3 Soil Name: Rosedale loamy sand, 0-2% slopes  
 % Clay: 9 CEC: 3.3 Fert. Level: F fair  
 Soil Drainage: G good

**Application Description**

	A
Application Date	07/22/16
Appl. Stop Time	11:00 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	Johnson
Air Temperature Start, Stop	85 F
% Relative Humidity Start, Stop	65
Wind Velocity+Dir. Start	2 mph W
Wet Leaves (Y/N)	N no
Soil Temperature	85 F
Soil Moisture	NORMAL
% Cloud Cover	40

<b>Crop Stage At Each Application</b>	
	A
Crop 1 Code, BBCH Scale	PHSLU BVBE

Trial Comments

08/17/16: Note that weed control ratings were based on trt 6. Beans are distinctly smaller in the back 2 ranges in rep 1, less so in 2 and 3 reps. High ground and dryer back here? Plot 111 may have had bean emergence issues? Plot 112 had no IPOSS. Palmer in untrtd checks: trt 6 - rep 1 had 0; rep 2 had 3; rep 3 had 4.

Increasing Lima Bean Safety from Spartan Charge											
Trial ID: Lima4-16		Location: Field #30		Trial Year: 2016							
Protocol ID: Lima4-16		Investigator: Mark VanGessel		Study Director:							
		Sponsor Contact:									
Pest Code	Pest Name	Crop Type, Code	C	PHSLU	C	PHSLU	C	PHSLU	C	PHSLU	
Crop Name	Rating Type	Rating Unit	Rating Date	LimaBean Stunting %	LimaBean Chlorosis %	LimaBean Stunting %	LimaBean Stunting %	LimaBean Stunting %	LimaBean Stunting %	LimaBean Stunting %	
				07/29/16	07/29/16	08/05/16	08/17/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	Conventional tillage Spartan Charge Premix	3.5 F		0.085 lb ai/a	PRE	A		3.3 a	1.0 de	0.0 a	0.0 a
	----carfentrazone	0.35		0.0085							
	----sulfentrazone	3.15		0.0765							
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A					
2	Conventional tillage Spartan Charge Premix	3.5 F		0.103 lb ai/a	PRE	A		0.0 a	1.7 de	2.3 a	0.0 a
	----carfentrazone	0.35		0.0103							
	----sulfentrazone	3.15		0.093							
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A					
3	Conventional tillage Spartan Charge Premix	3.5 F		0.123 lb ai/a	PRE	A		4.3 a	2.7 b-e	2.3 a	0.0 a
	----carfentrazone	0.35		0.0123							
	----sulfentrazone	3.15		0.111							
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A					
4	Conventional tillage Command.....clomazone	3 ME		0.094 lb ai/a	PRE	A		2.3 a	7.3 a	5.7 a	6.3 a
	Pursuit.....imazethapyr	2 AS		0.0313 lb ai/a	PRE	A					
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A					
5	Conventional tillage Pursuit.....imazethapyr	2 AS		0.0313 lb ai/a	PRE	A		4.7 a	0.0 e	3.3 a	3.3 a
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A					
6	Conventional tillage Untreated Check							0.0 a	0.0 e	0.0 a	0.0 a
7	No-tillage Spartan Charge Premix	3.5 F		0.085 lb ai/a	PRE	A		3.3 a	0.0 e	4.0 a	6.0 a
	----carfentrazone	0.35		0.0085							
	----sulfentrazone	3.15		0.0765							
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A					
8	No-tillage Spartan Charge Premix	3.5 F		0.103 lb ai/a	PRE	A		6.7 a	0.0 e	4.0 a	5.7 a
	----carfentrazone	0.35		0.0103							
	----sulfentrazone	3.15		0.093							
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A					
9	No-tillage Spartan Charge Premix	3.5 F		0.123 lb ai/a	PRE	A		1.7 a	0.0 e	2.7 a	0.0 a
	----carfentrazone	0.35		0.0123							
	----sulfentrazone	3.15		0.111							
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A					
10	No-tillage Command.....clomazone	3 ME		0.094 lb ai/a	PRE	A		6.3 a	2.0 cde	5.7 a	8.3 a
	Pursuit.....imazethapyr	2 AS		0.0313 lb ai/a	PRE	A					
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	A					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7

Pest Code Pest Name Crop Type, Code	AMAPA PalmerAm C -	IPOSS mornngly C -	C PHSLU	C PHSLU						
Crop Name Rating Type Rating Unit Rating Date	Control %	Control %	LimaBean Stunting %	LimaBean Yld20'row grams						
	08/17/16	08/17/16	08/31/16	10/11/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code				
1 Conventional tillage Spartan Charge Premix ----carfentrazone ----sulfentrazone Dual Magnum.....s-metolachlor	3.5 F 0.35 3.15 7.62 E		0.085 lb ai/a 0.0085 0.0765 1.19 lb ai/a	PRE	A		100.0 a	36.7 cd	4.7 a	
2 Conventional tillage Spartan Charge Premix ----carfentrazone ----sulfentrazone Dual Magnum.....s-metolachlor	3.5 F 0.35 3.15 7.62 E		0.103 lb ai/a 0.0103 0.093 1.19 lb ai/a	PRE	A		86.0 ab	56.7 abc	4.0 a	
3 Conventional tillage Spartan Charge Premix ----carfentrazone ----sulfentrazone Dual Magnum.....s-metolachlor	3.5 F 0.35 3.15 7.62 E		0.123 lb ai/a 0.0123 0.111 1.19 lb ai/a	PRE	A		86.7 ab	71.7 abc	0.0 a	
4 Conventional tillage Command.....clomazone Pursuit.....imazethapyr Dual Magnum.....s-metolachlor	3 ME 2 AS 7.62 E		0.094 lb ai/a 0.0313 lb ai/a 1.19 lb ai/a	PRE	A		100.0 a	57.7 abc	5.7 a	161.3 a
5 Conventional tillage Pursuit.....imazethapyr Dual Magnum.....s-metolachlor	2 AS 7.62 E		0.0313 lb ai/a 1.19 lb ai/a	PRE	A		95.0 ab	64.3 abc	0.0 a	123.0 a
6 Conventional tillage Untreated Check							0.0 d	0.0 d	0.0 a	
7 No-tillage Spartan Charge Premix ----carfentrazone ----sulfentrazone Dual Magnum.....s-metolachlor	3.5 F 0.35 3.15 7.62 E		0.085 lb ai/a 0.0085 0.0765 1.19 lb ai/a	PRE	A		100.0 a	73.3 abc	11.7 a	
8 No-tillage Spartan Charge Premix ----carfentrazone ----sulfentrazone Dual Magnum.....s-metolachlor	3.5 F 0.35 3.15 7.62 E		0.103 lb ai/a 0.0103 0.093 1.19 lb ai/a	PRE	A		93.3 ab	87.3 ab	12.3 a	
9 No-tillage Spartan Charge Premix ----carfentrazone ----sulfentrazone Dual Magnum.....s-metolachlor	3.5 F 0.35 3.15 7.62 E		0.123 lb ai/a 0.0123 0.111 1.19 lb ai/a	PRE	A		100.0 a	96.7 a	2.3 a	
10 No-tillage Command.....clomazone Pursuit.....imazethapyr Dual Magnum.....s-metolachlor	3 ME 2 AS 7.62 E		0.094 lb ai/a 0.0313 lb ai/a 1.19 lb ai/a	PRE	A		95.0 ab	84.3 ab	3.3 a	180.3 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7

Pest Code						C	C	C	C		
Pest Name						PHSLU	PHSLU	PHSLU	PHSLU		
Crop Type, Code											
Crop Name						LimaBean	LimaBean	LimaBean	LimaBean		
Rating Type						Stunting	Chlorosis	Stunting	Stunting		
Rating Unit						%	%	%	%		
Rating Date						07/29/16	07/29/16	08/05/16	08/17/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code				
11	No-tillage Pursuit.....imazethapyr	2	AS	0.0313	lb ai/a	PRE	A	8.3 a	0.0 e	6.7 a	6.3 a
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A				
12	No-tillage Untreated Check							0.0 a	0.0 e	0.0 a	0.0 a
13	Narrow band w/ no-till Spartan Charge Premix	3.5	F	0.085	lb ai/a	PRE	A	7.3 a	4.0 a-d	9.0 a	8.3 a
	----carfentrazone	0.35		0.0085							
	----sulfentrazone	3.15		0.0765							
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A				
14	Narrow band w/ no-till Spartan Charge Premix	3.5	F	0.103	lb ai/a	PRE	A	0.0 a	6.3 ab	0.0 a	0.0 a
	----carfentrazone	0.35		0.0103							
	----sulfentrazone	3.15		0.093							
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A				
15	Narrow band w/ no-till Spartan Charge Premix	3.5	F	0.123	lb ai/a	PRE	A	3.3 a	0.0 e	2.3 a	4.7 a
	----carfentrazone	0.35		0.0123							
	----sulfentrazone	3.15		0.111							
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A				
16	Narrow band w/ no-till Command.....clomazone	3	ME	0.094	lb ai/a	PRE	A	8.3 a	5.7 abc	4.7 a	4.0 a
	Pursuit.....imazethapyr	2	AS	0.0313	lb ai/a	PRE	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A				
17	Narrow band w/ no-till Pursuit.....imazethapyr	2	AS	0.0313	lb ai/a	PRE	A	4.7 a	3.7 a-e	5.0 a	7.3 a
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A				
18	Narrow band w/ no-till Untreated Check							0.0 a	0.0 e	0.0 a	0.0 a
LSD P=.05						7.88	3.95	7.25	10.01		
Standard Deviation						4.73	2.37	4.35	6.00		
CV						131.58	124.23	135.77	179.01		
Replicate F						0.970	0.251	1.813	1.547		
Replicate Prob(F)						0.3905	0.7799	0.1806	0.2294		
Treatment F						1.175	3.295	1.103	0.920		
Treatment Prob(F)						0.3394	0.0021	0.3948	0.5603		

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Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7

Pest Code						AMAPA	IPOSS		
Pest Name						PalmerAm	mornnglry		
Crop Type, Code						C -	C -	C PHSLU	C PHSLU
Crop Name								LimaBean	LimaBean
Rating Type						Control	Control	Stunting	Yld20'row
Rating Unit						%	%	%	grams
Rating Date						08/17/16	08/17/16	08/31/16	10/11/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
11	No-tillage								
	Pursuit.....imazethapyr	2	AS	0.0313	lb ai/a	PRE	A	100.0 a	86.7 ab
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A		8.3 a
12	No-tillage							33.3 c	72.8 abc
	Untreated Check								0.0 a
13	Narrow band w/ no-till							100.0 a	89.3 ab
	Spartan Charge Premix	3.5	F	0.085	lb ai/a	PRE	A		21.0 a
	----carfentrazone	0.35		0.0085					
	----sulfentrazone	3.15		0.0765					
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A		
14	Narrow band w/ no-till							68.3 b	80.0 ab
	Spartan Charge Premix	3.5	F	0.103	lb ai/a	PRE	A		5.0 a
	----carfentrazone	0.35		0.0103					
	----sulfentrazone	3.15		0.093					
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A		
15	Narrow band w/ no-till							76.7 ab	51.7 bc
	Spartan Charge Premix	3.5	F	0.123	lb ai/a	PRE	A		6.3 a
	----carfentrazone	0.35		0.0123					
	----sulfentrazone	3.15		0.111					
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A		
16	Narrow band w/ no-till							100.0 a	71.7 abc
	Command.....clomazone	3	ME	0.094	lb ai/a	PRE	A		6.7 a
	Pursuit.....imazethapyr	2	AS	0.0313	lb ai/a	PRE	A		161.7 a
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A		
17	Narrow band w/ no-till							100.0 a	77.7 abc
	Pursuit.....imazethapyr	2	AS	0.0313	lb ai/a	PRE	A		6.7 a
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	A		91.0 a
18	Narrow band w/ no-till							31.7 c	70.0 abc
	Untreated Check								0.0 a
	LSD P=.05							30.58	43.14
	Standard Deviation							18.34	25.83
	CV							22.52	37.85
	Replicate F							2.364	3.328
	Replicate Prob(F)							0.1113	0.0500
	Treatment F							7.833	2.302
	Treatment Prob(F)							0.0001	0.0233
									0.419
									7.27
									133.61
									3.222
									0.1121
									0.268
									0.9150

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=6,7

Watermelon Variety Response to Reflex  
 Trial ID: Meln1-16      Location: Field #9      Trial Year: 2016  
 Protocol ID: Melon1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C CITLA Citrullus lanatus Watermelon      BBCH Scale: BVVT  
 Variety: multiple  
 Planting Date: 05/18/16      Planting Rate: 11 plot  
 Planting Method: HAND  
 Row Spacing: 7 ft      Planting Equipment: HA By Hand

**Site and Design**

Treated Plot Width: 7 FT      Site Type: FIELD field  
 Treated Plot Length: 35 FT  
 Treated Plot Area: 245 FT2      Treatments: 12      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: FACTOR Factorial

**Soil Description**

Description Name: Field 9  
 % Sand: 83      % OM: 1.4      Texture: LS      loamy sand  
 % Silt: 9      pH: 6.1      Soil Name: Pepperbox loamy sand, 0-2% slopes  
 % Clay: 8      CEC: 4.0      Fert. Level: F      fair  
 Soil Drainage: F      fair

**Application Description**

	A
Application Date	05/17/16
Appl. Stop Time	09:00 AM
Application Method	SPRAY
Application Timing	PRETRA
Application Placement	BROADC
Applied By	Scott
Air Temperature Start, Stop	61 F
% Relative Humidity Start, Stop	74
Wind Velocity+Dir. Start	1 mph W
Wet Leaves (Y/N)	N no
Soil Temperature	61 F
Soil Moisture	NORMAL
% Cloud Cover	70

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	4 NOZL
Operation Pressure	30 psi
Nozzle Type	XRTeejet
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	72 in
Boom Height	16 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/A
Propellant	COMCO2

**Trial Comments**

7187 variety lacks solid root ball and farther behind in vegetative growth than other varieties. 8/plot versus all other varieties at rate of 11/plot.

05/20/16: Few replants needed.

06/03/16: No phyto observed. All have environmental bronzing.

06/10/16: Plots 101, 108, 201, 212, 309 missing 1 plant. non herb related. plot 307 missing 2.



Watermelon Variety Response to Reflex					
Trial ID: Meln1-16		Location: Field #9		Trial Year: 2016	
Protocol ID: Melon1-16		Investigator: Mark VanGessel			
Study Director:					
Sponsor Contact:					
Crop Type, Code	C CITLA	C CITLA	C CITLA	C CITLA	
Crop Name	Watrmeln	Watrmeln	Watrmeln	Watrmeln	
Rating Type	Injury	Stunting	Stunting	Chlorosis	
Rating Unit	%	%	%	%	
Rating Date	05/26/16	06/03/16	06/10/16	06/10/16	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing Code
1 No Herbicide Under Plastic Secretariat (Sakata)					
	0.0 a	0.0 a	0.0 c	0.0 d	
2 No Herbicide Under Plastic Fascination (Syngenta)					
	0.0 a	0.0 a	0.0 c	0.0 d	
3 No Herbicide Under Plastic 7187 HQ (Nunhems)					
	0.0 a	0.0 a	0.0 c	0.0 d	
4 No Herbicide Under Plastic Troubadour (Harris Moran)					
	0.0 a	0.0 a	0.0 c	0.0 d	
5 No Herbicide Under Plastic Roadtrip (Seminis)					
	0.0 a	0.0 a	0.0 c	0.0 d	
6 No Herbicide Under Plastic Ace					
	0.0 a	0.0 a	0.0 c	0.0 d	
7 Reflex.....fomesafen Secretariat (Sakata)	2 L	0.375 lb ai/a	PrePlnt A		
	0.0 a	8.0 a	14.3 b	8.0 c	
8 Reflex.....fomesafen Fascination (Syngenta)	2 L	0.375 lb ai/a	PrePlnt A		
	3.3 a	3.3 a	13.3 b	7.0 c	
9 Reflex.....fomesafen 7187 HQ (Nunhems)	2 L	0.375 lb ai/a	PrePlnt A		
	0.0 a	8.3 a	10.7 bc	9.7 bc	
10 Reflex.....fomesafen Troubadour (Harris Moran)	2 L	0.375 lb ai/a	PrePlnt A		
	0.0 a	8.0 a	9.0 bc	14.0 a	
11 Reflex.....fomesafen Roadtrip (Seminis)	2 L	0.375 lb ai/a	PrePlnt A		
	3.3 a	6.7 a	6.7 bc	8.7 c	
12 Reflex.....fomesafen Ace	2 L	0.375 lb ai/a	PrePlnt A		
	8.3 a	9.0 a	27.7 a	12.7 ab	
LSD P=.05	5.56	8.03	12.16	3.82	
Standard Deviation	3.29	4.74	7.18	2.26	
CV	262.85	131.28	105.55	45.13	
Replicate F	0.579	2.526	0.117	0.196	
Replicate Prob(F)	0.5688	0.1029	0.8903	0.8231	
Treatment F	1.842	2.154	4.398	18.107	
Treatment Prob(F)	0.1073	0.0605	0.0015	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code						C CITLA	C CITLA	C CITLA	C CITLA		
Crop Name						Watmeln	Watmeln	Watmeln	Watmeln		
Rating Type						Stunting	yield	yield	yield		
Rating Unit						%	#	lbs	avgwt		
Rating Date						06/17/16	08/03/16	08/03/16	08/03/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Code				
1	No Herbicide Under Plastic Secretariat (Sakata)							0.0 c	10.6 ab	141 ab	13.3 cd
2	No Herbicide Under Plastic Fascination (Syngenta)							0.0 c	11.0 ab	172 ab	15.7 a
3	No Herbicide Under Plastic 7187 HQ (Nunhems)							0.0 c	8.3 b	115 b	13.2 cd
4	No Herbicide Under Plastic Troubadour (Harris Moran)							0.0 c	10.0 ab	134 ab	12.7 cd
5	No Herbicide Under Plastic Roadtrip (Seminis)							0.0 c	11.6 ab	163 ab	14.0 bc
6	No Herbicide Under Plastic Ace							0.0 c	0.0 c	0 c	0.0 e
7	Reflex.....fomesafen Secretariat (Sakata)	2 L		0.375 lb ai/a		PrePlnt A		3.3 bc	10.8 ab	145 ab	13.3 cd
8	Reflex.....fomesafen Fascination (Syngenta)	2 L		0.375 lb ai/a		PrePlnt A		2.7 bc	13.4 ab	210 a	15.4 ab
9	Reflex.....fomesafen 7187 HQ (Nunhems)	2 L		0.375 lb ai/a		PrePlnt A		10.0 b	8.6 b	139 ab	16.1 a
10	Reflex.....fomesafen Troubadour (Harris Moran)	2 L		0.375 lb ai/a		PrePlnt A		6.0 bc	15.7 a	200 a	12.5 d
11	Reflex.....fomesafen Roadtrip (Seminis)	2 L		0.375 lb ai/a		PrePlnt A		4.0 bc	12.5 ab	192 ab	15.1 ab
12	Reflex.....fomesafen Ace	2 L		0.375 lb ai/a		PrePlnt A		58.3 a	0.0 c	0 c	0.0 e
LSD P=.05						9.21	6.35 - 6.59	83.1	1.45		
Standard Deviation						5.44	0.55t	49.0	0.86		
CV						77.38	18.48t	36.51	7.28		
Replicate F						1.308	1.326	1.202	0.359		
Replicate Prob(F)						0.2905	0.2858	0.3197	0.7027		
Treatment F						27.485	11.943	5.927	129.329		
Treatment Prob(F)						0.0001	0.0001	0.0002	0.0001		

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Watermelon Variety Response to Reflex						
Trial ID: Meln1-16		Location: Field #9		Trial Year: 2016		
Protocol ID: Melon1-16		Investigator: Mark VanGessel		Study Director:		
Sponsor Contact:						
Crop Type, Code	C	CITLA	C	CITLA	C	CITLA
Crop Name	Watrmeln		Watrmeln		Watrmeln	
Rating Type	Injury		Stunting		Stunting	
Rating Unit	%		%		%	
Rating Date	05/26/16		06/03/16		06/10/16	
Trt Treatment	Form	Form	Rate	Appl	Appl	
No. Name	Conc	Type	Rate	Unit	Timing	Code
TABLE OF R MEANS						
Replicate 1	2.1		4.3		7.1	4.8
Replicate 2	0.8		5.3		7.3	4.8
Replicate 3	0.8		1.2		6.0	5.3
TABLE OF A (Reflex) MEANS						
1 No Herbicide Under Plastic	0.0 b		0.0 b		0.0 b	0.0 b
2 Reflex.....fomesafen	2.5 a		7.2 a		13.6 a	10.0 a
		2 L		0.375 lb ai/a	PrePlnt A	
LSD P=.05	2.27		3.28		4.97	1.56
Standard Deviation	3.29		4.74		7.18	2.26
CV	262.85		131.28		105.55	45.13
TABLE OF B (Variety) MEANS						
1 Secretariat (Sakata)	0.0 a		4.0 a		7.2 a	4.0 a
2 Fascination (Syngenta)	1.7 a		1.7 a		6.7 a	3.5 a
3 7187 HQ (Nunhems)	0.0 a		4.2 a		5.3 a	4.8 a
4 Troubadour (Harris Moran)	0.0 a		4.0 a		4.5 a	7.0 a
5 Roadtrip (Seminis)	1.7 a		3.3 a		3.3 a	4.3 a
6 Ace	4.2 a		4.5 a		13.8 a	6.3 a
LSD P=.05	3.93		5.68		8.60	2.70
Standard Deviation	3.29		4.74		7.18	2.26
CV	262.85		131.28		105.55	45.13
TABLE OF A (Reflex) B (Variety) MEANS						
1 No Herbicide Under Plastic	0.0 a		0.0 a		0.0 a	0.0 a
1 Secretariat (Sakata)						
2 Reflex.....fomesafen	0.0 a		8.0 a		14.3 a	8.0 a
		2 L		0.375 lb ai/a	PrePlnt A	
1 Secretariat (Sakata)						
1 No Herbicide Under Plastic	0.0 a		0.0 a		0.0 a	0.0 a
2 Fascination (Syngenta)						
2 Reflex.....fomesafen	3.3 a		3.3 a		13.3 a	7.0 a
		2 L		0.375 lb ai/a	PrePlnt A	
2 Fascination (Syngenta)						
1 No Herbicide Under Plastic	0.0 a		0.0 a		0.0 a	0.0 a
3 7187 HQ (Nunhems)						
2 Reflex.....fomesafen	0.0 a		8.3 a		10.7 a	9.7 a
		2 L		0.375 lb ai/a	PrePlnt A	
3 7187 HQ (Nunhems)						
1 No Herbicide Under Plastic	0.0 a		0.0 a		0.0 a	0.0 a
4 Troubadour (Harris Moran)						
2 Reflex.....fomesafen	0.0 a		8.0 a		9.0 a	14.0 a
		2 L		0.375 lb ai/a	PrePlnt A	
4 Troubadour (Harris Moran)						
1 No Herbicide Under Plastic	0.0 a		0.0 a		0.0 a	0.0 a
5 Roadtrip (Seminis)						
2 Reflex.....fomesafen	3.3 a		6.7 a		6.7 a	8.7 a
		2 L		0.375 lb ai/a	PrePlnt A	
5 Roadtrip (Seminis)						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Crop Type, Code						C CITLA	C CITLA	C CITLA	C CITLA	
Crop Name						Watmeln	Watmeln	Watmeln	Watmeln	
Rating Type						Stunting	yield	yield	yield	
Rating Unit						%	#	lbs	avgwt	
Rating Date						06/17/16	08/03/16	08/03/16	08/03/16	
Trt Treatment	Form	Form	Rate	Appl	Appl					
No. Name	Conc	Type	Rate	Unit	Timing	Code				
TABLE OF R MEANS										
Replicate 1						5.0	9.5	152	11.6	
Replicate 2						7.7	7.9	130	11.9	
Replicate 3						8.4	7.5	121	11.8	
TABLE OF A (Reflex) MEANS										
1 No Herbicide Under Plastic						0.0 b	7.6 a	121 a	11.5 a	
2 Reflex.....fomesafen 2 L 0.375 lb ai/a PrePlnt A						14.1 a	9.0 a	148 a	12.1 a	
LSD P=.05						3.76	2.18 - 2.30	33.9	0.59	
Standard Deviation						5.44	0.55t	49.0	0.86	
CV						77.38	18.48t	36.5	7.28	
TABLE OF B (Variety) MEANS										
1 Secretariat (Sakata)						1.7 b	10.7 a	143 ab	13.3 b	
2 Fascination (Syngenta)						1.3 b	12.2 a	191 a	15.5 a	
3 7187 HQ (Nunhems)						5.0 b	8.4 a	127 b	14.7 a	
4 Troubadour (Harris Moran)						3.0 b	12.7 a	167 ab	12.6 b	
5 Roadtrip (Seminis)						2.0 b	12.0 a	178 ab	14.6 a	
6 Ace						29.2 a	0.0 b	0 c	0.0 c	
LSD P=.05						6.51	4.33 - 4.35	58.7	1.03	
Standard Deviation						5.44	0.55t	49.0	0.86	
CV						77.38	18.48t	36.5	7.28	
TABLE OF A (Reflex) B (Variety) MEANS										
1 No Herbicide Under Plastic						0.0 c	10.6 a	141 a	13.3 cd	
1 Secretariat (Sakata)										
2 Reflex.....fomesafen 2 L 0.375 lb ai/a PrePlnt A						3.3 bc	10.8 a	145 a	13.3 cd	
1 Secretariat (Sakata)										
1 No Herbicide Under Plastic						0.0 c	11.0 a	172 a	15.7 a	
2 Fascination (Syngenta)										
2 Reflex.....fomesafen 2 L 0.375 lb ai/a PrePlnt A						2.7 bc	13.4 a	210 a	15.4 ab	
2 Fascination (Syngenta)										
1 No Herbicide Under Plastic						0.0 c	8.3 a	115 a	13.2 cd	
3 7187 HQ (Nunhems)										
2 Reflex.....fomesafen 2 L 0.375 lb ai/a PrePlnt A						10.0 b	8.6 a	139 a	16.1 a	
3 7187 HQ (Nunhems)										
1 No Herbicide Under Plastic						0.0 c	10.0 a	134 a	12.7 cd	
4 Troubadour (Harris Moran)										
2 Reflex.....fomesafen 2 L 0.375 lb ai/a PrePlnt A						6.0 bc	15.7 a	200 a	12.5 d	
4 Troubadour (Harris Moran)										
1 No Herbicide Under Plastic						0.0 c	11.6 a	163 a	14.0 bc	
5 Roadtrip (Seminis)										
2 Reflex.....fomesafen 2 L 0.375 lb ai/a PrePlnt A						4.0 bc	12.5 a	192 a	15.1 ab	
5 Roadtrip (Seminis)										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Crop Type, Code							C	CITLA	C	CITLA	C	CITLA	C	CITLA	
Crop Name							Watrmeln	Watrmeln	Watrmeln	Watrmeln	Watrmeln	Watrmeln	Watrmeln	Watrmeln	Watrmeln
Rating Type							Injury	Stunting	Stunting	Stunting	Chlrosis				
Rating Unit							%	%	%	%	%				
Rating Date							05/26/16	06/03/16	06/10/16	06/10/16					
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code								
1	No Herbicide Under Plastic							0.0 a	0.0 a	0.0 a	0.0 a				
6	Ace														
2	Reflex.....fomesafen	2 L		0.375 lb ai/a		PrePlnt A		8.3 a	9.0 a	27.7 a	12.7 a				
6	Ace														
LSD P=.05							5.56	8.03	12.16	3.82					
Standard Deviation							3.29	4.74	7.18	2.26					
CV							262.85	131.28	105.55	45.13					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Crop Type, Code						C CITLA	C CITLA	C CITLA	C CITLA		
Crop Name						Watmeln	Watmeln	Watmeln	Watmeln		
Rating Type						Stunting	yield	yield	yield		
Rating Unit						%	#	lbs	avgwt		
Rating Date						06/17/16	08/03/16	08/03/16	08/03/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	No Herbicide Under Plastic							0.0 c	0.0 a	0 a	0.0 e
6	Ace										
2	Reflex.....fomesafen	2 L		0.375 lb ai/a		PrePlnt A		58.3 a	0.0 a	0 a	0.0 e
6	Ace										
LSD P=.05						9.21	6.35 - 6.59	83.1	1.45		
Standard Deviation						5.44	0.55t	49.0	0.86		
CV						77.38	18.48t	36.5	7.28		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
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FACTORIAL/POOLED ERROR AOV For C CITLA Watrmeln Injury % 05/26/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	468.750000				
R	2	12.500000	6.250000	0.579	0.5688	
A	1	56.250000	56.250000	5.211	0.0325	2.3
B	5	81.250000	16.250000	1.505	0.2287	3.9
AB	5	81.250000	16.250000	1.505	0.2287	5.6
ERROR	22	237.500000	10.795455			

FACTORIAL/POOLED ERROR AOV For C CITLA Watrmeln Stunting % 06/03/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1140.555556				
R	2	113.555556	56.777778	2.526	0.1029	
A	1	469.444444	469.444444	20.888	0.0001	3.3
B	5	31.555556	6.311111	0.281	0.9186	5.7
AB	5	31.555556	6.311111	0.281	0.9186	8.0
ERROR	22	494.444444	22.474747			

FACTORIAL/POOLED ERROR AOV For C CITLA Watrmeln Stunting % 06/10/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	3643.638889				
R	2	12.055556	6.027778	0.117	0.8903	
A	1	1667.361111	1667.361111	32.311	0.0001	5.0
B	5	414.472222	82.894444	1.606	0.2000	8.6
AB	5	414.472222	82.894444	1.606	0.2000	12.2
ERROR	22	1135.277778	51.603535			

FACTORIAL/POOLED ERROR AOV For C CITLA Watrmeln Chlrosis % 06/10/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1128.000000				
R	2	2.000000	1.000000	0.196	0.8231	
A	1	900.000000	900.000000	176.786	0.0001	1.6
B	5	57.000000	11.400000	2.239	0.0864	2.7
AB	5	57.000000	11.400000	2.239	0.0864	3.8
ERROR	22	112.000000	5.090909			

FACTORIAL/POOLED ERROR AOV For C CITLA Watrmeln Stunting % 06/17/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	9668.972222				
R	2	77.388889	38.694444	1.308	0.2905	
A	1	1778.027778	1778.027778	60.123	0.0001	3.8
B	5	3581.472222	716.294444	24.221	0.0001	6.5
AB	5	3581.472222	716.294444	24.221	0.0001	9.2
ERROR	22	650.611111	29.573232			

FACTORIAL/POOLED ERROR AOV For C CITLA Watrmeln yield # 08/03/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	46.780874				
R	2	0.795392	0.397696	1.326	0.2858	
A	1	0.443315	0.443315	1.479	0.2369	2.2 - 2.3
B	5	38.285250	7.657050	25.538	0.0001	4.3 - 4.4
AB	5	0.660691	0.132138	0.441	0.8152	6.3 - 6.6
ERROR	22	6.596226	0.299828			

FACTORIAL/POOLED ERROR AOV For C CITLA Watrmeln yield lbs 08/03/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	215559.562256				
R	2	5781.154156	2890.577078	1.202	0.3197	
A	1	6426.160011	6426.160011	2.671	0.1164	34
B	5	146088.324989	29217.664998	12.145	0.0001	59
AB	5	4337.692189	867.538438	0.361	0.8698	83
ERROR	22	52926.230911	2405.737769			

FACTORIAL/POOLED ERROR AOV For C CITLA Watrmeln yield avgwt 08/03/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1064.231734				
R	2	0.527997	0.263999	0.359	0.7027	
A	1	3.104566	3.104566	4.216	0.0521	0.6
B	5	1032.602075	206.520415	280.476	0.0001	1.0
AB	5	11.798017	2.359603	3.205	0.0253	1.5
ERROR	22	16.199078	0.736322			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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## University of Delaware

Experimental Herbicides for Row Middles in Watermelons and Cantaloupes  
 Trial ID: Meln3-16      Location: Field #9      Trial Year: 2016  
 Protocol ID: Meln3-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C CITLA    Citrullus lanatus      Watermelon      BBCH Scale: BVVT  
 Variety: 7187  
 Planting Date: 06/01/16  
 Row Spacing: 7      FT

Crop 2: C CUMMC    Cucumis melo cantaloupensis    Cantaloup melon    BBCH Scale: BVVT  
 Variety: Aphrodite  
 Planting Date: 06/01/16  
 Row Spacing: 7      FT

**Pest Description**

Pest 1 Type: W    Code: AMAPA    Amaranthus palmeri  
 Common Name: Palmer amaranth

Pest 2 Type: W    Code: AMBEL    Ambrosia artemisiifolia  
 Common Name: Common ragweed

Pest 3 Type: W    Code: CHEAL    Chenopodium album  
 Common Name: Common lambsquarters

Pest 4 Type: W    Code: DIGSA    Digitaria sanguinalis  
 Common Name: large crabgrass

Pest 5 Type: W    Code: ERACN    Eragrostis confertiflora  
 Common Name: Stinkgrass

Pest 6 Type: W    Code: ELEIN    Eleusine indica  
 Common Name: Goosegrass

Pest 7 Type: W    Code: IPOSS    Ipomoea sp.  
 Common Name: Morningglory

**Site and Design**

Treated Plot Width: 7 FT      Site Type: FIELD    field  
 Treated Plot Length: 55 FT  
 Treated Plot Area: 385 FT<sup>2</sup>    Treatments: 10    Tillage Type: CONTIL    conventional-till  
 Replications: 3      Study Design: RACOB    Randomized Complete Block (RCB)

**Soil Description**

% Sand: 83    % OM: 1.0    Texture: LS loamy sand  
 % Silt: 9      pH: 6.1  
 % Clay: 8      CEC: 3.9    Fert. Level: G good  
 Soil Drainage: G good



**Application Description**

	A	B
Application Date	06/15/16	06/15/16
Appl. Stop Time	11:30 AM	01:30 PM
Interval to Prev. Appl.	DAYS	DAYS
Application Method	SPRAY	SPRAY
Application Timing	Hood-Applic	Dir-POST
Application Placement	BRODIR	Hooded
Applied By	Johnson	VanGessl
Air Temperature Start, Stop	70 F	71 F
% Relative Humidity Start, Stop	72	66
Wind Velocity+Dir. Start	1 mph SE	3 mph E
Wet Leaves (Y/N)	N no	N no
Soil Temperature	70 F	71 F
Soil Moisture	DRY	DRY
% Cloud Cover	85	90

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	CITLA BVVT	CITLA BVVT
Stage Scale Used	DESC	DESC
Stage Majority, Percent	running 100	running 100
Height Average	16 in	16 in
Height Minimum, Maximum	15 18	15 18
Crop 2 Code, BBCH Scale	CUMMC BVVT	CUMMC BVVT
Stage Scale Used	DESC	DESC
Stage Majority, Percent	running 100	running 100
Height Average	16 in	16 in
Height Minimum, Maximum	15 18	15 18

<b>Pest Stage At Each Application</b>		
	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent	veg 100	veg 100
Height Average	6 in	6 in
Height Minimum, Maximum	2 9	2 9
Density Average	10 m2	10 m2
Pest 2 Code, Type, Scale	AMBEL W	AMBEL W
Stage Majority, Percent	veg 100	veg 100
Height Average	5 in	5 in
Height Minimum, Maximum	2 7	2 7
Density Average	20 m2	20 m2
Pest 3 Code, Type, Scale	CHEAL W	CHEAL W
Stage Majority, Percent	veg 100	veg 100
Height Average	4 in	4 in
Height Minimum, Maximum	2 6	2 6
Density Average	8 m2	8 m2
Pest 4 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent	2-5tlr 100	2-5tlr 100
Height Average	6 in	6 in
Height Minimum, Maximum	3 9	3 9
Density Average	20 m2	20 m2
Pest 5 Code, Type, Scale	ERACN W	ERACN W
Stage Majority, Percent	2-5tlr 100	2-5tlr 100
Height Average	6 in	6 in
Height Minimum, Maximum	3 9	3 9
Density Average	20 m2	20 m2
Pest 6 Code, Type, Scale	ELEIN W	ELEIN W
Stage Majority, Percent	2-5tlr 100	2-5tlr 100
Height Average	6 in	6 in
Height Minimum, Maximum	3 9	3 9
Density Average	20 m2	20 m2
Pest 7 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent	veg 100	veg 100
Height Average	3 in	3 in
Height Minimum, Maximum	2 4	2 4
Density Average	2 m2	2 m2

<b>Application Equipment</b>		
	A	B
Appl. Equipment	Tractor	Backpack
Equipment Type	TRMOSP	SPRBAC
Operation Pressure	40 psi	18 psi
Nozzle Type	AIRMIX	XRTEEJET
Nozzle Size	11002	11002
Nozzle Spacing	20 in	16 in
Boom Length	10 ft	1.5 ft
Boom Height	24 in	10 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Propellant	COMAIR	COMCO2

Experimental Herbicides for Row Middles in Watermelons and Cantaloupes  
Trial ID: Meln3-16      Location: Field #9      Trial Year: 2016  
Protocol ID: Meln3-16      Investigator: Mark VanGessel  
Study Director:  
Sponsor Contact:

Trial Comments

06/20/16: plots 108 and 109, plots (rows) are close here and both got some injury.

Cantaloupes: plot 202, last 2 plants have greater injury than rest; plot 209 has 1 plant severely stunted unrelated to herbicide appl.; plot 301 has 1 dead plant unrelated to herbicide injury. Last range of trial, plots 305-310 appear to be in a carryover location; no data from here. Also last range is low ground and weed population is minimal, thus 100% coverage here.

08/10/16: Annual grasses = large crabgrass, goosegrass, stinkgrass. Rep 3, last range, plots 305-310 have minimum population of weeds.

Experimental Herbicides for Row Middles in Watermelons and Cantaloupes			
Trial ID: Meln3-16	Location: Field #9	Trial Year: 2016	
Protocol ID: Meln3-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Pest Code							AMAPA	
Pest Name							PalmerAm	
Crop Type, Code					C CITLA	C CUMMC	C -	
Crop Name					Watrmeln	Cantlope		
Rating Type					LeafBrn	LeafBrn	Control	
Rating Unit					%	%	%	
Rating Date					06/20/16	06/20/16	06/20/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 e
2	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 lb ai/a 10 lb/100 gal		Hood Applic A Hood Applic A		5.7 bcd 12.3 bcd 86.0 d
3	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	1.17 lb ai/a 10 lb/100 gal		Hood Applic A Hood Applic A		3.5 cd 10.0 cd 89.0 bcd
4	Rely 280.....glufosinate Dry Ammonium Sulfate Dual Magnum.....s-metolachlor	2.34 100 7.62	SL D E	0.585 lb ai/a 10 lb/100 gal 0.95 lb ai/a		Hood Applic A Hood Applic A Hood Applic A		0.0 d 11.5 bcd 93.3 abc
5	Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen	2.34 100 2	SL D L	0.585 lb ai/a 10 lb/100 gal 0.375 lb ai/a		Hood Applic A Hood Applic A Hood Applic A		1.7 cd 15.5 a-d 86.0 d
6	Gramoxone SL.....paraquat Nonionic Surfactant	2 100	SL L	1 lb ai/a 0.25 % v/v		Hood Applic A Hood Applic A		11.7 abc 22.0 a 96.0 ab
7	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 lb ai/a 10 lb/100 gal		Dir-POST B Dir-POST B		16.7 ab 19.3 ab 87.7 cd
8	Gramoxone SL.....paraquat Nonionic Surfactant	2 100	SL L	1 lb ai/a 0.25 % v/v		Dir-POST B Dir-POST B		18.5 a 17.5 abc 99.3 a
9	Gramoxone SL.....paraquat Nonionic Surfactant Reflex.....fomesafen Dual Magnum.....s-metolachlor	2 100 2 7.62	SL L L E	0.6 lb ai/a 0.25 % v/v 0.25 lb ai/a 1.43 lb ai/a		Hood Applic A Hood Applic A Hood Applic A Hood Applic A		6.0 bcd 17.0 abc 96.7 a
10	Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen Dual Magnum.....s-metolachlor	2.34 100 2 7.62	SL D L E	0.585 lb ai/a 10 lb/100 gal 0.25 lb ai/a 1.43 lb ai/a		Hood Applic A Hood Applic A Hood Applic A Hood Applic A		1.7 cd 9.0 d 96.7 a
LSD P=.05								11.65 7.95 7.04
Standard Deviation								6.55 4.47 4.10
CV								100.14 33.26 4.94
Replicate F								3.171 5.941 0.417
Replicate Prob(F)								0.0784 0.0161 0.6649
Treatment F								3.229 5.982 155.919
Treatment Prob(F)								0.0311 0.0027 0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,8,9,14,15,19,20,29,30,31

Could not calculate LSD (% mean diff) for columns 19,20 because error mean square = 0.

Pest Code						AMBEL	IPOSS	ERAME	ELEIN
Pest Name						C.ragwd	Morngrly	Stnkgrs	Goosegrs
Crop Type, Code						C -	C -	C -	C -
Crop Name						Control	Control	Control	Control
Rating Type						%	%	%	%
Rating Unit						06/20/16	06/20/16	06/20/16	06/20/16
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 c	0.0 e
2	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 10	lb ai/a lb/100 gal	Hood Applic A Hood Applic A		92.3 ab	79.0 cd
3	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	1.17 10	lb ai/a lb/100 gal	Hood Applic A Hood Applic A		90.7 b	81.7 bc
4	Rely 280.....glufosinate Dry Ammonium Sulfate Dual Magnum.....s-metolachlor	2.34 100 7.62	SL D E	0.585 10 0.95	lb ai/a lb/100 gal lb ai/a	Hood Applic A Hood Applic A Hood Applic A		94.3 ab	90.0 abc
5	Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen	2.34 100 2	SL D L	0.585 10 0.375	lb ai/a lb/100 gal lb ai/a	Hood Applic A Hood Applic A Hood Applic A		91.7 ab	69.3 d
6	Gramoxone SL.....paraquat Nonionic Surfactant	2 100	SL L	1 0.25	lb ai/a % v/v	Hood Applic A Hood Applic A		96.7 ab	92.0 ab
7	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 10	lb ai/a lb/100 gal	Dir-POST B Dir-POST B		88.7 b	87.3 abc
8	Gramoxone SL.....paraquat Nonionic Surfactant	2 100	SL L	1 0.25	lb ai/a % v/v	Dir-POST B Dir-POST B		99.3 a	97.7 a
9	Gramoxone SL.....paraquat Nonionic Surfactant Reflex.....fomesafen Dual Magnum.....s-metolachlor	2 100 2 7.62	SL L L E	0.6 0.25 0.25 1.43	lb ai/a % v/v lb ai/a lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A		96.7 ab	90.0 abc
10	Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen Dual Magnum.....s-metolachlor	2.34 100 2 7.62	SL D L E	0.585 10 0.25 1.43	lb ai/a lb/100 gal lb ai/a lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A		96.7 ab	93.3 a
LSD P=.05								8.14	11.29
Standard Deviation								4.75	6.58
CV								5.6	8.43
Replicate F								0.497	3.482
Replicate Prob(F)								0.6164	0.0527
Treatment F								119.360	56.690
Treatment Prob(F)								0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Missing data estimates are included in columns: Yates=1,2,8,9,14,15,19,20,29,30,31

Could not calculate LSD (% mean diff) for columns 19,20 because error mean square = 0.

Pest Code Pest Name						C CITLA	C CUMMC	AMAPA PalmerAm
Crop Type, Code								C -
Crop Name Rating Type Rating Unit Rating Date						Watrmeln Stunting %	Cantlope Stunting %	Control %
					06/28/16	06/28/16	06/28/16	
Trt Treatment No. Name	Form Form Conc Type	Rate Rate Unit	Appl Timing	Appl Code				
1 Untreated Check						0.0 a	0.0 a	0.0 e
2 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.585 lb ai/a 10 lb/100 gal	Hood Applic A Hood Applic A		0.0 a	0.0 a	83.3 d	
3 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	1.17 lb ai/a 10 lb/100 gal	Hood Applic A Hood Applic A		0.0 a	0.0 a	91.7 bc	
4 Rely 280.....glufosinate Dry Ammonium Sulfate Dual Magnum.....s-metolachlor	2.34 SL 100 D 7.62 E	0.585 lb ai/a 10 lb/100 gal 0.95 lb ai/a	Hood Applic A Hood Applic A Hood Applic A		0.0 a	0.0 a	98.3 ab	
5 Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen	2.34 SL 100 D 2 L	0.585 lb ai/a 10 lb/100 gal 0.375 lb ai/a	Hood Applic A Hood Applic A Hood Applic A		0.0 a	0.0 a	81.3 d	
6 Gramoxone SL.....paraquat Nonionic Surfactant	2 SL 100 L	1 lb ai/a 0.25 % v/v	Hood Applic A Hood Applic A		0.0 a	0.0 a	100.0 a	
7 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.585 lb ai/a 10 lb/100 gal	Dir-POST B Dir-POST B		5.0 a	7.3 a	91.0 c	
8 Gramoxone SL.....paraquat Nonionic Surfactant	2 SL 100 L	1 lb ai/a 0.25 % v/v	Dir-POST B Dir-POST B		0.0 a	5.1 a	100.0 a	
9 Gramoxone SL.....paraquat Nonionic Surfactant Reflex.....fomesafen Dual Magnum.....s-metolachlor	2 SL 100 L 2 L 7.62 E	0.6 lb ai/a 0.25 % v/v 0.25 lb ai/a 1.43 lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A		0.0 a	0.0 a	100.0 a	
10 Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen Dual Magnum.....s-metolachlor	2.34 SL 100 D 2 L 7.62 E	0.585 lb ai/a 10 lb/100 gal 0.25 lb ai/a 1.43 lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A		0.0 a	0.0 a	94.3 abc	
LSD P=.05						5.97	9.32	7.10
Standard Deviation						3.35	5.24	4.14
CV						670.82	421.08	4.93
Replicate F						0.667	1.281	1.650
Replicate Prob(F)						0.5314	0.3131	0.2198
Treatment F						0.667	0.782	160.363
Treatment Prob(F)						0.7247	0.6376	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,8,9,14,15,19,20,29,30,31

Could not calculate LSD (% mean diff) for columns 19,20 because error mean square = 0.

Pest Code Pest Name	IPOSS Morngrly		ERAME Stnkgrs	ELEIN Goosegrs	
Crop Type, Code	C -		C -	C -	C CITLA
Crop Name Rating Type Rating Unit Rating Date	Control %		Control %	Control %	Watrmeln Stunting %
	06/28/16	06/28/16	06/28/16	07/05/16	
Trt Treatment No. Name	Form Form Conc Type	Rate Rate Unit	Appl Timing	Appl Code	
1 Untreated Check					0.0 d 0.0 d 0.0 d 0.0 a
2 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.585 lb ai/a 10 lb/100 gal	Hood Applic A Hood Applic A		80.0 bc 78.3 b 78.3 b 0.0 a
3 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	1.17 lb ai/a 10 lb/100 gal	Hood Applic A Hood Applic A		86.0 abc 80.0 b 81.7 b 0.0 a
4 Rely 280.....glufosinate Dry Ammonium Sulfate Dual Magnum.....s-metolachlor	2.34 SL 100 D 7.62 E	0.585 lb ai/a 10 lb/100 gal 0.95 lb ai/a	Hood Applic A Hood Applic A Hood Applic A		90.0 a 88.3 ab 88.3 ab 0.0 a
5 Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen	2.34 SL 100 D 2 L	0.585 lb ai/a 10 lb/100 gal 0.375 lb ai/a	Hood Applic A Hood Applic A Hood Applic A		78.3 c 60.7 c 61.7 c 0.0 a
6 Gramoxone SL.....paraquat Nonionic Surfactant	2 SL 100 L	1 lb ai/a 0.25 % v/v	Hood Applic A Hood Applic A		90.0 a 86.7 ab 86.7 ab 0.0 a
7 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.585 lb ai/a 10 lb/100 gal	Dir-POST B Dir-POST B		85.0 abc 75.7 b 76.7 b 2.3 a
8 Gramoxone SL.....paraquat Nonionic Surfactant	2 SL 100 L	1 lb ai/a 0.25 % v/v	Dir-POST B Dir-POST B		93.3 a 95.0 a 95.0 a 4.7 a
9 Gramoxone SL.....paraquat Nonionic Surfactant Reflex.....fomesafen Dual Magnum.....s-metolachlor	2 SL 100 L 2 L 7.62 E	0.6 lb ai/a 0.25 % v/v 0.25 lb ai/a 1.43 lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A		88.3 ab 83.7 ab 87.0 ab 0.0 a
10 Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen Dual Magnum.....s-metolachlor	2.34 SL 100 D 2 L 7.62 E	0.585 lb ai/a 10 lb/100 gal 0.25 lb ai/a 1.43 lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A		91.7 a 87.7 ab 86.7 ab 0.0 a
LSD P=.05					9.48 12.85 13.06 4.22
Standard Deviation					5.52 7.49 7.62 2.37
CV					7.06 10.18 10.26 336.58
Replicate F					1.200 2.941 3.177 1.399
Replicate Prob(F)					0.3241 0.0785 0.0658 0.2844
Treatment F					76.633 40.359 39.358 1.345
Treatment Prob(F)					0.0001 0.0001 0.0001 0.3100

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Missing data estimates are included in columns: Yates=1,2,8,9,14,15,19,20,29,30,31

Could not calculate LSD (% mean diff) for columns 19,20 because error mean square = 0.

Pest Code Pest Name						AMAPA PalmerAm	IPOSS Morngrly	
Crop Type, Code	C CUMMC					C -	C -	
Crop Name Rating Type Rating Unit Rating Date	Cantlope Stunting % 07/05/16					Control % 07/05/16	Control % 07/05/16	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1 Untreated Check						0.0 a	0.0 g	0.0 d
2 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 10	lb ai/a lb/100 gal	Hood Applic A Hood Applic A	0.0 a	83.3 de	80.0 bc
3 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	1.17 10	lb ai/a lb/100 gal	Hood Applic A Hood Applic A	6.4 a	79.0 ef	80.7 bc
4 Rely 280.....glufosinate Dry Ammonium Sulfate Dual Magnum.....s-metolachlor	2.34 100 7.62	SL D E	0.585 10 0.95	lb ai/a lb/100 gal lb ai/a	Hood Applic A Hood Applic A Hood Applic A	0.0 a	89.0 cd	87.3 ab
5 Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen	2.34 100 2	SL D L	0.585 10 0.375	lb ai/a lb/100 gal lb ai/a	Hood Applic A Hood Applic A Hood Applic A	0.0 a	73.3 f	75.7 c
6 Gramoxone SL.....paraquat Nonionic Surfactant	2 100	SL L	1 0.25	lb ai/a % v/v	Hood Applic A Hood Applic A	4.0 a	97.7 a	89.3 a
7 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 10	lb ai/a lb/100 gal	Dir-POST B Dir-POST B	5.0 a	89.3 bcd	77.7 c
8 Gramoxone SL.....paraquat Nonionic Surfactant	2 100	SL L	1 0.25	lb ai/a % v/v	Dir-POST B Dir-POST B	2.9 a	97.0 ab	89.3 a
9 Gramoxone SL.....paraquat Nonionic Surfactant Reflex.....fomesafen Dual Magnum.....s-metolachlor	2 100 2 7.62	SL L L E	0.6 0.25 0.25 1.43	lb ai/a % v/v lb ai/a lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A	0.0 a	96.7 abc	91.0 a
10 Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen Dual Magnum.....s-metolachlor	2.34 100 2 7.62	SL D L E	0.585 10 0.25 1.43	lb ai/a lb/100 gal lb ai/a lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A	0.0 a	92.0 abc	91.7 a
LSD P=.05						9.72	7.91	7.46
Standard Deviation						5.46	4.61	4.35
CV						297.92	5.78	5.7
Replicate F						0.782	7.559	2.169
Replicate Prob(F)						0.4793	0.0041	0.1433
Treatment F						0.639	120.024	119.267
Treatment Prob(F)						0.7461	0.0001	0.0001

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Pest Code						GGGAN					
Pest Name						AnnGrass					
Crop Type, Code						C - C	CITLA	C CUMMC			
Crop Name						Control	Watrmeln	Cantlope			
Rating Type						%	Stunting	Stunting			
Rating Unit							%	%			
Rating Date						07/05/16	08/10/16	08/10/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 d	0.0 a	0.0 a	
2	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 10	lb ai/a lb/100 gal	Hood Hood	Applic Applic	A A	77.3 b	0.0 a	0.0 a
3	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	1.17 10	lb ai/a lb/100 gal	Hood Hood	Applic Applic	A A	74.7 b	0.0 a	0.0 a
4	Rely 280.....glufosinate Dry Ammonium Sulfate Dual Magnum.....s-metolachlor	2.34 100 7.62	SL D E	0.585 10 0.95	lb ai/a lb/100 gal lb ai/a	Hood Hood Hood	Applic Applic Applic	A A A	89.3 a	0.0 a	0.0 a
5	Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen	2.34 100 2	SL D L	0.585 10 0.375	lb ai/a lb/100 gal lb ai/a	Hood Hood Hood	Applic Applic Applic	A A A	63.3 c	0.0 a	0.0 a
6	Gramoxone SL.....paraquat Nonionic Surfactant	2 100	SL L	1 0.25	lb ai/a % v/v	Hood Hood	Applic Applic	A A	90.0 a	0.0 a	0.0 a
7	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 10	lb ai/a lb/100 gal	Dir-POST Dir-POST	B B		82.0 ab	0.0 a	0.0 a
8	Gramoxone SL.....paraquat Nonionic Surfactant	2 100	SL L	1 0.25	lb ai/a % v/v	Dir-POST Dir-POST	B B		88.7 a	0.0 a	0.0 a
9	Gramoxone SL.....paraquat Nonionic Surfactant Reflex.....fomesafen Dual Magnum.....s-metolachlor	2 100 2 7.62	SL L L E	0.6 0.25 0.25 1.43	lb ai/a % v/v lb ai/a lb ai/a	Hood Hood Hood Hood	Applic Applic Applic Applic	A A A A	83.3 ab	0.0 a	0.0 a
10	Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen Dual Magnum.....s-metolachlor	2.34 100 2 7.62	SL D L E	0.585 10 0.25 1.43	lb ai/a lb/100 gal lb ai/a lb ai/a	Hood Hood Hood Hood	Applic Applic Applic Applic	A A A A	90.7 a	0.0 a	0.0 a
LSD P=.05						10.00	.	.			
Standard Deviation						5.83	0.00	0.00			
CV						7.88	0.0	0.0			
Replicate F						9.475	0.000	0.000			
Replicate Prob(F)						0.0015	1.0000	1.0000			
Treatment F						66.130	0.000	0.000			
Treatment Prob(F)						0.0001	1.0000	1.0000			

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Missing data estimates are included in columns: Yates=1,2,8,9,14,15,19,20,29,30,31

Could not calculate LSD (% mean diff) for columns 19,20 because error mean square = 0.

Pest Code Pest Name			AMAPA PalmerAm	GGGAN AnnGrass	
Crop Type, Code			C -	C -	C CITLA
Crop Name Rating Type Rating Unit Rating Date			Control % 08/10/16	Control % 08/10/16	Watmeln YldTtl #/plot
Trt Treatment No. Name	Form Form Conc Type	Rate Rate Unit	Appl Timing	Appl Code	
1 Untreated Check					0.0 d 0.0 e 7.7 a
2 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.585 lb ai/a 10 lb/100 gal	Hood Applic A Hood Applic A		60.0 bc 61.7 d 11.7 a
3 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	1.17 lb ai/a 10 lb/100 gal	Hood Applic A Hood Applic A		65.0 abc 67.7 bcd 11.7 a
4 Rely 280.....glufosinate Dry Ammonium Sulfate Dual Magnum.....s-metolachlor	2.34 SL 100 D 7.62 E	0.585 lb ai/a 10 lb/100 gal 0.95 lb ai/a	Hood Applic A Hood Applic A Hood Applic A		61.7 bc 78.7 a-d 13.3 a
5 Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen	2.34 SL 100 D 2 L	0.585 lb ai/a 10 lb/100 gal 0.375 lb ai/a	Hood Applic A Hood Applic A Hood Applic A		64.3 bc 64.0 cd 14.3 a
6 Gramoxone SL.....paraquat Nonionic Surfactant	2 SL 100 L	1 lb ai/a 0.25 % v/v	Hood Applic A Hood Applic A		86.0 ab 78.3 a-d 11.7 a
7 Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.585 lb ai/a 10 lb/100 gal	Dir-POST B Dir-POST B		57.7 c 69.3 a-d 10.3 a
8 Gramoxone SL.....paraquat Nonionic Surfactant	2 SL 100 L	1 lb ai/a 0.25 % v/v	Dir-POST B Dir-POST B		77.7 abc 85.7 ab 8.3 a
9 Gramoxone SL.....paraquat Nonionic Surfactant Reflex.....fomesafen Dual Magnum.....s-metolachlor	2 SL 100 L 2 L 7.62 E	0.6 lb ai/a 0.25 % v/v 0.25 lb ai/a 1.43 lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A		92.3 a 86.7 a 9.7 a
10 Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen Dual Magnum.....s-metolachlor	2.34 SL 100 D 2 L 7.62 E	0.585 lb ai/a 10 lb/100 gal 0.25 lb ai/a 1.43 lb ai/a	Hood Applic A Hood Applic A Hood Applic A Hood Applic A		81.0 abc 81.7 abc 14.3 a
LSD P=.05					27.89 18.28 5.03
Standard Deviation					16.26 10.65 2.83
CV					25.18 15.82 25.04
Replicate F					3.178 7.242 0.518
Replicate Prob(F)					0.0658 0.0049 0.6085
Treatment F					7.461 16.873 1.984
Treatment Prob(F)					0.0002 0.0001 0.1335

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Missing data estimates are included in columns: Yates=1,2,8,9,14,15,19,20,29,30,31

Could not calculate LSD (% mean diff) for columns 19,20 because error mean square = 0.

Pest Code Pest Name Crop Type, Code Crop Name Rating Type Rating Unit Rating Date						C CITLA Watrmeln YldTtl lbs/plot	C CITLA Watrmeln YldTtl AvgWtLbs	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Appl Timing	Appl Code		
1	Untreated Check						86.5 a	12.2 a
2	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 lb ai/a 10 lb/100 gal	Hood Hood	Applic A Applic A	151.4 a	13.0 a
3	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	1.17 lb ai/a 10 lb/100 gal	Hood Hood	Applic A Applic A	158.8 a	13.5 a
4	Rely 280.....glufosinate Dry Ammonium Sulfate Dual Magnum.....s-metolachlor	2.34 100 7.62	SL D E	0.585 lb ai/a 10 lb/100 gal 0.95 lb ai/a	Hood Hood Hood	Applic A Applic A Applic A	168.4 a	12.7 a
5	Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen	2.34 100 2	SL D L	0.585 lb ai/a 10 lb/100 gal 0.375 lb ai/a	Hood Hood Hood	Applic A Applic A Applic A	195.6 a	13.8 a
6	Gramoxone SL....paraquat Nonionic Surfactant	2 100	SL L	1 lb ai/a 0.25 % v/v	Hood Hood	Applic A Applic A	159.5 a	13.7 a
7	Rely 280.....glufosinate Dry Ammonium Sulfate	2.34 100	SL D	0.585 lb ai/a 10 lb/100 gal	Dir-POST Dir-POST	B B	134.1 a	13.4 a
8	Gramoxone SL....paraquat Nonionic Surfactant	2 100	SL L	1 lb ai/a 0.25 % v/v	Dir-POST Dir-POST	B B	110.6 a	13.5 a
9	Gramoxone SL....paraquat Nonionic Surfactant Reflex.....fomesafen Dual Magnum.....s-metolachlor	2 100 2 7.62	SL L L E	0.6 lb ai/a 0.25 % v/v 0.25 lb ai/a 1.43 lb ai/a	Hood Hood Hood Hood	Applic A Applic A Applic A Applic A	127.5 a	13.3 a
10	Rely 280.....glufosinate Dry Ammonium Sulfate Reflex.....fomesafen Dual Magnum.....s-metolachlor	2.34 100 2 7.62	SL D L E	0.585 lb ai/a 10 lb/100 gal 0.25 lb ai/a 1.43 lb ai/a	Hood Hood Hood Hood	Applic A Applic A Applic A Applic A	196.6 a	13.7 a
LSD P=.05							63.94 - 74.32	1.51
Standard Deviation							1.66t	0.85
CV							13.7t	6.38
Replicate F							0.323	1.362
Replicate Prob(F)							0.7298	0.2931
Treatment F							2.384	1.093
Treatment Prob(F)							0.0811	0.4330

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2,8,9,14,15,19,20,29,30,31

Could not calculate LSD (% mean diff) for columns 19,20 because error mean square = 0.

## University of Delaware

Horseweed Management in Non-Crop Settings with Finale and Method 240SL  
 Trial ID: NonCrp1-16      Location: Field #4      Trial Year: 2016  
 Protocol ID: NonCrp1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Bayer

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

C  
 Attributes: non-crop

**Pest Description**

Pest 1 Type: W      Code: ERICA      Conyza canadensis  
 Common Name: Canada horseweed  
  
 Pest 2 Type: W      Code: OEOLA      Oenothera laciniata  
 Common Name: Cutleaf eveningprimrose  
  
 Pest 3 Type: W      Code: CERVU      Cerastium fontanum vulgare  
 Common Name: Mouse-ear chickweed

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 15 FT  
 Treated Plot Area: 150 FT2      Treatments: 15      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RAOBL Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Total POST application of Gramoxone 2 qt/A on 6-24-16 and 7-6-16.

**Soil Description**

% Sand: 79      % OM: 1.3      Texture: SL sandy loam  
 % Silt: 11      pH: 6.7  
 % Clay: 10      CEC: 6.8      Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A
Application Date	05/12/16
Appl. Stop Time	02:30 PM
Application Method	SPRAY
Application Timing	2-6"wds
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	70 F
% Relative Humidity Start, Stop	75
Wind Velocity+Dir. Start	1 mph E
Wet Leaves (Y/N)	N no
Soil Temperature	70 F
Soil Moisture	NORMAL
% Cloud Cover	100

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale	ERICA W
Stage Majority, Percent	bolt 100
Height Average	7 in
Height Minimum, Maximum	5 8
Density Average	3 plot
Pest 2 Code, Type, Scale	OEOLA W
Stage Majority, Percent	flower 100
Height Average	7 in
Height Minimum, Maximum	6 8
Density Average	6 plot
Pest 3 Code, Type, Scale	CERVU W
Stage Majority, Percent	LaFlwr 55
Stage Minimum, Percent	LaFlwr 55
Stage Maximum, Percent	seed 45
Height Average	5 in
Height Minimum, Maximum	4 6
Density Average	2 m2

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	24 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Mix Size	2 L
Propellant	COMCO2

**Trial Comments**

05/24/16: Most treatments provided poor to no control of field pansy, except Razor Pro.

06/09/16: Horseweed ratings with treatment 14 are inconsistent due to population of both resistant and susceptible biotypes. Field pansy control is 60-85% for treatments 6, 7, 9, 11, and 12. Method was weak on oxalis.

06/22/19: Palmer amaranth has emerged since the treatments were applied, so ratings are based on residual control. Field pansy control is fair with Method.

08/10/16: Ratings are taken after two applications of paraquat. So Palmer amaranth is based on late emergence and thus residual activity of the treatments. No treatment provide acceptable residual control of Palmer amaranth. Horseweed is evaluating combined effectiveness of the early treatments plus two applications of paraquat. So with no prior treatment, some horseweed plants survived two applications of paraquat.

Horseweed Management in Non-Crop Settings with Finale and Method 240SL					
Trial ID: NonCrp1-16		Location: Field #4		Trial Year: 2016	
Protocol ID: NonCrp1-16		Investigator: Mark VanGessel			
Study Director:					
Sponsor Contact: Bayer					

Pest Code						ERICA	OEOLA	ERICA	OEOLA		
Pest Name						Horsewd	CEprmrse	Horsewd	CEprmrse		
Rating Type						Control	Control	Control	Control		
Rating Unit						%	%	%	%		
Rating Date						05/24/16	05/24/16	06/09/16	06/09/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 e	0.0 d	0.0 c	0.0 e
2	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds	A	98.0 a	93.3 a	99.7 a	99.7 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
3	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds	A	98.7 a	97.0 a	100.0 a	99.7 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
4	Finale.....glufosinate	1	SL	1 lb ai/a		2-6" wds	A	98.7 a	96.3 a	100.0 a	100.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
5	Method.....aminocyclopyrachlor	2	SL	0.0625 lb ae/a		2-6" wds	A	78.3 c	56.7 c	100.0 a	65.0 d
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
6	Method.....aminocyclopyrachlor	2	SL	0.125 lb ae/a		2-6" wds	A	84.0 b	56.7 c	100.0 a	86.7 bc
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
7	Method.....aminocyclopyrachlor	2	SL	0.25 lb ae/a		2-6" wds	A	84.0 b	68.3 b	100.0 a	94.0 ab
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
8	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds	A	98.7 a	97.0 a	100.0 a	99.3 a
	Method.....aminocyclopyrachlor	2	SL	0.0625 lb ae/a		2-6" wds	A				
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
9	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds	A	98.7 a	96.3 a	100.0 a	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.125 lb ae/a		2-6" wds	A				
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
10	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds	A	98.7 a	97.0 a	100.0 a	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.25 lb ae/a		2-6" wds	A				
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
11	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds	A	98.7 a	97.0 a	100.0 a	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.0625 lb ae/a		2-6" wds	A				
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
12	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds	A	99.7 a	97.0 a	100.0 a	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.125 lb ae/a		2-6" wds	A				
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
13	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds	A	97.7 a	96.3 a	100.0 a	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.25 lb ae/a		2-6" wds	A				
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				
14	Razor Pro.....glyphosate	3	AS	1.13 lb ae/a		2-6" wds	A	67.5 d	56.7 c	90.0 b	85.0 c
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A				
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,9

Pest Code						ERICA	OEOLA	AMAPA	ERICA		
Pest Name						Horsewd	CEprmrse	PalmerAm	Horsewd		
Rating Type						Control	Control	Control	Control		
Rating Unit						%	%	%	%		
Rating Date						06/22/16	06/22/16	06/22/16	08/10/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 c	0.0 d	0.0 e	90.0 a
2	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds A		100.0 a	100.0 a	0.0 e	100.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
3	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds A		100.0 a	100.0 a	0.0 e	100.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
4	Finale.....glufosinate	1	SL	1 lb ai/a		2-6" wds A		100.0 a	100.0 a	13.3 d	100.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
5	Method.....aminocyclopyrachlor	2	SL	0.0625 lb ae/a		2-6" wds A		100.0 a	56.7 c	76.7 c	100.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
6	Method.....aminocyclopyrachlor	2	SL	0.125 lb ae/a		2-6" wds A		100.0 a	100.0 a	100.0 a	100.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
7	Method.....aminocyclopyrachlor	2	SL	0.25 lb ae/a		2-6" wds A		100.0 a	100.0 a	100.0 a	100.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
8	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds A		100.0 a	100.0 a	97.7 ab	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.0625 lb ae/a		2-6" wds A					
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
9	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds A		100.0 a	100.0 a	100.0 a	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.125 lb ae/a		2-6" wds A					
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
10	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds A		100.0 a	100.0 a	100.0 a	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.25 lb ae/a		2-6" wds A					
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
11	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds A		100.0 a	100.0 a	89.3 b	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.0625 lb ae/a		2-6" wds A					
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
12	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds A		100.0 a	100.0 a	100.0 a	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.125 lb ae/a		2-6" wds A					
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
13	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds A		100.0 a	100.0 a	100.0 a	100.0 a
	Method.....aminocyclopyrachlor	2	SL	0.25 lb ae/a		2-6" wds A					
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					
14	Razor Pro.....glyphosate	3	AS	1.13 lb ae/a		2-6" wds A		85.0 b	80.0 b	0.0 e	100.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds A					
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds A					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=1,9

Pest Code						AMAPA		
Pest Name						PalmerAm		
Rating Type						Control		
Rating Unit						%		
Rating Date						08/10/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 e
2	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds	A	0.0 e
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
3	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds	A	0.0 e
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
4	Finale.....glufosinate	1	SL	1 lb ai/a		2-6" wds	A	0.6 e
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
5	Method.....aminocyclopyrachlor	2	SL	0.0625 lb ae/a		2-6" wds	A	56.7 d
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
6	Method.....aminocyclopyrachlor	2	SL	0.125 lb ae/a		2-6" wds	A	86.7 ab
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
7	Method.....aminocyclopyrachlor	2	SL	0.25 lb ae/a		2-6" wds	A	90.7 ab
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
8	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds	A	84.7 ab
	Method.....aminocyclopyrachlor	2	SL	0.0625 lb ae/a		2-6" wds	A	
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
9	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds	A	93.0 a
	Method.....aminocyclopyrachlor	2	SL	0.125 lb ae/a		2-6" wds	A	
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
10	Finale.....glufosinate	1	SL	0.25 lb ai/a		2-6" wds	A	80.7 bc
	Method.....aminocyclopyrachlor	2	SL	0.25 lb ae/a		2-6" wds	A	
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
11	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds	A	56.7 d
	Method.....aminocyclopyrachlor	2	SL	0.0625 lb ae/a		2-6" wds	A	
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
12	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds	A	70.0 c
	Method.....aminocyclopyrachlor	2	SL	0.125 lb ae/a		2-6" wds	A	
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
13	Finale.....glufosinate	1	SL	0.5 lb ai/a		2-6" wds	A	88.3 ab
	Method.....aminocyclopyrachlor	2	SL	0.25 lb ae/a		2-6" wds	A	
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	
14	Razor Pro.....glyphosate	3	AS	1.13 lb ae/a		2-6" wds	A	0.0 e
	Nonionic Surfactant	100	L	0.25 % v/v		2-6"wds	A	
	Dry Ammonium Sulfate	100	D	2 lb ai/a		2-6"wds	A	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,9



Pest Code						ERICA	OEOLA	ERICA	OEOLA	
Pest Name						Horsewd	CEprmrse	Horsewd	CEprmrse	
Rating Type						Control	Control	Control	Control	
Rating Unit						%	%	%	%	
Rating Date						05/24/16	05/24/16	06/09/16	06/09/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code				
	15 Untreated Check						0.0 e	0.0 d	0.0 c	0.0 e
	LSD P=.05						2.41	6.13	7.49	7.50
	Standard Deviation						1.44	3.67	4.48	4.48
	CV						1.79	4.98	5.21	5.47
	Replicate F						5.066	2.405	0.964	2.091
	Replicate Prob(F)						0.0139	0.1086	0.3935	0.1424
	Treatment F						1673.541	261.259	183.119	178.952
	Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,9

Pest Code						ERICA	OEOLA	AMAPA	ERICA	
Pest Name						Horsewd	CEprmrse	PalmerAm	Horsewd	
Rating Type						Control	Control	Control	Control	
Rating Unit						%	%	%	%	
Rating Date						06/22/16	06/22/16	06/22/16	08/10/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code				
	15 Untreated Check						0.0 c	0.0 d	0.0 e	86.7 a
	LSD P=.05						6.48	6.13	10.32	12.03
	Standard Deviation						3.87	3.66	6.17	7.19
	CV						4.52	4.44	10.56	7.31
	Replicate F						1.000	1.533	1.072	2.104
	Replicate Prob(F)						0.3806	0.2336	0.3558	0.1408
	Treatment F						244.905	282.059	181.639	1.000
	Treatment Prob(F)						0.0001	0.0001	0.0001	0.4793

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,9

Pest Code						AMAPA
Pest Name						PalmerAm
Rating Type						Control
Rating Unit						%
Rating Date						08/10/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing
						Appl Code
15	Untreated Check					0.0 e
LSD P=.05						12.26
Standard Deviation						7.31
CV						15.48
Replicate F						0.511
Replicate Prob(F)						0.6055
Treatment F						95.379
Treatment Prob(F)						0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=1,9

Utility of Reflex for NT/Rye Pumpkin Production  
 Trial ID: Pmkn1-16      Location: Field #22      Trial Year: 2016  
 Protocol ID: Pmkn1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      CUUSS Cucurbita sp. Pumpkin      BBCH Scale: BVVT  
 Variety: Magician  
 Planting Date: 06/27/16      Planting Rate: 0.3      S/ROWFT  
 Depth: 1 in  
 Row Spacing: 10 FT      Planting Method: PLANTD planted  
 Spacing within Row: 36 IN      Planting Equipment: FE      field equipment  
 Soil Temperature: 85 F      Seed Bed: MEDTRA medium/trashy  
 Emergence Date: 07/04/16      Soil Moisture: NORMAL normal, adequate  
 Harvest Date: 09/13/16

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 8      Tillage Type: NOTILL      no-till  
 Replications: 3      Study Design: RACOB      Randomized Complete Block (RCB)  
 Trial Initiation Comments:  
 Rye was planted at 2 bu/A into study area on 10-12-15.

Field Prep./Maintenance:  
 Total Postemergence application Poast at 1.5 pt/a on 8-7-16.

**Soil Description**  
 Description Name: Field 22C  
 % Sand: 79      % OM: 0.7      Texture: LS      loamy sand  
 % Silt: 13      pH: 6.3      Soil Name: Rosedale loamy sand, 0-2% slopes  
 % Clay: 8      CEC: 4.2      Fert. Level: G      good  
 Soil Drainage: F      fair

**Application Description**

	A	B
Application Date	06/28/16	08/07/16
Appl. Stop Time	01:40 PM	10:00 AM
Application Method	SPRAY	SPRAY
Application Timing	PREMCR	POST
Application Placement	BROADC	BROADC
Applied By	Johnson	VanGessl
Air Temperature Start, Stop	76 F	81 F
% Relative Humidity Start, Stop	82	56
Wind Velocity+Dir. Start	1 MPH S	3 mph N
Wet Leaves (Y/N)	Y yes	N no
Soil Temperature	76 F	81 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	80	30

**Application Equipment**

	A	B
Appl. Equipment	Tractor	Bckpck6Nozl
Equipment Type	TRMOSP	SPRBAC
Operation Pressure	40 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	20 in	18 in
Boom Length	10 ft	9 ft
Boom Height	22 in	28 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Propellant	COMAIR	COMCO2

## Trial Comments

07/19/16: Plot 201, 1-2 plants have mosaic virus symptomology. Rye biomass (0.5m<sup>2</sup>) taken at random locations per rep. Rep 1 = 198; Rep 2 = 172; rep 3 = 208 grams dry weight.

Utility of Reflex for NT/Rye Pumpkin Production									
Trial ID: Pmkn1-16		Location: Field #22		Trial Year: 2016					
Protocol ID: Pmkn1-16		Investigator: Mark VanGessel							
Study Director:									
Sponsor Contact:									
Pest Code									
Pest Name									
Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS			
Crop Name	Pumpkin		Pumpkin		Pumpkin				
Rating Type	Injury		Stunting		StandCt				
Rating Unit	%		%		#/plot				
Rating Date	07/12/16		07/19/16		07/19/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing			
Code									
1	Untreated Check								
		0.0	a	0.0	e	9.3	a	0.0	b
2	Command.....clomazone	3	ME	0.375	lb ai/a	PRE	A	0.0	a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	A	3.3	de
3	Command.....clomazone	3	ME	0.375	lb ai/a	PRE	A	0.0	a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	A	12.7	b
	Reflex.....fomesafen	2	L	0.156	lb ai/a	PRE	A	6.7	a
4	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	A	0.0	a
	Reflex.....fomesafen	2	L	0.156	lb ai/a	PRE	A	6.0	cde
5	Command.....clomazone	3	ME	0.375	lb ai/a	PRE	A	0.0	a
	Reflex.....fomesafen	2	L	0.156	lb ai/a	PRE	A	6.7	bcd
6	Command.....clomazone	3	ME	0.375	lb ai/a	PRE	A	0.0	a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	PRE	A	7.3	bcd
	Reflex.....fomesafen	2	L	0.156	lb ai/a	PRE	A	8.0	a
7	Reflex.....fomesafen	2	L	0.156	lb ai/a	PRE	A	0.0	a
	Select Max.....clethodim	1	EC	0.094	lb ai/a	POST	B	11.0	bc
	Nonionic Surfactant	100	L	0.25	% v/v	POST	B	6.0	a
8	Command.....clomazone	3	ME	0.375	lb ai/a	PRE	A	0.0	a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	A	19.3	a
	Reflex.....fomesafen	2	L	0.156	lb ai/a	PRE	A	7.7	a
	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	PRE	A	21.7	a
LSD	P=.05	.		6.34		3.60		6.89	
Standard Deviation		0.00		3.62		2.05		3.93	
CV		0.0		43.63		26.78		98.33	
Replicate F		0.000		6.039		0.277		0.606	
Replicate Prob(F)		1.0000		0.0129		0.7622		0.5592	
Treatment F		0.000		8.203		0.746		11.013	
Treatment Prob(F)		1.0000		0.0005		0.6390		0.0001	

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Pest Code Pest Name	AMAPA PalmerAm	DIGSS CrbgrsSp	AMAPA PalmerAm							
Crop Type, Code	C -	C - C	CUUSS							
Crop Name	Control	Control	Pumpkin							
Rating Type	%	%	Stunting							
Rating Unit			%							
Rating Date	07/27/16	07/27/16	08/09/16							
08/09/16			Control							
			%							
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code				
1 Untreated Check							0.0 b	0.0 b	0.0 b	0.0 c
2 Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		98.3 a	90.0 a	6.0 b	83.3 b
Curbit.....ethalfluralin	3 E		0.56 lb ai/a	PRE	A					
3 Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		100.0 a	93.3 a	15.0 b	97.3 a
Curbit.....ethalfluralin	3 E		0.56 lb ai/a	PRE	A					
Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
4 Curbit.....ethalfluralin	3 E		0.56 lb ai/a	PRE	A		100.0 a	95.0 a	5.0 b	98.3 a
Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
5 Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		100.0 a	96.7 a	0.0 b	100.0 a
Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
6 Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		100.0 a	93.3 a	6.7 b	100.0 a
Curbit.....ethalfluralin	3 E		0.75 lb ai/a	PRE	A					
Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
7 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A		100.0 a	86.7 a	8.7 b	100.0 a
Select Max.....clethodim	1 EC		0.094 lb ai/a	POST	B					
Nonionic Surfactant	100 L		0.25 % v/v	POST	B					
8 Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		100.0 a	93.3 a	36.0 a	98.3 a
Curbit.....ethalfluralin	3 E		0.56 lb ai/a	PRE	A					
Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
Sandea.....halosulfuron	75 DF		0.0234 lb ai/a	PRE	A					
LSD P=.05							1.79	12.60	15.72	4.37
Standard Deviation							1.02	7.20	8.98	2.50
CV							1.17	8.88	92.86	2.95
Replicate F							1.000	1.529	2.242	0.427
Replicate Prob(F)							0.3927	0.2509	0.1430	0.6604
Treatment F							3583.858	62.664	5.074	577.756
Treatment Prob(F)							0.0001	0.0001	0.0048	0.0001

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Pest Code Pest Name	DIGSS CrbgrsSp										
Crop Type, Code	C - C CUUSS				C CUUSS	C CUUSS	C CUUSS	C CUUSS			
Crop Name	Control				Pumpkin	Pumpkin	Pumpkin	Pumpkin			
Rating Type	%				Orange	Green	Small	Small			
Rating Unit	#				#	#	#	#			
Rating Date	08/09/16				09/13/16	09/13/16	09/13/16	09/13/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 c	7.0 a	3.3 a	1.3 a
2	Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		71.7 b	6.7 a	3.0 a	0.4 a
	Curbit.....ethalfluralin	3 E		0.56 lb ai/a	PRE	A					
3	Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		89.3 a	4.3 a	4.3 a	0.4 a
	Curbit.....ethalfluralin	3 E		0.56 lb ai/a	PRE	A					
	Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
4	Curbit.....ethalfluralin	3 E		0.56 lb ai/a	PRE	A		90.7 a	6.3 a	4.3 a	0.1 a
	Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
5	Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		89.7 a	5.0 a	6.3 a	0.0 a
	Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
6	Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		89.3 a	6.7 a	5.7 a	0.6 a
	Curbit.....ethalfluralin	3 E		0.75 lb ai/a	PRE	A					
	Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
7	Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A		88.7 a	5.3 a	3.7 a	0.0 a
	Select Max.....clethodim	1 EC		0.094 lb ai/a	POST	B					
	Nonionic Surfactant	100 L		0.25 % v/v	POST	B					
8	Command.....clomazone	3 ME		0.375 lb ai/a	PRE	A		92.0 a	2.0 a	7.3 a	1.5 a
	Curbit.....ethalfluralin	3 E		0.56 lb ai/a	PRE	A					
	Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	A					
	Sandea.....halosulfuron	75 DF		0.0234 lb ai/a	PRE	A					
LSD P=.05								4.79	6.26	3.24	1.50 - 1.72
Standard Deviation								2.74	3.58	1.85	3.35t
CV								3.58	66.01	38.95	95.85t
Replicate F								1.807	0.404	2.447	2.543
Replicate Prob(F)								0.2004	0.6751	0.1226	0.1143
Treatment F								398.446	0.654	2.080	1.971
Treatment Prob(F)								0.0001	0.7066	0.1154	0.1326

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Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.



Pest Code Pest Name Crop Type, Code					C CUUSS	C CUUSS	C CUUSS	C CUUSS
Crop Name Rating Type Rating Unit Rating Date					Pumpkin Medium # 09/13/16	Pumpkin Large # 09/13/16	Pumpkin XLarge # 09/13/16	Pumpkin Green #-LateCt 09/21/16
Trt Treatment No. Name	Form Form Conc Type Rate	Rate Unit	Appl Timing	Appl Code				
1 Untreated Check					6.0 a	1.0 a	0.7 a	1.7 a
2 Command.....clomazone Curbit.....ethalfluralin	3 ME 3 E	0.375 lb ai/a 0.56 lb ai/a	PRE PRE	A A	5.9 a	1.9 a	1.0 a	1.7 a
3 Command.....clomazone Curbit.....ethalfluralin Reflex.....fomesafen	3 ME 3 E 2 L	0.375 lb ai/a 0.56 lb ai/a 0.156 lb ai/a	PRE PRE PRE	A A A	5.3 a	2.3 a	1.0 a	1.7 a
4 Curbit.....ethalfluralin Reflex.....fomesafen	3 E 2 L	0.56 lb ai/a 0.156 lb ai/a	PRE PRE	A A	5.1 a	3.0 a	0.7 a	2.0 a
5 Command.....clomazone Reflex.....fomesafen	3 ME 2 L	0.375 lb ai/a 0.156 lb ai/a	PRE PRE	A A	8.0 a	1.9 a	1.0 a	3.7 a
6 Command.....clomazone Curbit.....ethalfluralin Reflex.....fomesafen	3 ME 3 E 2 L	0.375 lb ai/a 0.75 lb ai/a 0.156 lb ai/a	PRE PRE PRE	A A A	5.2 a	3.7 a	1.0 a	3.0 a
7 Reflex.....fomesafen Select Max.....clethodim Nonionic Surfactant	2 L 1 EC 100 L	0.156 lb ai/a 0.094 lb ai/a 0.25 % v/v	PRE POST POST	A B B	5.0 a	2.6 a	1.0 a	1.7 a
8 Command.....clomazone Curbit.....ethalfluralin Reflex.....fomesafen Sanda.....halosulfuron	3 ME 3 E 2 L 75 DF	0.375 lb ai/a 0.56 lb ai/a 0.156 lb ai/a 0.0234 lb ai/a	PRE PRE PRE PRE	A A A A	4.6 a	2.0 a	1.0 a	2.7 a
LSD P=.05					4.41 - 5.39	2.13 - 2.43	1.92	1.69
Standard Deviation					0.17t	0.18t	1.09	0.96
CV					20.51t	35.53t	119.33	42.83
Replicate F					0.140	1.770	1.080	3.769
Replicate Prob(F)					0.8709	0.2064	0.3664	0.0490
Treatment F					0.430	1.151	0.060	1.923
Treatment Prob(F)					0.8678	0.3881	0.9995	0.1410

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.



Pumpkin Variety Response to Reflex  
 Trial ID: Pmkn3-16      Location: Field #25b      Trial Year: 2016  
 Protocol ID: Pmkn3-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C CUUSS Cucurbita sp. Pumpkin      BBCH Scale: BVVT  
 Variety: multiple  
 Planting Date: 07/12/16      Planting Rate: 1      /2ft-row  
 Depth: 1 in  
 Row Spacing: 6 ft      Planting Method: SEEDHA seeded by hand  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 84 F      Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 07/17/16

**Site and Design**

Treated Plot Width: 6 FT      Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 150 FT<sup>2</sup>      Treatments: 18      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: SPLPLO Split-Plot

**Soil Description**

Description Name: Field 25B  
 % Sand: 77      % OM: 1.5      Texture: SL      sandy loam  
 % Silt: 14      pH: 6.7      Soil Name: Hammonton loamy sand, 0-2% slopes  
 % Clay: 9      CEC: 4.4      Fert. Level: G      good  
 Soil Drainage: G      good

**Application Description**

	A
Application Date	07/12/16
Appl. Stop Time	12:05 PM
Application Method	Spray
Application Timing	PRE
Application Placement	BRDCST
Applied By	Barb
Air Temperature Start, Stop	83 F
% Relative Humidity Start, Stop	56
Wind Velocity+Dir. Start	5 MPH SSE
Wet Leaves (Y/N)	N no
Soil Temperature	83 F
Soil Moisture	SLIDRY
% Cloud Cover	20
Next Moisture Occurred On	07/15/16

**Application Equipment**

	A
Appl. Equipment	Backpack
Equipment Type	SPRBAC
Operation Pressure	30 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	6 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMCO2

## Trial Comments

08/03/16: Plots 303, 304 in wet end. plot 314 only 3 plants.

09/02/16: Plot 103 - insect damage. 306 - insect damage! 313 missing 1 plant. Rating of flower 3 = full flower, 2 partial, 1 poor, 0 = none.

Pumpkin Variety Response to Reflex			
Trial ID: Pmkn3-16	Location: Field #25b	Trial Year: 2016	
Protocol ID: Pmkn3-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Crop Type, Code					C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name					Pumpkin	StandCt	Pumpkin	Stunting	Pumpkin	Stunting	Pumpkin	Stunting
Rating Type					#/24'Row		%	%	%	%	%	%
Rating Unit					07/19/16		07/25/16		08/03/16		08/10/16	
Rating Date												
Trt	Treatment	Form	Form	Rate	Appl							
No.	Name	Conc	Type	Rate	Unit	Timing						
1	Untreated Weed-Free Check Howden Biggie						14.3 a-d	0.0 e	0.0 h		0.0 e	
2	Untreated Weed-Free Check Gladiator						15.0 a-d	0.0 e	0.0 h		0.0 e	
3	Untreated Weed-Free Check Lumina						14.3 a-d	0.0 e	0.0 h		0.0 e	
4	Untreated Weed-Free Check Field Trip						16.0 ab	0.0 e	0.0 h		0.0 e	
5	Untreated Weed-Free Check Jill-Be_little						16.7 a	0.0 e	0.0 h		0.0 e	
6	Untreated Weed-Free Check Solid Gold						12.3 c-f	0.0 e	0.0 h		0.0 e	
7	Reflex.....fomesafen Howden Biggie	2 L		0.156 lb ai/a		PRE	12.3 c-f	5.0 de	21.0 c-f		14.4 bcd	
8	Reflex.....fomesafen Gladiator	2 L		0.156 lb ai/a		PRE	13.7 a-e	20.0 cd	16.7 d-g		16.3 bc	
9	Reflex.....fomesafen Lumina	2 L		0.156 lb ai/a		PRE	14.3 a-d	3.3 de	10.0 e-h		10.0 cd	
10	Reflex.....fomesafen Field Trip	2 L		0.156 lb ai/a		PRE	15.3 abc	9.3 de	14.0 d-g		9.3 cd	
11	Reflex.....fomesafen Jill-Be_little	2 L		0.156 lb ai/a		PRE	11.7 def	20.0 cd	9.3 e-h		7.2 cd	
12	Reflex.....fomesafen Solid Gold	2 L		0.156 lb ai/a		PRE	13.0 b-e	7.3 de	5.7 gh		5.6 d	
13	Reflex.....fomesafen Howden Biggie	2 L		0.313 lb ai/a		PRE	9.3 fg	47.3 ab	36.7 ab		37.2 a	
14	Reflex.....fomesafen Gladiator	2 L		0.313 lb ai/a		PRE	10.7 ef	41.7 ab	41.0 a		32.1 a	
15	Reflex.....fomesafen Lumina	2 L		0.313 lb ai/a		PRE	14.0 a-e	16.3 de	22.7 cde		16.0 bc	
16	Reflex.....fomesafen Field Trip	2 L		0.313 lb ai/a		PRE	12.0 c-f	37.7 bc	34.3 abc		23.9 ab	
17	Reflex.....fomesafen Jill-Be_little	2 L		0.313 lb ai/a		PRE	6.7 g	58.3 a	25.0 bcd		26.8 ab	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code					C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name					Pumpkin		Pumpkin		Pumpkin		Pumpkin	
Rating Type					BiomRed		Flower		Biomass		BiomsWt	
Rating Unit					%		0-3		#plants		grams	
Rating Date					09/02/16		09/02/16					
Trt	Treatment	Form	Form	Rate	Appl							
No.	Name	Conc	Type	Rate	Unit	Timing						
1	Untreated Weed-Free Check Howden Biggie						0.0 e	3.0 a	7.3 abc		174.7 abc	
2	Untreated Weed-Free Check Gladiator						0.0 e	3.0 a	7.7 ab		217.7 a	
3	Untreated Weed-Free Check Lumina						0.0 e	1.7 c	6.0 b-e		67.0 ef	
4	Untreated Weed-Free Check Field Trip						0.0 e	3.0 a	8.0 a		218.7 a	
5	Untreated Weed-Free Check Jill-Be_little						0.0 e	3.0 a	8.0 a		99.3 de	
6	Untreated Weed-Free Check Solid Gold						0.0 e	3.0 a	7.0 abc		207.3 ab	
7	Reflex.....fomesafen Howden Biggie	2 L		0.156 lb ai/a		PRE	14.9 bc	2.7 ab	7.7 ab		138.0 cd	
8	Reflex.....fomesafen Gladiator	2 L		0.156 lb ai/a		PRE	11.3 cd	3.0 a	7.3 abc		173.3 abc	
9	Reflex.....fomesafen Lumina	2 L		0.156 lb ai/a		PRE	9.4 cd	2.0 bc	7.3 abc		67.3 ef	
10	Reflex.....fomesafen Field Trip	2 L		0.156 lb ai/a		PRE	1.1 de	3.0 a	7.3 abc		227.3 a	
11	Reflex.....fomesafen Jill-Be_little	2 L		0.156 lb ai/a		PRE	13.9 c	2.7 ab	6.3 a-d		63.0 ef	
12	Reflex.....fomesafen Solid Gold	2 L		0.156 lb ai/a		PRE	4.5 cde	3.0 a	7.3 abc		192.0 abc	
13	Reflex.....fomesafen Howden Biggie	2 L		0.313 lb ai/a		PRE	46.6 a	2.0 bc	5.0 de		100.0 de	
14	Reflex.....fomesafen Gladiator	2 L		0.313 lb ai/a		PRE	16.3 bc	3.0 a	5.0 de		82.3 def	
15	Reflex.....fomesafen Lumina	2 L		0.313 lb ai/a		PRE	11.0 cd	1.7 c	7.0 abc		64.3 ef	
16	Reflex.....fomesafen Field Trip	2 L		0.313 lb ai/a		PRE	11.8 c	2.3 abc	5.7 cde		141.3 bcd	
17	Reflex.....fomesafen Jill-Be_little	2 L		0.313 lb ai/a		PRE	35.2 ab	2.0 bc	4.3 e		31.3 f	

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code					C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS		
Crop Name					Pumpkin		Pumpkin		Pumpkin		Pumpkin			
Rating Type					BiomsWt		Orange		Green		Small			
Rating Unit					gr/plant		#		#		#			
Rating Date							09/28/16		09/28/16		10/06/16			
Trt	Treatment	Form	Form	Rate	Appl									
No.	Name	Conc	Type	Rate	Unit	Timing								
1	Untreated Weed-Free Check Howden Biggie						23.69	a-d	1.7	g	1.3	abc	0.0	a
2	Untreated Weed-Free Check Gladiator						28.32	a	4.7	efg	2.0	a	0.0	a
3	Untreated Weed-Free Check Lumina						12.57	e-h	2.3	g	0.0	d	0.1	a
4	Untreated Weed-Free Check Field Trip						27.33	ab	13.0	bcd	0.0	d	0.8	a
5	Untreated Weed-Free Check Jill-Be_little						12.42	e-h	27.7	a	0.0	d		
6	Untreated Weed-Free Check Solid Gold						29.62	a	6.3	d-g	0.7	bcd	0.2	a
7	Reflex.....fomesafen Howden Biggie	2	L	0.156	lb ai/a	PRE	18.15	c-f	3.3	fg	2.0	a	0.0	a
8	Reflex.....fomesafen Gladiator	2	L	0.156	lb ai/a	PRE	23.78	a-d	5.0	efg	1.7	ab	0.1	a
9	Reflex.....fomesafen Lumina	2	L	0.156	lb ai/a	PRE	9.08	gh	4.3	efg	0.3	cd	0.4	a
10	Reflex.....fomesafen Field Trip	2	L	0.156	lb ai/a	PRE	30.10	a	11.7	cde	1.0	a-d	0.4	a
11	Reflex.....fomesafen Jill-Be_little	2	L	0.156	lb ai/a	PRE	9.84	fgh	20.0	ab	0.7	bcd		
12	Reflex.....fomesafen Solid Gold	2	L	0.156	lb ai/a	PRE	26.22	abc	6.7	d-g	1.3	abc	0.6	a
13	Reflex.....fomesafen Howden Biggie	2	L	0.313	lb ai/a	PRE	19.44	b-e	3.0	fg	1.0	a-d	0.1	a
14	Reflex.....fomesafen Gladiator	2	L	0.313	lb ai/a	PRE	17.23	d-g	5.0	efg	0.7	bcd	0.2	a
15	Reflex.....fomesafen Lumina	2	L	0.313	lb ai/a	PRE	9.02	gh	4.0	efg	0.3	cd	0.1	a
16	Reflex.....fomesafen Field Trip	2	L	0.313	lb ai/a	PRE	24.59	a-d	10.7	c-f	0.3	cd	0.8	a
17	Reflex.....fomesafen Jill-Be_little	2	L	0.313	lb ai/a	PRE	6.82	h	17.3	bc	0.7	bcd		

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code					C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name					Pumpkin		Pumpkin		Pumpkin		Pumpkin	
Rating Type					Medium		Large		XLarge		YieldTtl	
Rating Unit					#		#		#		#Hrvstlb	
Rating Date					10/06/16		10/06/16		10/06/16		10/06/16	
Trt	Treatment	Form	Form	Rate	Appl							
No.	Name	Conc	Type	Rate	Unit	Timing						
1	Untreated Weed-Free Check Howden Biggie						0.4	a	2.3	a-e	0.4	b-e
2	Untreated Weed-Free Check Gladiator						2.0	a	2.6	a-e	1.3	a-d
3	Untreated Weed-Free Check Lumina						1.6	a	0.3	f	0.0	e
4	Untreated Weed-Free Check Field Trip						4.6	a	5.9	a	0.4	b-e
5	Untreated Weed-Free Check Jill-Be_little											
6	Untreated Weed-Free Check Solid Gold						1.0	a	2.9	a-d	2.2	ab
7	Reflex.....fomesafen Howden Biggie	2	L	0.156	lb ai/a	PRE	1.9	a	2.1	b-e	0.8	a-e
8	Reflex.....fomesafen Gladiator	2	L	0.156	lb ai/a	PRE	2.5	a	1.9	cde	0.8	a-e
9	Reflex.....fomesafen Lumina	2	L	0.156	lb ai/a	PRE	2.6	a	0.8	def	0.0	e
10	Reflex.....fomesafen Field Trip	2	L	0.156	lb ai/a	PRE	2.1	a	5.6	ab	0.4	b-e
11	Reflex.....fomesafen Jill-Be_little	2	L	0.156	lb ai/a	PRE						
12	Reflex.....fomesafen Solid Gold	2	L	0.156	lb ai/a	PRE	1.6	a	2.3	a-e	2.6	a
13	Reflex.....fomesafen Howden Biggie	2	L	0.313	lb ai/a	PRE	0.6	a	0.7	ef	0.2	cde
14	Reflex.....fomesafen Gladiator	2	L	0.313	lb ai/a	PRE	1.6	a	2.1	b-e	0.6	a-e
15	Reflex.....fomesafen Lumina	2	L	0.313	lb ai/a	PRE	2.3	a	1.2	def	0.0	e
16	Reflex.....fomesafen Field Trip	2	L	0.313	lb ai/a	PRE	3.8	a	4.8	abc	0.1	de
17	Reflex.....fomesafen Jill-Be_little	2	L	0.313	lb ai/a	PRE						

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name		Pumpkin		Pumpkin		Pumpkin		Pumpkin
Rating Type		StandCt		Stunting		Stunting		Stunting
Rating Unit		#/24'Row		%		%		%
Rating Date		07/19/16		07/25/16		08/03/16		08/10/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit				
18 Reflex.....fomesafen Solid Gold	2 L		0.313 lb ai/a	PRE	13.0 b-e	16.3 de	9.0 fgh	5.6 d
LSD P=.05					3.55	17.76	13.38	10.25 - 15.41
Standard Deviation					2.13	10.65	8.02	5.85t
CV					16.33	67.81	58.87	37.41t
Replicate F					0.408	3.047	5.185	12.446
Replicate Prob(F)					0.6683	0.0624	0.0116	0.0001
Treatment F					3.944	9.134	8.810	15.087
Treatment Prob(F)					0.0005	0.0001	0.0001	0.0001

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code				C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name				Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin
Rating Type				BiomRed	Flower	Biomass	Biomass	Biomass	Biomass	Biomass	Biomass
Rating Unit				%	0-3	#plants	#plants	#plants	#plants	#plants	#plants
Rating Date				09/02/16	09/02/16						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Rate	Unit	Rate	Unit	Rate	Unit
18	Reflex.....fomesafen Solid Gold	2 L		0.313	lb ai/a	PRE					
LSD P=.05				10.42 - 22.64		0.75		1.79		67.38	
Standard Deviation				8.24t		0.45		1.07		40.41	
CV				57.74t		17.29		15.85		29.35	
Replicate F				0.748		0.818		1.758		1.794	
Replicate Prob(F)				0.4821		0.4508		0.1897		0.1836	
Treatment F				7.623		3.898		3.204		8.138	
Treatment Prob(F)				0.0001		0.0006		0.0026		0.0001	

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code				C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name				Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin
Rating Type				BiomsWt	Orange	Green	Small				
Rating Unit				gr/plant	#	#	#	#	#	#	#
Rating Date					09/28/16	09/28/16				10/06/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Rate	Unit	Rate	Unit	Rate	Unit
18	Reflex.....fomesafen Solid Gold	2 L		0.313 lb ai/a	PRE	29.55 a		6.0 d-g		1.3 abc	
LSD P=.05				8.801		7.86		1.13		1.79 - 99999.84	
Standard Deviation				5.278		4.72		0.68		3.57t	
CV				26.55		55.6		79.87		135.06t	
Replicate F				1.382		1.115		13.000		0.377	
Replicate Prob(F)				0.2667		0.3412		0.0001		0.6899	
Treatment F				7.202		6.708		2.729		0.751	
Treatment Prob(F)				0.0001		0.0001		0.0079		0.7065	

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name		Pumpkin		Pumpkin		Pumpkin		Pumpkin
Rating Type		Medium		Large		XLarge		YieldTtl
Rating Unit		#		#		#		#Hrvstlb
Rating Date		10/06/16		10/06/16		10/06/16		10/06/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit				
18 Reflex.....fomesafen Solid Gold	2 L		0.313 lb ai/a	PRE	2.6 a	2.0 b-e	1.9 abc	7.3 b-e
LSD P=.05					1.96 - 3.22	1.53 - 3.79	1.47 - 2.15	4.53
Standard Deviation					0.22t	0.21t	3.16t	2.69
CV					47.69t	41.27t	74.47t	40.43
Replicate F					0.071	0.037	2.267	2.035
Replicate Prob(F)					0.9313	0.9641	0.1254	0.1526
Treatment F					1.539	3.155	2.747	3.652
Treatment Prob(F)					0.1710	0.0065	0.0143	0.0026

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pumpkin Variety Response to Reflex			
Trial ID: Pmkn3-16	Location: Field #25b	Trial Year: 2016	
Protocol ID: Pmkn3-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name		Pumpkin		Pumpkin		Pumpkin		Pumpkin
Rating Type		StandCt		Stunting		Stunting		Stunting
Rating Unit		#/24'Row		%		%		%
Rating Date		07/19/16		07/25/16		08/03/16		08/10/16
Trt Treatment	Form	Form	Rate	Appl				
No. Name	Conc	Type	Rate	Unit	Timing			
TABLE OF R MEANS								
Replicate 1						13.2		10.8
Replicate 2						13.2		19.2
Replicate 3						12.7		17.2
TABLE OF A (Herbicide Rate) MEANS								
1 Untreated Weed-Free Check						14.8 a		0.0 c
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		13.4 a		10.8 b
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		10.9 b		36.3 a
LSD P=.05						1.50		7.32
Standard Deviation						2.21		10.81
CV						16.96		68.84
TABLE OF B (Pumpkin Variety) MEANS								
1 Howden Biggie						12.0 a		17.4 abc
2 Gladiator						13.1 a		20.6 ab
3 Lumina						14.2 a		6.6 d
4 Field Trip						14.4 a		15.7 bcd
5 Jill-Be_little						11.7 a		26.1 a
6 Solid Gold						12.8 a		7.9 cd
LSD P=.05						2.12		10.36
Standard Deviation						2.21		10.81
CV						16.96		68.84
TABLE OF A (Herbicide Rate) B (Pumpkin Variety) MEANS								
1 Untreated Weed-Free Check						14.3 a-d		0.0 e
1 Howden Biggie								0.0 a
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		12.3 b-e		5.0 de
1 Howden Biggie								21.0 a
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		9.3 ef		47.3 ab
1 Howden Biggie								36.7 a
1 Untreated Weed-Free Check						15.0 abc		0.0 e
2 Gladiator								0.0 a
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		13.7 a-d		20.0 cd
2 Gladiator								16.7 a
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		10.7 de		41.7 ab
2 Gladiator								41.0 a
1 Untreated Weed-Free Check						14.3 a-d		0.0 e
3 Lumina								0.0 a
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		14.3 a-d		3.3 de
3 Lumina								10.0 a
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		14.0 a-d		16.3 de
3 Lumina								22.7 a
1 Untreated Weed-Free Check						16.0 ab		0.0 e
4 Field Trip								0.0 a

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Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name	Pumpkin	BiomRed	Pumpkin	Flower	Pumpkin	Biomass	Pumpkin	BiomsWt
Rating Type		%		0-3		#plants		grams
Rating Unit								
Rating Date	09/02/16		09/02/16					
Trt Treatment								
No. Name	Form	Form	Rate	Appl				
	Conc	Type	Rate	Unit	Timing			
TABLE OF R MEANS								
Replicate 1			4.8			2.7		7.1
Replicate 2			5.9			2.7		6.7
Replicate 3			7.6			2.5		6.4
TABLE OF A (Herbicide Rate) MEANS								
1 Untreated Weed-Free Check			0.0 c			2.8 a		7.3 a
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		2.7 a		7.2 a
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		2.3 b		5.7 b
LSD P=.05			5.82 - 6.77			0.31		0.71
Standard Deviation			7.86t			0.45		1.05
CV			55.10t			17.38		15.50
TABLE OF B (Pumpkin Variety) MEANS								
1 Howden Biggie			14.0 a			2.6 b		6.7 a
2 Gladiator			6.3 abc			3.0 a		6.7 a
3 Lumina			4.6 bc			1.8 c		6.8 a
4 Field Trip			2.3 c			2.8 ab		7.0 a
5 Jill-Be_little			11.1 ab			2.6 b		6.2 a
6 Solid Gold			2.3 c			3.0 a		7.2 a
LSD P=.05			5.51 - 7.77			0.43		1.00
Standard Deviation			7.86t			0.45		1.05
CV			55.10t			17.38		15.50
TABLE OF A (Herbicide Rate) B (Pumpkin Variety) MEANS								
1 Untreated Weed-Free Check			0.0 a			3.0 a		7.3 abc
1 Howden Biggie								174.7 a
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		2.7 a		7.7 ab
1 Howden Biggie								138.0 a
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		2.0 a		5.0 de
1 Howden Biggie								100.0 a
1 Untreated Weed-Free Check			0.0 a			3.0 a		7.7 ab
2 Gladiator								217.7 a
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		3.0 a		7.3 abc
2 Gladiator								173.3 a
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		3.0 a		5.0 de
2 Gladiator								82.3 a
1 Untreated Weed-Free Check			0.0 a			1.7 a		6.0 b-e
3 Lumina								67.0 a
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		2.0 a		7.3 abc
3 Lumina								67.3 a
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		1.7 a		7.0 abc
3 Lumina								64.3 a
1 Untreated Weed-Free Check			0.0 a			3.0 a		8.0 a
4 Field Trip								218.7 a

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Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS	
Crop Name	Pumpkin		Pumpkin		Pumpkin		Pumpkin		
Rating Type	BiomsWt		Orange		Green		Small		
Rating Unit	gr/plant		#		#		#		
Rating Date			09/28/16		09/28/16		10/06/16		
Trt Treatment	Form	Form	Rate	Appl					
No. Name	Conc	Type	Rate	Unit	Timing				
TABLE OF R MEANS									
Replicate 1						20.86	9.8	0.7	0.1
Replicate 2						18.20	7.9	0.4	0.3
Replicate 3						20.57	7.7	1.5	0.2
TABLE OF A (Herbicide Rate) MEANS									
1 Untreated Weed-Free Check						22.33 a	9.3 a	0.7 a	0.1 a
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		19.53 a	8.5 a	1.2 a	0.2 a
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		17.78 a	7.7 a	0.7 a	0.3 a
LSD P=.05						3.756	3.01	0.63	0.28 - 0.48
Standard Deviation						5.544	4.44	0.93	3.62t
CV						27.893	52.33	108.97	137.04t
TABLE OF B (Pumpkin Variety) MEANS									
1 Howden Biggie						20.43 c	2.7 c	1.4 a	0.0 a
2 Gladiator						23.11 bc	4.9 c	1.4 a	0.1 a
3 Lumina						10.22 d	3.6 c	0.2 b	0.2 a
4 Field Trip						27.34 ab	11.8 b	0.4 b	0.7 a
5 Jill-Be_little						9.69 d	21.7 a	0.4 b	.
6 Solid Gold						28.46 a	6.3 c	1.1 ab	0.4 a
LSD P=.05						5.311	4.25	0.89	3.50
Standard Deviation						5.544	4.44	0.93	3.62t
CV						27.893	52.33	108.97	137.04t
TABLE OF A (Herbicide Rate) B (Pumpkin Variety) MEANS									
1 Untreated Weed-Free Check						23.69 a	1.7 a	1.3 a	0.0 a
1 Howden Biggie									
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		18.15 a	3.3 a	2.0 a	0.0 a
1 Howden Biggie									
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		19.44 a	3.0 a	1.0 a	0.1 a
1 Howden Biggie									
1 Untreated Weed-Free Check						28.32 a	4.7 a	2.0 a	0.0 a
2 Gladiator									
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		23.78 a	5.0 a	1.7 a	0.1 a
2 Gladiator									
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		17.23 a	5.0 a	0.7 a	0.2 a
2 Gladiator									
1 Untreated Weed-Free Check						12.57 a	2.3 a	0.0 a	0.1 a
3 Lumina									
2 Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE		9.08 a	4.3 a	0.3 a	0.4 a
3 Lumina									
3 Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE		9.02 a	4.0 a	0.3 a	0.1 a
3 Lumina									
1 Untreated Weed-Free Check						27.33 a	13.0 a	0.0 a	0.8 a
4 Field Trip									

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Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin
Rating Type	Medium	Large	XLarge	YieldTtl				
Rating Unit	#	#	#	#Hrvstlb				
Rating Date	10/06/16	10/06/16	10/06/16	10/06/16				
Trt Treatment	Form	Form	Rate	Appl				
No. Name	Conc	Type	Rate	Unit	Timing			
TABLE OF R MEANS								
Replicate 1	1.9	2.1	0.7	6.4				
Replicate 2	1.8	2.1	0.2	5.8				
Replicate 3	2.0	2.2	0.8	7.7				
TABLE OF A (Herbicide Rate) MEANS								
1 Untreated Weed-Free Check	1.6 a	2.3 a	0.6 a	6.6 a				
2 Reflex.....fomesafen 2 L 0.156 lb ai/a PRE	2.1 a	2.2 a	0.7 a	7.0 a				
3 Reflex.....fomesafen 2 L 0.313 lb ai/a PRE	2.0 a	1.9 a	0.4 a	6.3 a				
LSD P=.05	0.93 - 1.11	0.92 - 1.11	0.52 - 0.68	1.75				
Standard Deviation	0.22t	0.21t	3.55t	2.56				
CV	48.44t	41.46t	83.60t	38.58				
TABLE OF B (Pumpkin Variety) MEANS								
1 Howden Biggie	0.9 c	1.6 bc	0.5 b	4.2 cd				
2 Gladiator	2.0 abc	2.2 b	0.9 ab	6.3 bc				
3 Lumina	2.2 ab	0.7 c	0.0 c	3.8 d				
4 Field Trip	3.4 a	5.4 a	0.3 bc	11.3 a				
5 Jill-Be_little	.	.	.	.				
6 Solid Gold	1.7 bc	2.4 b	2.2 a	7.6 b				
LSD P=.05	0.22	0.20	3.42	2.48				
Standard Deviation	0.22t	0.21t	3.55t	2.56				
CV	48.44t	41.46t	83.60t	38.58				
TABLE OF A (Herbicide Rate) B (Pumpkin Variety) MEANS								
1 Untreated Weed-Free Check	0.4 a	2.3 a	0.4 a	3.7 a				
1 Howden Biggie								
2 Reflex.....fomesafen 2 L 0.156 lb ai/a PRE	1.9 a	2.1 a	0.8 a	5.7 a				
1 Howden Biggie								
3 Reflex.....fomesafen 2 L 0.313 lb ai/a PRE	0.6 a	0.7 a	0.2 a	3.3 a				
1 Howden Biggie								
1 Untreated Weed-Free Check	2.0 a	2.6 a	1.3 a	6.7 a				
2 Gladiator								
2 Reflex.....fomesafen 2 L 0.156 lb ai/a PRE	2.5 a	1.9 a	0.8 a	6.7 a				
2 Gladiator								
3 Reflex.....fomesafen 2 L 0.313 lb ai/a PRE	1.6 a	2.1 a	0.6 a	5.7 a				
2 Gladiator								
1 Untreated Weed-Free Check	1.6 a	0.3 a	0.0 a	2.3 a				
3 Lumina								
2 Reflex.....fomesafen 2 L 0.156 lb ai/a PRE	2.6 a	0.8 a	0.0 a	4.7 a				
3 Lumina								
3 Reflex.....fomesafen 2 L 0.313 lb ai/a PRE	2.3 a	1.2 a	0.0 a	4.3 a				
3 Lumina								
1 Untreated Weed-Free Check	4.6 a	5.9 a	0.4 a	13.0 a				
4 Field Trip								

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Crop Type, Code				C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name				Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin
Rating Type				StandCt	Stunting	Stunting	Stunting	Stunting	Stunting	Stunting	Stunting
Rating Unit				#/24'Row	%	%	%	%	%	%	%
Rating Date				07/19/16	07/25/16	08/03/16	08/03/16	08/10/16	08/10/16	08/10/16	08/10/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing					
2	Reflex.....fomesafen	2 L		0.156 lb ai/a		PRE	15.3 abc	9.3 de	14.0 a		9.3 a
4	Field Trip										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a		PRE	12.0 cde	37.7 bc	34.3 a		23.9 a
4	Field Trip										
1	Untreated Weed-Free Check						16.7 a	0.0 e	0.0 a		0.0 a
5	Jill-Be_little										
2	Reflex.....fomesafen	2 L		0.156 lb ai/a		PRE	11.7 cde	20.0 cd	9.3 a		7.2 a
5	Jill-Be_little										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a		PRE	6.7 f	58.3 a	25.0 a		26.8 a
5	Jill-Be_little										
1	Untreated Weed-Free Check						12.3 b-e	0.0 e	0.0 a		0.0 a
6	Solid Gold										
2	Reflex.....fomesafen	2 L		0.156 lb ai/a		PRE	13.0 a-e	7.3 de	5.7 a		5.6 a
6	Solid Gold										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a		PRE	13.0 a-e	16.3 de	9.0 a		5.6 a
6	Solid Gold										
LSD P=.05					3.67	17.94	15.00	16.24 - 21.39			
Standard Deviation					2.21	10.81	9.04	8.53t			
CV					16.96	68.84	66.32	54.52t			

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Crop Type, Code				C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name				Pumpkin		Pumpkin		Pumpkin		Pumpkin	
Rating Type				BiomRed		Flower		Biomass		BiomsWt	
Rating Unit				%		0-3		#plants		grams	
Rating Date				09/02/16		09/02/16					
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing					
2	Reflex.....fomesafen	2 L		0.156 lb ai/a		PRE	1.1 a	3.0 a	7.3 abc	227.3 a	
4	Field Trip										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a		PRE	11.8 a	2.3 a	5.7 cde	141.3 a	
4	Field Trip										
1	Untreated Weed-Free Check						0.0 a	3.0 a	8.0 a	99.3 a	
5	Jill-Be_little										
2	Reflex.....fomesafen	2 L		0.156 lb ai/a		PRE	13.9 a	2.7 a	6.3 a-d	63.0 a	
5	Jill-Be_little										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a		PRE	35.2 a	2.0 a	4.3 e	31.3 a	
5	Jill-Be_little										
1	Untreated Weed-Free Check						0.0 a	3.0 a	7.0 abc	207.3 a	
6	Solid Gold										
2	Reflex.....fomesafen	2 L		0.156 lb ai/a		PRE	4.5 a	3.0 a	7.3 abc	192.0 a	
6	Solid Gold										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a		PRE	5.6 a	3.0 a	7.3 abc	213.0 a	
6	Solid Gold										
LSD P=.05				9.66 - 21.60			0.75		1.74		69.71
Standard Deviation				7.86t			0.45		1.05		42.01
CV				55.10t			17.38		15.50		30.52

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Crop Type, Code				C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name				Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin
Rating Type				BiomsWt	Orange	Green	Small				
Rating Unit				gr/plant	#	#	#				
Rating Date					09/28/16	09/28/16	10/06/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Rate	Unit	Rate	Unit	Rate	Unit
2	Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	30.10 a		11.7 a		1.0 a	
4	Field Trip										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE	24.59 a		10.7 a		0.3 a	
4	Field Trip										
1	Untreated Weed-Free Check					12.42 a		27.7 a		0.0 a	
5	Jill-Be_little										.
2	Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	9.84 a		20.0 a		0.7 a	
5	Jill-Be_little										.
3	Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE	6.82 a		17.3 a		0.7 a	
5	Jill-Be_little										.
1	Untreated Weed-Free Check					29.62 a		6.3 a		0.7 a	
6	Solid Gold										0.2 a
2	Reflex.....fomesafen	2 L		0.156 lb ai/a	PRE	26.22 a		6.7 a		1.3 a	
6	Solid Gold										0.6 a
3	Reflex.....fomesafen	2 L		0.313 lb ai/a	PRE	29.55 a		6.0 a		1.3 a	
6	Solid Gold										0.4 a
LSD P=.05						9.200		7.36		1.54	
Standard Deviation						5.544		4.44		0.93	
CV						27.893		52.33		108.97	
											6.06
											3.62t
											137.04t

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Crop Type, Code				C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name				Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin
Rating Type				Medium	Large	XLarge	YieldTtl				
Rating Unit				#	#	#	#Hrvstlb				
Rating Date				10/06/16	10/06/16	10/06/16	10/06/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing					
2	Reflex.....fomesafen	2 L		0.156 lb ai/a		PRE	2.1 a	5.6 a	0.4 a	10.0 a	
4	Field Trip										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a		PRE	3.8 a	4.8 a	0.1 a	11.0 a	
4	Field Trip										
1	Untreated Weed-Free Check						.	.	.	.	
5	Jill-Be_little										
2	Reflex.....fomesafen	2 L		0.156 lb ai/a		PRE	.	.	.	.	
5	Jill-Be_little										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a		PRE	.	.	.	.	
5	Jill-Be_little										
1	Untreated Weed-Free Check						1.0 a	2.9 a	2.2 a	7.3 a	
6	Solid Gold										
2	Reflex.....fomesafen	2 L		0.156 lb ai/a		PRE	1.6 a	2.3 a	2.6 a	8.0 a	
6	Solid Gold										
3	Reflex.....fomesafen	2 L		0.313 lb ai/a		PRE	2.6 a	2.0 a	1.9 a	7.3 a	
6	Solid Gold										
LSD P=.05					0.38		0.34		5.93		4.29
Standard Deviation					0.22t		0.21t		3.55t		2.56
CV					48.44t		41.46t		83.60t		38.58

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FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin StandCt #/24'Row 07/19/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	473.925926				
R	2	3.703704	1.851852	0.379	0.6877	
A	2	135.592593	67.796296	13.861	0.0001	1.5
B	5	57.703704	11.540741	2.360	0.0609	2.1
AB	10	110.629630	11.062963	2.262	0.0373	3.7
ERROR	34	166.296296	4.891068			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Stunting % 07/25/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	22273.259259				
R	2	691.148148	345.574074	2.957	0.0654	
A	2	12485.148148	6242.574074	53.424	0.0001	7.3
B	5	2516.814815	503.362963	4.308	0.0038	10.4
AB	10	2607.296296	260.729630	2.231	0.0398	17.9
ERROR	34	3972.851852	116.848584			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Stunting % 08/03/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	13088.592593				
R	2	667.592593	333.796296	4.085	0.0257	
A	2	7131.703704	3565.851852	43.636	0.0001	6.1
B	5	1416.592593	283.318519	3.467	0.0122	8.7
AB	10	1094.296296	109.429630	1.339	0.2501	15.0
ERROR	34	2778.407407	81.717865			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Stunting % 08/10/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	12102.885994				
R	2	851.984002	425.992001	5.859	0.0065	
A	2	7449.126645	3724.563322	51.225	0.0001	6.9 - 7.8
B	5	701.546906	140.309381	1.930	0.1150	6.3 - 7.5
AB	10	628.095308	62.809531	0.864	0.5741	16.2 - 21.4
ERROR	34	2472.133133	72.709798			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin BiomRed % 09/02/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	11003.345479				
R	2	101.529770	50.764885	0.821	0.4485	
A	2	6283.431019	3141.715510	50.807	0.0001	5.8 - 6.8
B	5	1357.221577	271.444315	4.390	0.0034	5.5 - 7.8
AB	10	1158.721406	115.872141	1.874	0.0844	9.7 - 21.6
ERROR	34	2102.441706	61.836521			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Flower 0-3 09/02/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	20.833333				
R	2	0.333333	0.166667	0.810	0.4535	
A	2	2.111111	1.055556	5.127	0.0113	0.3
B	5	9.277778	1.855556	9.013	0.0001	0.4
AB	10	2.111111	0.211111	1.025	0.4435	0.8
ERROR	34	7.000000	0.205882			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Biomass #plants						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	103.870370				
R	2	4.037037	2.018519	1.840	0.1743	
A	2	29.148148	14.574074	13.286	0.0001	0.7
B	5	5.203704	1.040741	0.949	0.4625	1.0
AB	10	28.185185	2.818519	2.569	0.0196	1.7
ERROR	34	37.296296	1.096950			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin BiomsWt grams						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	291724.000000				
R	2	5858.777778	2929.388889	1.660	0.2052	
A	2	31953.444444	15976.722222	9.053	0.0007	28.5
B	5	167812.000000	33562.400000	19.017	0.0001	40.2
AB	10	26094.555556	2609.455556	1.479	0.1901	69.7
ERROR	34	60005.222222	1764.859477			

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FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin BiomsWt gr/plant						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	4532.790453				
R	2	76.969326	38.484663	1.252	0.2988	
A	2	189.400076	94.700038	3.081	0.0589	3.76
B	5	3033.862264	606.772453	19.740	0.0001	5.31
AB	10	187.439896	18.743990	0.610	0.7945	9.20
ERROR	34	1045.118892	30.738791			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Orange # 09/28/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	3255.481481				
R	2	49.592593	24.796296	1.259	0.2969	
A	2	23.370370	11.685185	0.593	0.5582	3.0
B	5	2342.814815	468.562963	23.787	0.0001	4.3
AB	10	169.962963	16.996296	0.863	0.5750	7.4
ERROR	34	669.740741	19.698257			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Green # 09/28/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	62.814815				
R	2	12.037037	6.018519	6.985	0.0029	
A	2	2.703704	1.351852	1.569	0.2230	0.6
B	5	13.481481	2.696296	3.129	0.0198	0.9
AB	10	5.296296	0.529630	0.615	0.7905	1.5
ERROR	34	29.296296	0.861656			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Small # 10/06/16 Analysis will skip factor level B5 for column 12 - all B5 treatments are missing						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	511.047162				
R	2	9.610282	4.805141	0.366	0.6966	
A	2	10.731614	5.365807	0.409	0.6683	0.3 - 0.5
B	4	98.243064	24.560766	1.872	0.1433	3.5
AB	8	25.073071	3.134134	0.239	0.9798	6.1
ERROR	28	367.389130	13.121040			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Medium # 10/06/16 Analysis will skip factor level B5 for column 13 - all B5 treatments are missing						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	2.467772				
R	2	0.006963	0.003482	0.069	0.9333	
A	2	0.043699	0.021850	0.434	0.6522	0.9 - 1.1
B	4	0.637380	0.159345	3.165	0.0289	0.2
AB	8	0.370098	0.046262	0.919	0.5158	0.4
ERROR	28	1.409631	0.050344			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Large # 10/06/16 Analysis will skip factor level B5 for column 14 - all B5 treatments are missing						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	3.050955				
R	2	0.003080	0.001540	0.036	0.9644	
A	2	0.030748	0.015374	0.362	0.6995	0.9 - 1.1
B	4	1.582144	0.395536	9.312	0.0001	0.2
AB	8	0.245710	0.030714	0.723	0.6698	0.3
ERROR	28	1.189273	0.042474			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin XLarge # 10/06/16 Analysis will skip factor level B5 for column 15 - all B5 treatments are missing						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	780.866322				
R	2	45.220450	22.610225	1.799	0.1841	
A	2	14.713155	7.356577	0.585	0.5637	0.5 - 0.7
B	4	357.209041	89.302260	7.104	0.0004	3.4
AB	8	11.722597	1.465325	0.117	0.9982	5.9
ERROR	28	352.001080	12.571467			

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FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin YieldTtl #Hrvstlb 10/06/16 Analysis will skip factor level B5 for column 16 - all B5 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	582.311111				
R	2	29.377778	14.688889	2.236	0.1256	
A	2	3.377778	1.688889	0.257	0.7751	1.8
B	4	332.977778	83.244444	12.671	0.0001	2.5
AB	8	32.622222	4.077778	0.621	0.7532	4.3
ERROR	28	183.955556	6.569841			

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Sweet Potato Tolerance and Weed Control with Experimental Herbicides  
 Trial ID: SwPot1-16      Location: Field #9a      Trial Year: 2016  
 Protocol ID: SwPot1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: IR-4

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjev@udel.edu  
 Country: USA      United States

**Crop Description**  
 Crop 1: C      IPOBA Ipomoea batatas      Sweet potato      BBCH Scale: BVPP  
 Variety: Beauregard  
 Attributes: Transplants with roots  
 Planting Date: 06/16/16      Planting Rate: 1      ft  
 Planting Method: TRAHAN transplanted - hand  
 Row Spacing: 5      ft  
 Spacing within Row: 1      ft      Seed Bed: SMOOTH smooth  
 Soil Temperature: 69      F      Soil Moisture: NORMAL normal, adequate  
 Harvest Date: 10/05/16      Harvest Equipment: Potato digger  
 Harvested Width: 2      rows  
 Harvested Length: 10      ft

**Pest Description**  
 Pest 1 Type: W      Code: AMASS Amaranthus sp.  
 Common Name: Amaranth  
 Pest 2 Type: W      Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory  
 Pest 3 Type: W      Code: MOLVE Mollugo verticillata  
 Common Name: Carpetweed  
 Pest 4 Type: W      Code: ELEIN Eleusine indica  
 Common Name: Goosegrass  
 Pest 5 Type: W      Code: PANDI Panicum dichotomiflorum  
 Common Name: Fall panicum  
 Pest 6 Type: W      Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass

**Site and Design**  
 Treated Plot Width: 10 FT      Site Type: FIELD      field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT2      Treatments: 14      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: RACOB� Randomized Complete Block (RCB)

Field Prep./Maintenance:  
 7/8/16: 50 lb N dribbled along side rows. Hilled and cultivated on 7/11/16. Total Postemergence applicatiobn of Poast + COC on 7/20/16.

**Soil Description**  
 Description Name: Field 9  
 % Sand: 83      % OM: 1.5      Texture: LS      loamy sand  
 % Silt: 9      pH: 6.1      Soil Name: Pepperbox loamy sand, 0-2% slopes  
 % Clay: 8      CEC: 4.8      Fert. Level: G      good  
 Soil Drainage: F      fair



<b>Application Description</b>				
	A	B	C	D
Application Date	06/15/16	06/20/16	06/30/16	07/12/16
Appl. Stop Time	12:00 PM	05:00 PM	10:40 AM	12:45 PM
Interval to Prev. Appl.		5 DAYS	10 DAYS	12 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	PRETRA	POSTRA	14DATrn	28DATrn
Application Placement	BROADC	BROFOL	BROFOL	BROFOL
Applied By	Matt	VanGessl	Matt	Matt
Air Temperature Start, Stop	72 F	87 F	78 F	83 F
% Relative Humidity Start, Stop	65	29	53	56
Wind Velocity+Dir. Start	1 MPH SSE	6 MPH W	2.5 MPH W	5 MPH SSE
Wet Leaves (Y/N)	N no	N no	N no	N no
Soil Temperature	72 F	87 F	78 F	83 F
Soil Moisture	DRY	NORMAL	NORMAL	NORMAL
% Cloud Cover	95	10	0	20
Next Moisture Occurred On	06/17/16			

<b>Crop Stage At Each Application</b>				
	A	B	C	D
Crop 1 Code, BBCH Scale	IPOBA BVPP	IPOBA BVPP	IPOBA BVPP	IPOBA BVPP
Stage Scale Used		BBCH	BBCH	BBCH
Stage Majority, Percent		3-6 lf	veg	ea vine
Average Diameter			4 IN	9 IN
Height Average				7 IN

**Pest Stage At Each Application**

	A	B	C	D
Pest 1 Code, Type, Scale	AMASS W	AMASS W	AMASS W	AMASS W
Stage Majority, Percent			veg	
Height Average			2 IN	
Height Minimum, Maximum			1 3	
Density Average			8 m2	
Pest 2 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent			veg	
Height Average			1.5 IN	
Height Minimum, Maximum			1 2	
Density Average			2 m2	
Pest 3 Code, Type, Scale	MOLVE W	MOLVE W	MOLVE W	MOLVE W
Stage Majority, Percent			veg	
Height Average			0.25 IN	
Height Minimum, Maximum			0.25 0.5	
Density Average			40 m2	
Pest 4 Code, Type, Scale	ELEIN W	ELEIN W	ELEIN W	ELEIN W
Stage Majority, Percent			1tillr	
Height Average			1 IN	
Height Minimum, Maximum			0.5 1	
Density Average			10 m2	
Pest 5 Code, Type, Scale	PANDI W	PANDI W	PANDI W	PANDI W
Stage Majority, Percent			1tillr	
Height Average			1 IN	
Height Minimum, Maximum			0.5 1	
Density Average			20 m2	
Pest 6 Code, Type, Scale	DIGSA W	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent			1tillr	
Height Average			1 IN	
Height Minimum, Maximum			0.5 1	
Density Average			10 m2	

**Application Equipment**

	A	B	C	D
Appl. Equipment	Backpack	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	30 psi	30 psi	30 psi	30 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	18 in	18 in	18 in	18 in
Boom Length	9 ft	9 ft	9 ft	9 ft
Boom Height	18 in	18 in	18 in	18 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Propellant	COMCO2	COMCO2	COMCO2	COMCO2

Sweet Potato Tolerance and Weed Control with Experimental Herbicides  
Trial ID: SwPot1-16      Location: Field #9a      Trial Year: 2016  
Protocol ID: SwPot1-16      Investigator: Mark VanGessel  
Study Director:  
Sponsor Contact: IR-4

Trial Comments

07/08/16: AMASS = 70% smooth and 30% Palmer. CYPES present but too variable to rate. Plot 206 was really wet due to irrigation system dripping.

At yield: 3 additional hand weeded checks were harvested:

plot	wt canners	wt #1's	wt jumbos (lbs)	
115	5.16	60.4	10.24	
215	5.74	59.0	3.44	
315	10.6	42.2	0	(early deer damage along with the last range, 111-115)

Sweet Potato Tolerance and Weed Control with Experimental Herbicides							
Trial ID: SwPot1-16		Location: Field #9a		Trial Year: 2016			
Protocol ID: SwPot1-16		Investigator: Mark VanGessel					
Study Director:							
Sponsor Contact: IR-4							
Pest Code	C	IPOBA	C	IPOBA	C	IPOBA	
Crop Type, Code	SwPotato	SwPotato	SwPotato	SwPotato	SwPotato	SwPotato	
Description	Stunting	LeafBurn	Stunting	Chlorosis			
Rating Type	%	%	%	%			
Rating Unit	06/23/16	06/23/16	06/30/16	06/30/16			
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Weed-Free Check						
2	SP1171.....fluridone	2 SL		0.15 lb ai/a	PreTrns	A	
3	SP1171.....fluridone	2 SL		0.3 lb ai/a	PreTrns	A	
4	SP1171.....fluridone	2 SL		0.6 lb ai/a	PreTrns	A	
5	Linex.....linuron	4 L		0.5 lb ai/a	28DATrn	D	
6	Linex.....linuron	4 L		1.0 lb ai/a	28DATrn	D	
7	Linex.....linuron	4 L		0.5 lb ai/a	14 DATrn	C	
	Linex.....linuron	4 L		0.5 lb ai/a	28DATrn	D	
8	Linex.....linuron	4 L		1.0 lb ai/a	14 DATrn	C	
	Linex.....linuron	4 L		1.0 lb ai/a	28DATrn	D	
9	Reflex.....fomesafen	2 L		0.25 lb ai/a	PreTrns	A	
10	Reflex.....fomesafen	2 L		0.5 lb ai/a	PreTrns	A	
11	Valor SX.....flumioxazin	51 WG		0.08 lb ai/a	PreTrns	A	
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a	PostTrns	B	
12	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a	PreTrns	A	
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a	PostTrns	B	
13	Tolpyralate	3.34 SC		0.026 lb ai/a	PreTrns	A	
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a	PostTrns	B	
14	Tolpyralate	3.34 SC		0.026 lb ai/a	PostTrns	B	
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a	PostTrns	B	
LSD	P=.05	5.22	5.10	5.03	7.23		
Standard Deviation		3.04	2.97	3.00	4.30		
CV		285.22	202.73	117.67	47.83		
Replicate F		0.436	0.501	0.241	2.594		
Replicate Prob(F)		0.6534	0.6139	0.7875	0.0939		
Treatment F		0.639	2.180	3.735	40.684		
Treatment Prob(F)		0.7505	0.0762	0.0021	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Average=10,11,12

Pest Code						C IPOBA	C IPOBA	C IPOBA	C IPOBA		
Crop Type, Code						SwPotato	SwPotato	SwPotato	SwPotato		
Description						LeafBurn	DeerDmag	>40%inj	>70%inj		
Rating Type						%	#/plot	#/plot	#/plot		
Rating Unit						06/30/16	07/01/16	07/07/16	07/07/16		
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Weed-Free Check							0.0 g	0.0 a	0.3 b	0.3 bc
2	SP1171.....fluridone	2 SL		0.15 lb ai/a		PreTrns	A	4.3 ef	2.3 a	0.7 b	0.7 bc
3	SP1171.....fluridone	2 SL		0.3 lb ai/a		PreTrns	A	16.0 ab	0.7 a	6.3 a	3.3 b
4	SP1171.....fluridone	2 SL		0.6 lb ai/a		PreTrns	A	19.3 a	6.3 a	8.0 a	17.3 a
5	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn	D	0.0 g	2.7 a	0.0 b	0.0 c
6	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn	D	0.0 g	1.3 a	0.0 b	0.7 bc
7	Linex.....linuron	4 L		0.5 lb ai/a		14 DATrn	C	1.7 fg	1.3 a	1.0 b	0.0 c
	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn	D				
8	Linex.....linuron	4 L		1.0 lb ai/a		14 DATrn	C	0.0 g	0.7 a	7.0 a	0.7 bc
	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn	D				
9	Reflex.....fomesafen	2 L		0.25 lb ai/a		PreTrns	A	5.0 ef	1.3 a	0.0 b	0.0 c
10	Reflex.....fomesafen	2 L		0.5 lb ai/a		PreTrns	A	9.3 cd	0.0 a	0.0 b	0.0 c
11	Valor SX.....flumioxazin	51 WG		0.08 lb ai/a		PreTrns	A	11.3 c	0.7 a	0.3 b	0.3 bc
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a		PostTrns	B				
12	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		PreTrns	A	13.0 bc	0.0 a	0.0 b	0.0 c
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B				
13	Tolpyralate	3.34 SC		0.026 lb ai/a		PreTrns	A	6.3 de	0.0 a	0.3 b	0.0 c
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B				
14	Tolpyralate	3.34 SC		0.026 lb ai/a		PostTrns	B	10.0 cd	0.0 a	0.0 b	0.0 c
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B				
LSD	P=.05							3.89	3.58	3.15	3.29
Standard Deviation								2.32	2.13	1.88	1.96
CV								33.68	172.24	109.5	117.61
Replicate F								1.148	3.932	0.243	1.661
Replicate Prob(F)								0.3328	0.0322	0.7858	0.2095
Treatment F								23.118	1.922	7.449	16.469
Treatment Prob(F)								0.0001	0.0758	0.0001	0.0001

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Missing data estimates are included in columns: Average=10,11,12

Pest Code						C IPOBA	C IPOBA	C IPOBA	C IPOBA		
Crop Type, Code						SwPotato	SwPotato	SwPotato	SwPotato		
Description						SwPotato	SwPotato	SwPotato	SwPotato		
Rating Type						dead	Stunting	Chlorosis	Necrosis		
Rating Unit						#/plot	%	%	%		
Rating Date						07/07/16	07/08/16	07/08/16	07/08/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code				
1	Untreated Weed-Free Check							1.0 a	0.0 d	0.0 e	0.0 f
2	SP1171.....fluridone	2 SL		0.15 lb ai/a		PreTrns	A	0.0 a	0.8 cd	6.0 cde	3.7 def
3	SP1171.....fluridone	2 SL		0.3 lb ai/a		PreTrns	A	0.7 a	14.1 b	29.3 b	16.3 b
4	SP1171.....fluridone	2 SL		0.6 lb ai/a		PreTrns	A	4.3 a	48.4 a	58.3 a	36.7 a
5	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn	D	0.0 a	0.0 d	0.0 e	0.0 f
6	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn	D	0.0 a	0.0 d	0.0 e	0.0 f
7	Linex.....linuron	4 L		0.5 lb ai/a		14 DATrn	C	0.0 a	5.0 bc	6.0 cde	2.7 ef
	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn	D				
8	Linex.....linuron	4 L		1.0 lb ai/a		14 DATrn	C	0.0 a	12.3 b	13.3 c	18.3 b
	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn	D				
9	Reflex.....fomesafen	2 L		0.25 lb ai/a		PreTrns	A	0.0 a	0.9 cd	6.0 cde	4.3 c-f
10	Reflex.....fomesafen	2 L		0.5 lb ai/a		PreTrns	A	0.0 a	0.0 d	4.0 de	3.3 def
11	Valor SX.....flumioxazin	51 WG		0.08 lb ai/a		PreTrns	A	0.0 a	14.9 b	8.0 cd	9.0 cd
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a		PostTrns	B				
12	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		PreTrns	A	0.0 a	14.5 b	8.0 cd	10.0 c
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B				
13	Tolpyralate	3.34 SC		0.026 lb ai/a		PreTrns	A	0.0 a	0.0 d	6.7 cde	5.0 c-f
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B				
14	Tolpyralate	3.34 SC		0.026 lb ai/a		PostTrns	B	0.0 a	0.8 cd	11.7 cd	8.3 cde
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B				
LSD	P=.05						2.68	7.26 - 19.19	7.88	6.32	
Standard Deviation							1.60	6.71t	4.65	3.73	
CV							373.1	58.63t	41.42	44.37	
Replicate F							2.123	0.690	5.552	4.362	
Replicate Prob(F)							0.1399	0.5119	0.0112	0.0254	
Treatment F							1.593	11.662	33.072	21.308	
Treatment Prob(F)							0.1512	0.0001	0.0001	0.0001	

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Missing data estimates are included in columns: Average=10,11,12

Pest Code Crop Type, Code			AMASS C -	IPOSS C -	MOLVE C -	ELEIN C -					
Description			AmarthSp	morngrly	Carpetwd	Goosegrs					
Rating Type			Control	Control	Control	Control					
Rating Unit			%	%	%	%					
Rating Date			07/08/16	07/08/16	07/08/16	07/08/16					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code				
1	Untreated Weed-Free Check							0.0 c	0.0 f	0.0 c	0.0 c
2	SP1171.....fluridone	2 SL		0.15 lb ai/a		PreTrns	A	98.3 b	88.3 bc	89.0 b	92.7 b
3	SP1171.....fluridone	2 SL		0.3 lb ai/a		PreTrns	A	100.0 a	91.7 abc	100.0 a	96.7 ab
4	SP1171.....fluridone	2 SL		0.6 lb ai/a		PreTrns	A	100.0 a	100.0 a	100.0 a	100.0 a
5	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn	D				
6	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn	D				
7	Linex.....linuron	4 L		0.5 lb ai/a		14 DATrn	C	100.0 a	88.3 bc	100.0 a	94.0 ab
	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn	D				
8	Linex.....linuron	4 L		1.0 lb ai/a		14 DATrn	C	100.0 a	93.3 ab	100.0 a	100.0 a
	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn	D				
9	Reflex.....fomesafen	2 L		0.25 lb ai/a		PreTrns	A	100.0 a	86.7 bc	99.7 a	98.3 ab
10	Reflex.....fomesafen	2 L		0.5 lb ai/a		PreTrns	A	100.0 a	84.0 cd	99.3 a	99.0 ab
11	Valor SX.....flumioxazin	51 WG		0.08 lb ai/a		PreTrns	A	100.0 a	100.0 a	100.0 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a		PostTrns	B				
12	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		PreTrns	A	100.0 a	99.3 a	100.0 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B				
13	Tolpyralate	3.34 SC		0.026 lb ai/a		PreTrns	A	100.0 a	73.0 e	99.7 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B				
14	Tolpyralate	3.34 SC		0.026 lb ai/a		PostTrns	B	100.0 a	77.3 de	99.3 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B				
LSD P=.05				1.41		8.58		3.23		6.67	
Standard Deviation				0.83		5.07		1.91		3.94	
CV				0.91		6.19		2.11		4.37	
Replicate F				1.000		3.978		1.467		1.512	
Replicate Prob(F)				0.3840		0.0335		0.2524		0.2425	
Treatment F				3590.091		86.123		679.352		156.863	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001	

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Missing data estimates are included in columns: Average=10,11,12

Pest Code						PANDI	C IPOBA	C IPOBA	C IPOBA
Crop Type, Code						C -			
Description						F.panicm	SwPotato	SwPotato	SwPotato
Rating Type						Control	Stunting	Chlrosis	BiomRed
Rating Unit						%	%	%	%
Rating Date						07/08/16	07/13/16	07/13/16	08/05/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code		
1	Untreated Weed-Free Check							0.0 c	0.0 b
2	SP1171.....fluridone	2 SL		0.15 lb ai/a		PreTrns A		92.7 ab	0.9 fg
3	SP1171.....fluridone	2 SL		0.3 lb ai/a		PreTrns A		97.3 ab	30.9 b
4	SP1171.....fluridone	2 SL		0.6 lb ai/a		PreTrns A		100.0 a	78.5 a
5	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn D			0.0 g
6	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn D			0.0 g
7	Linex.....linuron	4 L		0.5 lb ai/a		14 DATrn C		90.0 b	12.5 cd
	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn D			3.3 c
8	Linex.....linuron	4 L		1.0 lb ai/a		14 DATrn C		96.7 ab	18.9 bc
	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn D			8.3 c
9	Reflex.....fomesafen	2 L		0.25 lb ai/a		PreTrns A		94.0 ab	0.8 fg
10	Reflex.....fomesafen	2 L		0.5 lb ai/a		PreTrns A		97.3 ab	9.4 cde
11	Valor SX.....flumioxazin	51 WG		0.08 lb ai/a		PreTrns A		100.0 a	15.3 bcd
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a		PostTrns B			4.3 c
12	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		PreTrns A		98.3 a	21.8 bc
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns B			5.0 c
13	Tolpyralate	3.34 SC		0.026 lb ai/a		PreTrns A		100.0 a	5.6 def
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns B			3.3 c
14	Tolpyralate	3.34 SC		0.026 lb ai/a		PostTrns B		100.0 a	2.4 efg
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns B			8.3 c
LSD P=.05						7.88	7.63 - 18.75	9.92	15.36
Standard Deviation						4.65	7.00t	5.91	9.15
CV						5.24	40.11t	64.12	132.54
Replicate F						0.163	3.145	2.519	2.235
Replicate Prob(F)						0.8506	0.0598	0.1000	0.1272
Treatment F						109.965	17.884	24.613	7.011
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Average=10,11,12



Pest Code						C IPOBA	C IPOBA	C IPOBA	C IPOBA		
Crop Type, Code						SwPotato	SwPotato	SwPotato	SwPotato		
Description						BiomRed	CannerWt	#1's Wt	Jumbo Wt		
Rating Type						%	lbs/20ft	lbs/20ft	lbs/20ft		
Rating Unit						10/03/16	10/05/16	10/05/16	10/05/16		
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code				
1	Untreated Weed-Free Check							0.0 b	6.260 bcd	54.707 a	8.747 a
2	SP1171.....fluridone	2 SL		0.15 lb ai/a		PreTrns A		0.0 b	5.340 bcd	56.520 a	9.773 a
3	SP1171.....fluridone	2 SL		0.3 lb ai/a		PreTrns A		0.0 b	7.360 ab	50.247 a	21.127 a
4	SP1171.....fluridone	2 SL		0.6 lb ai/a		PreTrns A		41.7 a	3.573 d	26.953 a	17.093 a
5	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn D		0.0 b	5.080 bcd	59.500 a	11.160 a
6	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn D		0.0 b	6.487 a-d	54.673 a	8.407 a
7	Linex.....linuron	4 L		0.5 lb ai/a		14 DATrn C		0.0 b	5.713 bcd	37.500 a	17.173 a
	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn D					
8	Linex.....linuron	4 L		1.0 lb ai/a		14 DATrn C		0.0 b	7.287 abc	48.100 a	13.060 a
	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn D					
9	Reflex.....fomesafen	2 L		0.25 lb ai/a		PreTrns A		0.0 b	9.467 a	55.033 a	13.513 a
10	Reflex.....fomesafen	2 L		0.5 lb ai/a		PreTrns A		0.0 b	7.427 ab	50.587 a	15.667 a
11	Valor SX.....flumioxazin	51 WG		0.08 lb ai/a		PreTrns A		0.0 b	7.893 ab	49.307 a	19.600 a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a		PostTrns B					
12	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		PreTrns A		0.0 b	4.233 cd	49.653 a	25.293 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns B					
13	Tolpyralate	3.34 SC		0.026 lb ai/a		PreTrns A		0.0 b	5.847 bcd	62.573 a	16.467 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns B					
14	Tolpyralate	3.34 SC		0.026 lb ai/a		PostTrns B		0.0 b	7.893 ab	56.467 a	17.353 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns B					
LSD	P=.05						14.59	3.0644	19.9022	10.2142	
Standard Deviation							8.69	1.8258	11.8583	6.0859	
CV							292.14	28.45	23.32	39.73	
Replicate F							1.000	2.038	0.087	1.812	
Replicate Prob(F)							0.3816	0.1506	0.9168	0.1833	
Treatment F							4.921	2.283	1.779	1.938	
Treatment Prob(F)							0.0003	0.0355	0.1024	0.0732	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Average=10,11,12

Pest Code	Crop Type, Code	Description	Rating Type	Rating Unit	Rating Date	C IPOBA SwPotato Total Wt lbs/20ft 10/05/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Appl Timing	Appl Code	
1	Untreated Weed-Free Check							69.71 a
2	SP1171.....fluridone	2 SL		0.15 lb ai/a		PreTrns	A	71.63 a
3	SP1171.....fluridone	2 SL		0.3 lb ai/a		PreTrns	A	78.73 a
4	SP1171.....fluridone	2 SL		0.6 lb ai/a		PreTrns	A	47.62 a
5	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn	D	75.74 a
6	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn	D	69.57 a
7	Linex.....linuron	4 L		0.5 lb ai/a		14 DATrn	C	60.39 a
	Linex.....linuron	4 L		0.5 lb ai/a		28DATrn	D	
8	Linex.....linuron	4 L		1.0 lb ai/a		14 DATrn	C	68.45 a
	Linex.....linuron	4 L		1.0 lb ai/a		28DATrn	D	
9	Reflex.....fomesafen	2 L		0.25 lb ai/a		PreTrns	A	78.01 a
10	Reflex.....fomesafen	2 L		0.5 lb ai/a		PreTrns	A	73.68 a
11	Valor SX.....flumioxazin	51 WG		0.08 lb ai/a		PreTrns	A	76.80 a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/a		PostTrns	B	
12	Valor SX.....flumioxazin	51 WG		0.096 lb ai/a		PreTrns	A	79.18 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B	
13	Tolpyralate	3.34 SC		0.026 lb ai/a		PreTrns	A	84.89 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B	
14	Tolpyralate	3.34 SC		0.026 lb ai/a		PostTrns	B	81.71 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/a		PostTrns	B	
LSD P=.05								23.978
Standard Deviation								14.287
CV								19.68
Replicate F								0.554
Replicate Prob(F)								0.5812
Treatment F								1.336
Treatment Prob(F)								0.2554

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Missing data estimates are included in columns: Average=10,11,12

Sweet Potato Tolerance and Efficacy with Bicyclopyrone  
 Trial ID: SwPot2-16 Location: Field #9a Trial Year: 2016  
 Protocol ID: SwPot2-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Syngenta

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C IPOBA Ipomoea batatas Sweet potato BBCH Scale: BVPP  
 Variety: Hernandez  
 Attributes: has roots  
 Planting Date: 06/16/16 Planting Rate: 1 per ft  
 Planting Method: TRAHAN transplanted - hand  
 Row Spacing: 5 ft  
 Spacing within Row: 1 ft Seed Bed: SMOOTH smooth  
 Soil Temperature: 69 F Soil Moisture: NORMAL normal, adequate  
 Harvest Equipment: potato harvester

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 14 Tillage Type: CONTIL conventional-till  
 Replications: 3 Study Design: RACOB� Randomized Complete Block (RCB)

**Field Prep./Maintenance:**

Dribbled 50 lb N beside the row on 7/8/16. Total postemergence application Poast + COC on 7-20-16. Hilled and cultivated on 7/11/16. Second and final cultivation on 7/25/16. Post directed spray occurred immediately after.

**Soil Description**

Description Name: Field 9  
 % Sand: 83 % OM: 1.5 Texture: LS loamy sand  
 % Silt: 9 pH: 6.1 Soil Name: Pepperbox loamy sand, 0-2% slopes  
 % Clay: 8 CEC: 4.8 Fert. Level: G good  
 Soil Drainage: F fair

**Application Description**

	A	B	C
Application Date	06/15/16	06/30/16	07/25/16
Appl. Stop Time	11:30 AM	10:40 AM	11:30 AM
Interval to Prev. Appl.		15 DAYS	25 DAYS
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRETRA	POST	POSDIR
Application Placement	BROADC	BROADC	HOODED
Air Temperature Start, Stop	72 F	78 F	91 F
% Relative Humidity Start, Stop	65	53	65
Wind Velocity+Dir. Start	1 MPH SSE	2.5 MPH W	5 MPH W
Wet Leaves (Y/N)	N no	N no	N no
Soil Temperature	72 F	78 F	91 F
Soil Moisture	DRY	NORMAL	NORMAL
% Cloud Cover	95	0	0

**Crop Stage At Each Application**

	A	B	C
Crop 1 Code, BBCH Scale	IPOBA BVPP	IPOBA BVPP	IPOBA BVPP
Stage Scale Used		DESC	DESC
Stage Majority, Percent		upright 100	vining 85
Average Diameter			30 IN
Height Average		10 IN	
Height Minimum, Maximum			18 30
Crop Coverage (%)		100	5

**Application Equipment**

	A	B	C
Appl. Equipment	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	2 NOZL
Operation Pressure	30 psi	30 psi	33 psi
Nozzle Type	AIRMIX	AIRMIX	XRTeejet
Nozzle Size	11002	11002	11002
Nozzle Spacing	18 in	18 in	16 in
Boom Length	9 ft	9 ft	32 in
Boom Height	18 in	18 in	16 in
Ground Speed	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/A
Propellant	COMCO2	COMCO2	COMCO2

**Trial Comments**

06/20/16: Noted: plot 112 looks poor, 202 looks poor, 213 - all small plants.

06/27/16: Wet plots: 1/2 plot - 209, 213, 303. full plot - 210, 214, 304, 305.

07/07/16: Plots 312, 313, 314 - severe deer damage - leaves gone. some deer damage in 104, 106, 114. weed size at rating: AMAPA 1-3", IPOSS 1-3", ELEIN 1.5", PANDI 1.5", CYPES 2-4".

Cultivation began shortly after weed emergence due to initial vining of crop; hence no more weed control ratings as trial was kept weed-free afterward.

07/25/16: Untreated check was vining at last spray application, 18-30 inch vines.

09/26/16: Trt 1, plot 101 was cut by potato digger, so no numbers were counted.

Three additional hand -weeded checks were harvested -

rep	# canners	wt (lbs)	# 1's	wt	jumbo	wt
1	12	2.64	31	18.36	3	3.98
2	24	4.88	46	29.42	3	3.92
3	23	4.16	46	30.62	3	5.96

Sweet Potato Tolerance and Efficacy with Bicyclopyrone			
Trial ID: SwPot2-16	Location: Field #9a	Trial Year: 2016	
Protocol ID: SwPot2-16	Investigator: Mark VanGessel	Study Director:	
Sponsor Contact: Syngenta			

Pest Code						C	IPOBA	C	IPOBA	C	IPOBA
Pest Name						SwPotato	SwPotato	SwPotato	SwPotato	SwPotato	SwPotato
Crop Type, Code						Stunting	Chlrosis	Chlrosis	Necrosis	Necrosis	Necrosis
Crop Name						%'	%'	%'	%'	%'	%'
Rating Type						06/27/16	06/27/16	06/27/16	06/27/16	06/27/16	06/27/16
Rating Unit											
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 a	0.0 d	0.0 d	
2	A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT A		0.0 a	4.0 cd	0.0 d	
3	A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT A		0.0 a	8.3 bc	0.0 d	
4	A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT A		0.0 a	17.7 a	0.0 d	
5	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT A		3.3 a	1.7 d	6.3 abc	
6	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0335 1.24	lb ai/a	PRETRPLNT A 5DATrpInt B		0.0 a	6.3 bc	0.0 d	
7	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0446 1.24	lb ai/a	PRETRPLNT A 5DATrpInt B		0.0 a	10.0 b	2.3 cd	
8	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.089 1.24	lb ai/a	PRETRPLNT A 5DATrpInt B		0.0 a	15.3 a	0.0 d	
9	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor	51 7.62	WG E	0.096 1.24	lb ai/a	PRETRPLNT A 5DATrpInt B		5.7 a	0.0 d	6.7 abc	
10	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0335 0.25	lb ai/a lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B POST-dir C POST-dir C		3.3 a	0.0 d	5.7 bc	
11	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0446 0.25	lb ai/a lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B POST-dir C POST-dir C		2.3 a	0.0 d	2.3 cd	
12	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.089 0.25	lb ai/a lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B POST-dir C POST-dir C		3.3 a	0.0 d	10.7 a	
13	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide	51 2	WG EC	0.096 1	lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B		0.0 a	0.0 d	4.0 cd	
14	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide Command.....clomazone Aim.....carfentrazone Nonionic Surfactant	51 2 3 2 100	WG EC ME EC L	0.096 1 0.375 0.0313 0.25	lb ai/a lb ai/a lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B 5DATrpInt B POST-dir C POST-dir C		4.0 a	0.0 d	9.0 ab	
LSD P=.05								6.08	4.65	4.86	
Standard Deviation								3.62	2.77	2.89	
CV								230.62	61.22	86.22	
Replicate F								1.517	1.949	1.918	
Replicate Prob(F)								0.2381	0.1626	0.1671	
Treatment F								0.919	14.713	4.972	
Treatment Prob(F)								0.5471	0.0001	0.0003	

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Missing data estimates are included in columns: Yates=22,24

Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.

Pest Code	Pest Name	Crop Type, Code				C IPOBA	C IPOBA	C IPOBA
Crop Name	Rating Type					SwPotato DeerDmge	SwPotato Stunting	SwPotato Chlrosis
Rating Unit	Rating Date					#/plot 07/01/16	% 07/07/16	% 07/07/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							
2	A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT	A	0.7 a
3	A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT	A	0.0 a
4	A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT	A	0.0 a
5	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	0.0 a
6	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0335 1.24	lb ai/a	PRETRPLNT 5DATrpInt	A B	0.0 a
7	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0446 1.24	lb ai/a	PRETRPLNT 5DATrpInt	A B	0.0 a
8	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.089 1.24	lb ai/a	PRETRPLNT 5DATrpInt	A B	0.0 a
9	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor	51 7.62	WG E	0.096 1.24	lb ai/a	PRETRPLNT 5DATrpInt	A B	0.3 a
10	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0335 0.25	lb ai/a	PRETRPLNT 5DATrpInt POST-dir POST-dir	A B C C	0.7 a
11	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0446 0.25	lb ai/a	PRETRPLNT 5DATrpInt POST-dir POST-dir	A B C C	0.0 a
12	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.089 0.25	lb ai/a	PRETRPLNT 5DATrpInt POST-dir POST-dir	A B C C	1.3 a
13	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide	51 2	WG EC	0.096 1	lb ai/a	PRETRPLNT 5DATrpInt	A B	0.3 a
14	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide Command.....clomazone Aim.....carfentrazone Nonionic Surfactant	51 2 3 2 100	WG EC ME EC L	0.096 1 0.375 0.0313 0.25	lb ai/a	PRETRPLNT 5DATrpInt 5DATrpInt POST-dir POST-dir	A B B C C	2.3 a
LSD P=.05								3.99
Standard Deviation								14.11
CV								14.80
Replicate F								2.38
Replicate Prob(F)								8.41
Treatment F								8.82
Treatment Prob(F)								46.7
								13.656
								3.293
								0.505
								0.0001
								0.0531
								0.6095
								1.000
								10.559
								0.4786
								0.1112
								0.0001

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=22,24  
Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.

Pest Code Pest Name Crop Type, Code						C IPOBA	AMAPA PalmerAm C -	IPOSS morngrly C -
Crop Name Rating Type Rating Unit Rating Date						SwPotato Necrosis %' 07/07/16	Control % 07/07/16	Control % 07/07/16
Trt Treatment No. Name	Form Form Conc Type	Rate Rate	Appl Unit	Appl Timing	Appl Code			
1 Untreated Check						0.0 e	0.0 d	0.0 e
2 A16003	1.67 SL	0.0335 lb ai/a	PRETRPLNT	A		1.0 de	85.0 c	73.3 d
3 A16003	1.67 SL	0.0446 lb ai/a	PRETRPLNT	A		3.3 de	91.0 bc	83.7 c
4 A16003	1.67 SL	0.089 lb ai/a	PRETRPLNT	A		6.0 b-e	98.3 ab	94.3 ab
5 Valor SX.....flumioxazin	51 WG	0.096 lb ai/a	PRETRPLNT	A		5.0 cde	96.0 ab	86.0 bc
6 A16003 Dual Magnum.....s-metolachlor	1.67 SL 7.62 E	0.0335 lb ai/a 1.24 lb ai/a	PRETRPLNT 5DATrplnt	A B		5.0 cde	97.3 ab	91.0 abc
7 A16003 Dual Magnum.....s-metolachlor	1.67 SL 7.62 E	0.0446 lb ai/a 1.24 lb ai/a	PRETRPLNT 5DATrplnt	A B		10.3 abc	98.3 ab	95.0 ab
8 A16003 Dual Magnum.....s-metolachlor	1.67 SL 7.62 E	0.089 lb ai/a 1.24 lb ai/a	PRETRPLNT 5DATrplnt	A B		10.3 abc	100.0 a	96.0 a
9 Valor SX.....flumioxazin Dual Magnum.....s-metolachlor	51 WG 7.62 E	0.096 lb ai/a 1.24 lb ai/a	PRETRPLNT 5DATrplnt	A B		7.7 a-d	100.0 a	98.3 a
10 Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 WG 7.62 E 1.67 SL 100 L	0.096 lb ai/a 1.24 lb ai/a 0.0335 lb ai/a 0.25 % v/v	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C		11.7 abc	100.0 a	92.7 abc
11 Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 WG 7.62 E 1.67 SL 100 L	0.096 lb ai/a 1.24 lb ai/a 0.0446 lb ai/a 0.25 % v/v	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C		10.7 abc	100.0 a	100.0 a
12 Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 WG 7.62 E 1.67 SL 100 L	0.096 lb ai/a 1.24 lb ai/a 0.089 lb ai/a 0.25 % v/v	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C		13.0 a	100.0 a	100.0 a
13 Valor SX.....flumioxazin Devrinol 2-XT.....napropamide	51 WG 2 EC	0.096 lb ai/a 1 lb ai/a	PRETRPLNT 5DATrplnt	A B		12.7 ab	100.0 a	100.0 a
14 Valor SX.....flumioxazin Devrinol 2-XT.....napropamide Command.....clomazone Aim.....carfentrazone Nonionic Surfactant	51 WG 2 EC 3 ME 2 EC 100 L	0.096 lb ai/a 1 lb ai/a 0.375 lb ai/a 0.0313 lb ai/a 0.25 % v/v	PRETRPLNT 5DATrplnt 5DATrplnt POST-dir POST-dir	A B B C C		7.3 a-d	96.7 ab	96.0 a
LSD P=.05						6.79	7.99	9.38
Standard Deviation						4.05	4.76	5.59
CV						54.47	5.28	6.49
Replicate F						0.170	0.549	0.046
Replicate Prob(F)						0.8445	0.5841	0.9547
Treatment F						3.255	91.548	64.411
Treatment Prob(F)						0.0050	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 t=Mean descriptions are reported in transformed data units, and are not de-transformed.  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=22,24  
 Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.

Pest Code						ELEIN	PANDI	CYPES
Pest Name						Goosegrs	F.panick	Y.nutsge
Crop Type, Code						C -	C -	C -
Crop Name								
Rating Type						Control	Control	Control
Rating Unit						%	%	%
Rating Date						07/07/16	07/07/16	07/07/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 f
2	A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT	A	72.7 e
3	A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT	A	71.7 e
4	A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT	A	84.0 cd
5	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	96.7 ab
6	A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT	A	76.7 de
	Dual Magnum.....s-metolachlor	7.62	E	1.24	lb ai/a	5DATrplnt	B	75.0 de
7	A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT	A	90.0 bc
	Dual Magnum.....s-metolachlor	7.62	E	1.24	lb ai/a	5DATrplnt	B	86.0 bc
8	A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT	A	93.3 abc
	Dual Magnum.....s-metolachlor	7.62	E	1.24	lb ai/a	5DATrplnt	B	91.0 abc
9	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	100.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.24	lb ai/a	5DATrplnt	B	100.0 a
10	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	100.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.24	lb ai/a	5DATrplnt	B	100.0 a
	A16003	1.67	SL	0.0335	lb ai/a	POST-dir	C	96.7 a
	Nonionic Surfactant	100	L	0.25	% v/v	POST-dir	C	
11	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	96.7 ab
	Dual Magnum.....s-metolachlor	7.62	E	1.24	lb ai/a	5DATrplnt	B	96.7 a
	A16003	1.67	SL	0.0446	lb ai/a	POST-dir	C	87.7 ab
	Nonionic Surfactant	100	L	0.25	% v/v	POST-dir	C	
12	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	98.3 ab
	Dual Magnum.....s-metolachlor	7.62	E	1.24	lb ai/a	5DATrplnt	B	97.7 a
	A16003	1.67	SL	0.089	lb ai/a	POST-dir	C	82.7 abc
	Nonionic Surfactant	100	L	0.25	% v/v	POST-dir	C	
13	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	100.0 a
	Devrinol 2-XT.....napropamide	2	EC	1	lb ai/a	5DATrplnt	B	100.0 a
14	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	96.0 ab
	Devrinol 2-XT.....napropamide	2	EC	1	lb ai/a	5DATrplnt	B	94.0 ab
	Command.....clomazone	3	ME	0.375	lb ai/a	5DATrplnt	B	75.0 abc
	Aim.....carfentrazone	2	EC	0.0313	lb ai/a	POST-dir	C	
	Nonionic Surfactant	100	L	0.25	% v/v	POST-dir	C	
LSD P=.05						9.45	9.77	24.57
Standard Deviation						5.63	5.82	14.64
CV						6.7	7.02	20.49
Replicate F						2.699	1.015	0.909
Replicate Prob(F)						0.0861	0.3763	0.4155
Treatment F						65.209	59.918	10.179
Treatment Prob(F)						0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=22,24  
 Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.



Pest Code	Pest Name	Crop Type, Code	C	IPOBA	C	IPOBA	C	IPOBA
Crop Name	Rating Type	Rating Unit	Rating Date	SwPotato Stunting %	SwPotato Chlrosis %	SwPotato >40%Injry #		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0 d 0.0 c 0.0 b
2	A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT A		16.3 bcd 3.3 c 0.0 b
3	A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT A		26.0 b 16.0 c 0.3 b
4	A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT A		73.3 a 83.3 a 6.0 a
5	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT A		0.0 d 0.0 c 0.0 b
6	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0335 1.24	lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B		18.0 bcd 14.0 c 0.0 b
7	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0446 1.24	lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B		24.3 bc 13.0 c 1.0 b
8	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.089 1.24	lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B		61.7 a 62.7 b 4.7 a
9	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor	51 7.62	WG E	0.096 1.24	lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B		3.3 cd 0.0 c 0.0 b
10	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0335 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrpInt B POST-dir C POST-dir C		6.7 bcd 1.7 c 0.0 b
11	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0446 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrpInt B POST-dir C POST-dir C		2.7 cd 2.3 c 0.0 b
12	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.089 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrpInt B POST-dir C POST-dir C		2.3 d 4.0 c 0.0 b
13	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide	51 2	WG EC	0.096 1	lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B		5.0 bcd 3.3 c 0.0 b
14	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide Command.....clomazone Aim.....carfentrazone Nonionic Surfactant	51 2 3 2 100	WG EC ME EC L	0.096 1 0.375 0.0313 0.25	lb ai/a lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrpInt B 5DATrpInt B POST-dir C POST-dir C		6.7 bcd 2.7 c 0.0 b
LSD P=.05				21.92	20.18	2.32		
Standard Deviation				13.06	12.02	1.38		
CV				74.23	81.57	161.17		
Replicate F				0.904	1.939	0.449		
Replicate Prob(F)				0.4174	0.1640	0.6430		
Treatment F				9.256	13.579	5.877		
Treatment Prob(F)				0.0001	0.0001	0.0001		

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns:Yates=22,24  
Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.

Pest Code	Pest Name	Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date	C	IPOBA	C	IPOBA	C	IPOBA
			SwPotato	>70%Injry	#	07/19/16			SwPotato	Dead	#	07/19/16
										Chlrosis	%	07/28/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code					
1	Untreated Check							0.0 b		0.3 b		0.00 b
2	A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT	A	0.0 b		0.0 b		
3	A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT	A	0.0 b		0.0 b		
4	A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT	A	6.0 a		2.0 a		
5	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	0.0 b		0.0 b		
6	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0335 1.24	lb ai/a	PRETRPLNT 5DATrplnt	A B	0.0 b		0.0 b		
7	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0446 1.24	lb ai/a	PRETRPLNT 5DATrplnt	A B	0.0 b		0.0 b		
8	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.089 1.24	lb ai/a	PRETRPLNT 5DATrplnt	A B	1.7 b		3.0 a		
9	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor	51 7.62	WG E	0.096 1.24	lb ai/a	PRETRPLNT 5DATrplnt	A B	0.3 b		0.0 b		
10	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0335 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C	0.0 b		0.0 b		2.83 a
11	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0446 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C	0.0 b		0.0 b		4.33 a
12	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.089 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C	0.0 b		0.0 b		3.33 a
13	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide	51 2	WG EC	0.096 1	lb ai/a lb ai/a	PRETRPLNT 5DATrplnt	A B	0.0 b		0.0 b		
14	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide Command.....clomazone Aim.....carfentrazone Nonionic Surfactant	51 2 3 2 100	WG EC ME EC L	0.096 1 0.375 0.0313 0.25	lb ai/a lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT 5DATrplnt 5DATrplnt POST-dir POST-dir	A B B C C	0.0 b		0.3 b		0.00 b
LSD P=.05								2.94		1.38		1.547
Standard Deviation								1.75		0.82		0.822
CV								306.51		203.1		39.12
Replicate F								1.560		1.304		1.556
Replicate Prob(F)								0.2292		0.2887		0.2687
Treatment F								2.581		3.732		17.630
Treatment Prob(F)								0.0191		0.0021		0.0005

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Missing data estimates are included in columns:Yates=22,24  
Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.

Pest Code	Pest Name	Crop Type, Code	C	IPOBA	C	IPOBA	C	IPOBA
Crop Name	Rating Type	Rating Unit	Rating Date	SwPotato BiomRed %	SwPotato Stunting %	SwPotato CrwnInjry %		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
	1 Untreated Check							0.0 e 0.0 b 0.0 a
	2 A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT A		17.9 cd 8.3 b 0.0 a
	3 A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT A		42.7 bc 18.3 b 0.0 a
	4 A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT A		84.9 a 65.0 a 0.0 a
	5 Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT A		0.0 e 0.0 b 0.0 a
	6 A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0335 1.24	lb ai/a	PRETRPLNT A 5DATrpInt B		8.5 de 9.3 b 0.0 a
	7 A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0446 1.24	lb ai/a	PRETRPLNT A 5DATrpInt B		25.9 cd 13.3 b 0.0 a
	8 A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.089 1.24	lb ai/a	PRETRPLNT A 5DATrpInt B		67.4 ab 43.3 a 0.0 a
	9 Valor SX.....flumioxazin Dual Magnum.....s-metolachlor	51 7.62	WG E	0.096 1.24	lb ai/a	PRETRPLNT A 5DATrpInt B		5.1 de 3.3 b 0.0 a
	10 Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0335 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrpInt B POST-dir C POST-dir C		13.4 cd 5.0 b 0.0 a
	11 Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0446 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrpInt B POST-dir C POST-dir C		4.1 de 0.0 b 0.0 a
	12 Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.089 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrpInt B POST-dir C POST-dir C		0.0 e 3.3 b 0.0 a
	13 Valor SX.....flumioxazin Devrinol 2-XT.....napropamide	51 2	WG EC	0.096 1	lb ai/a lb ai/a	PRETRPLNT A 5DATrpInt B		5.1 de 0.0 b 0.0 a
	14 Valor SX.....flumioxazin Devrinol 2-XT.....napropamide Command.....clomazone Aim.....carfentrazone Nonionic Surfactant	51 2 3 2 100	WG EC ME EC L	0.096 1 0.375 0.0313 0.25	lb ai/a lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrpInt B 5DATrpInt B POST-dir C POST-dir C		13.0 cd 4.0 b 0.0 a
	LSD P=.05							23.60 - 31.38 23.65 .
	Standard Deviation							11.98t 14.09 0.00
	CV							53.09t 113.8 0.0
	Replicate F							1.977 0.849 0.000
	Replicate Prob(F)							0.1588 0.4396 1.0000
	Treatment F							8.544 5.452 0.000
	Treatment Prob(F)							0.0001 0.0001 1.0000

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Missing data estimates are included in columns:Yates=22,24  
Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.

Pest Code	Pest Name	Crop Type, Code	C	IPOBA	C	IPOBA	C	IPOBA		
Crop Name	Rating Type	Rating Unit	Rating Date	SwPotato canners #/10'row 09/26/16	SwPotato canners lb/10'rw 09/26/16	SwPotato #1's #/10'row 09/26/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Appl Timing	Appl Code			
1	Untreated Check							14.1 a	2.373 a	32.7 ab
2	A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT	A	7.0 a	1.587 a	16.0 cde
3	A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT	A	21.3 a	4.460 a	16.0 cde
4	A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT	A	5.7 a	0.807 a	7.0 e
5	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	16.7 a	3.020 a	32.7 ab
6	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0335 1.24	lb ai/a lb ai/a	PRETRPLNT 5DATrplnt	A B	12.7 a	2.107 a	20.3 b-e
7	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0446 1.24	lb ai/a lb ai/a	PRETRPLNT 5DATrplnt	A B	21.0 a	3.327 a	26.3 bc
8	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.089 1.24	lb ai/a lb ai/a	PRETRPLNT 5DATrplnt	A B	12.3 a	2.380 a	11.7 de
9	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor	51 7.62	WG E	0.096 1.24	lb ai/a lb ai/a	PRETRPLNT 5DATrplnt	A B	12.3 a	2.173 a	31.7 ab
10	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0335 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C	14.0 a	1.893 a	20.3 b-e
11	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0446 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C	18.0 a	3.240 a	26.0 bc
12	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.089 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C	9.3 a	1.660 a	22.0 bcd
13	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide	51 2	WG EC	0.096 1	lb ai/a lb ai/a	PRETRPLNT 5DATrplnt	A B	20.3 a	3.673 a	42.0 a
14	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide Command.....clomazone Aim.....carfentrazone Nonionic Surfactant	51 2 3 2 100	WG EC ME EC L	0.096 1 0.375 0.0313 0.25	lb ai/a lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT 5DATrplnt 5DATrplnt POST-dir POST-dir	A B B C C	14.0 a	2.307 a	28.0 bc
LSD P=.05								11.43	2.0055	13.36
Standard Deviation								6.80	1.1949	7.95
CV								47.89	47.79	33.44
Replicate F								4.320	3.954	1.554
Replicate Prob(F)								0.0245	0.0317	0.2311
Treatment F								1.562	1.911	4.231
Treatment Prob(F)								0.1636	0.0775	0.0010

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=22,24

Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.

Pest Code	Pest Name	Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date	C IPOBA SwPotato #1's lb/10'rw 09/26/16	C IPOBA SwPotato jumbo #/10'row 09/26/16	C IPOBA SwPotato jumbo lb/10'rw 09/26/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code			
1	Untreated Check							21.307 ab	1.9 a-d	3.540 abc
2	A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT	A	12.273 b-e	1.9 a-d	2.851 abc
3	A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT	A	10.387 cde	0.6 cde	0.839 bcd
4	A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT	A	2.660 e	0.0 e	0.000 d
5	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT	A	20.407 ab	4.6 a	8.996 a
6	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0335 1.24	lb ai/a	PRETRPLNT 5DATrplnt	A B	12.040 b-e	0.8 b-e	1.374 bcd
7	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0446 1.24	lb ai/a	PRETRPLNT 5DATrplnt	A B	16.247 bcd	2.9 ab	5.719 ab
8	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.089 1.24	lb ai/a	PRETRPLNT 5DATrplnt	A B	7.507 de	0.0 e	0.000 d
9	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor	51 7.62	WG E	0.096 1.24	lb ai/a	PRETRPLNT 5DATrplnt	A B	19.380 abc	2.7 abc	5.410 ab
10	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0335 0.25	lb ai/a	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C	12.127 b-e	5.2 a	9.740 a
11	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0446 0.25	lb ai/a	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C	16.613 a-d	2.6 abc	4.042 abc
12	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.089 0.25	lb ai/a	PRETRPLNT 5DATrplnt POST-dir POST-dir	A B C C	14.133 bcd	0.4 de	0.373 cd
13	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide	51 2	WG EC	0.096 1	lb ai/a	PRETRPLNT 5DATrplnt	A B	26.347 a	2.9 ab	4.619 abc
14	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide Command.....clomazone Aim.....carfentrazone Nonionic Surfactant	51 2 3 2 100	WG EC ME EC L	0.096 1 0.375 0.0313 0.25	lb ai/a	PRETRPLNT 5DATrplnt 5DATrplnt POST-dir POST-dir	A B B C C	17.420 a-d	2.8 abc	6.015 ab
LSD P=.05								9.9150	2.09 - 3.67	4.4152 - 7.2681
Standard Deviation								5.9077	0.23t	5.4457t
CV								39.6	54.22t	55.58t
Replicate F								0.776	0.686	0.589
Replicate Prob(F)								0.4706	0.5127	0.5619
Treatment F								3.186	3.762	3.508
Treatment Prob(F)								0.0058	0.0020	0.0031

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=22,24

Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.

Pest Code	Pest Name	Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date	
							C IPOBA SwPotato total wt lb/10'rw 09/26/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Appl Timing	Appl Code
1	Untreated Check						27.3 ab
2	A16003	1.67	SL	0.0335	lb ai/a	PRETRPLNT A	16.9 bc
3	A16003	1.67	SL	0.0446	lb ai/a	PRETRPLNT A	17.3 bc
4	A16003	1.67	SL	0.089	lb ai/a	PRETRPLNT A	3.5 d
5	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRETRPLNT A	32.5 a
6	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0335 1.24	lb ai/a lb ai/a	PRETRPLNT A 5DATrplnt B	16.2 bc
7	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.0446 1.24	lb ai/a lb ai/a	PRETRPLNT A 5DATrplnt B	25.4 ab
8	A16003 Dual Magnum.....s-metolachlor	1.67 7.62	SL E	0.089 1.24	lb ai/a lb ai/a	PRETRPLNT A 5DATrplnt B	9.9 cd
9	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor	51 7.62	WG E	0.096 1.24	lb ai/a lb ai/a	PRETRPLNT A 5DATrplnt B	29.8 a
10	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0335 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrplnt B POST-dir C POST-dir C	23.8 ab
11	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.0446 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrplnt B POST-dir C POST-dir C	23.9 ab
12	Valor SX.....flumioxazin Dual Magnum.....s-metolachlor A16003 Nonionic Surfactant	51 7.62 1.67 100	WG E SL L	0.096 1.24 0.089 0.25	lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrplnt B POST-dir C POST-dir C	16.9 bc
13	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide	51 2	WG EC	0.096 1	lb ai/a lb ai/a	PRETRPLNT A 5DATrplnt B	35.1 a
14	Valor SX.....flumioxazin Devrinol 2-XT.....napropamide Command.....clomazone Aim.....carfentrazone Nonionic Surfactant	51 2 3 2 100	WG EC ME EC L	0.096 1 0.375 0.0313 0.25	lb ai/a lb ai/a lb ai/a lb ai/a % v/v	PRETRPLNT A 5DATrplnt B 5DATrplnt B POST-dir C POST-dir C	26.3 ab
	LSD P=.05						11.59
	Standard Deviation						6.91
	CV						31.72
	Replicate F						1.296
	Replicate Prob(F)						0.2907
	Treatment F						4.862
	Treatment Prob(F)						0.0003

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=22,24

Could not calculate LSD (% mean diff) for columns 21 because error mean square = 0.

Wiper Application of Organic Herbicides for Sweet Potato  
 Trial ID: SwPot3-16      Location: Field #4      Trial Year: 2016  
 Protocol ID: SwPot3-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C      IPOBA Ipomoea batatas      Sweet potato  
 Variety: Beauregard  
 Attributes: Transplants with roots  
 Planting Date: 06/02/16      Planting Rate: 1      ft  
    Planting Method: TRAHAN transplanted - hand  
 Row Spacing: 5      ft  
 Spacing within Row: 1      ft      Seed Bed: SMOOTH smooth  
 Soil Temperature: 70      F      Soil Moisture: NORMAL normal, adequate

**Site and Design**

Treated Plot Width: 10      FT      Site Type: FIELD      field  
 Treated Plot Length: 12.5 FT  
 Treated Plot Area: 125      FT<sup>2</sup>      Treatments: 10      Tillage Type: CONTIL      conventional-till  
 Replications: 4      Study Design: FACTOR      Factorial

**Field Prep./Maintenance:**

Total preemergence row-middle application of Lorox 1 pt/A + Dual Magnum 1.25 pt/A on 6-15-16.

**Soil Description**

Description Name: Field 4  
 % Sand: 79      % OM: 1.3      Texture: LS      loamy sand  
 % Silt: 13      pH: 6.6      Soil Name: Hammonton loamy sand, 0-2% slopes  
 % Clay: 8      CEC: 5.7      Fert. Level: G      good  
 Soil Drainage: F      fair

**Application Description**

	A	B	C
Application Date	07/11/16	07/20/16	07/26/16
Interval to Prev. Appl.		9      DAYS	6      DAYS
Application Method	rope wick	rope wick	rope wick
Application Timing	25% coverage	or roller	or roller
Application Placement	FOLIAR	FOLIAR	FOLIAR

**Trial Comments**

07/11/16: Sweet potatoes about 10 inches tall and starting to run; Palmer amaranth ranged fro 14 to 28 inches tall (or 4 to 18 inches of clearance above sweet potato); Applied with Bowman rope wick wiper.

AMI-1001 was added to quickly to solution so difficult to dissolve. Had to physically break up clods and ended up with 750 gr of AMI-1001 with 750 mls of water. After wiping I noticed AMI-1001 was a mushy mass around the ends of the wicks, but readily washed out with water.

07/20/16: Treatments 1, 3, 5, and 7 were applied with Bowman rope wick wiper; treatments 2, 4, 6, and 8 were wiped with roller, using same solution that was applied with rip wick wiper; Treatment 9 was wiped accidentally with treatment 8 solution AND treatment 8 was was rolled with treatment 7 solution.

07/30/16: Treatments appear to cause a poliferation of growth at meristems on the stems (axils) and results in bushy growth of new leaves and seed heads.

07/30/16:

Racer	75	75	85
Avenger + Biolink	12	12	10

08/02/16:

Racer	60	85	85
Avenger + Biolink	15	15	10



Wiper Application of Organic Herbicides for Sweet Potato		
Trial ID: SwPot3-16	Location: Field #4	Trial Year: 2016
Protocol ID: SwPot3-16	Investigator: Mark VanGessel	
Study Director:		
Sponsor Contact:		

Pest Code						AMAPA PalmerAm LeafBurn %	AMAPA PalmerAm LeafBurn %	
Pest Name						07/30/16	08/02/16	
Rating Type								
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code	
1	Avenger AG.....d-limonene Biolink 25% coverage 2dir; fb 1 week	70 L 100 L		50 % 0.0313 %	v/v v/v	25% fb1wk 25% fb1wk	A A	13.5 ef 13.5 c
2	Avenger AG.....d-limonene Biolink 50% coverage, 2dir; fb 1 week	70 L 100 L		50 % 0.0313 %	v/v v/v	50% fb1wk 50% fb1wk	B B	17.8 def 16.5 bc
3	AMI-1001 Biolink 25% coverage 2dir; fb 1 week	100 GR 100 L		99 % 0.0313 %	w/v v/v	25% fb 1wk 25% fb 1wk	A A	72.5 a 76.3 a
4	AMI-1001 Biolink 50% coverage, 2dir; fb 1 week	100 GR 100 L		99 % 0.0313 %	w/v v/v	50% fb 1wk 50% fb 1wk	B B	31.3 cde 20.5 bc
5	Avenger AG.....d-limonene AMI-1001 Biolink 25% coverage 2dir; fb 1 week	70 L 100 GR 100 L		50 % 99 % 0.0313 %	v/v w/v v/v	25% fb 1wk 25% fb 1wk 25% fb 1wk	A A A	13.5 ef 21.8 bc
6	Avenger AG.....d-limonene AMI-1001 Biolink 50% coverage, 2dir; fb 1 week	70 L 100 GR 100 L		50 % 99 % 0.0313 %	v/v w/v v/v	50% fb 1wk 50% fb 1wk 50% fb 1wk	B B B	40.0 bcd 26.3 b
7	Avenger AG.....d-limonene	70 L		50 %	v/v	25% fb 1wk	A	42.3 bc 27.1 b
8	AMI-1001	100 GR		99 %	w/v	25% fb 1wk	A	16.3 ef 11.8 c
9	Handweeded Check							58.8 ab 67.1 a
10	Untreated Check							0.0 f 0.0 d
LSD P=.05							23.10	11.51
Standard Deviation							15.89	7.90
CV							51.97	28.15
Replicate F							0.533	0.283
Replicate Prob(F)							0.6639	0.8375
Treatment F							8.210	38.060
Treatment Prob(F)							0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=1,2

Wiper Application of Organic Herbicides for Sweet Potato							AMAPA	AMAPA	
Trial ID: SwPot3-16		Location: Field #4		Trial Year: 2016			PalmerAm	PalmerAm	
Protocol ID: SwPot3-16		Investigator: Mark VanGessel						LeafBurn	LeafBurn
		Study Director:						%	%
		Sponsor Contact:						07/30/16	08/02/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Appl Timing	Appl Code		
TABLE OF R MEANS									
Replicate 1							33.2	29.0	
Replicate 2							26.5	29.2	
Replicate 3							32.3	28.2	
Replicate 4							33.7	30.2	
TABLE OF A (Herbicide) MEANS									
1	Avenger AG.....d-limonene	70	L	50 % v/v	25%	fb1wk	A	15.6 c	15.0 c
1	Biolink	100	L	0.0313 % v/v	25%	fb1wk	A		
2	AMI-1001	100	GR	99 % w/v	25%	fb 1wk	A	51.9 a	48.4 a
2	Biolink	100	L	0.0313 % v/v	25%	fb 1wk	A		
3	Avenger AG.....d-limonene	70	L	50 % v/v	25%	fb 1wk	A	26.8 b	24.0 b
3	AMI-1001	100	GR	99 % w/v	25%	fb 1wk	A		
3	Biolink	100	L	0.0313 % v/v	25%	fb 1wk	A		
LSD P=.05							6.84	8.60	
Standard Deviation							6.38	8.07	
CV							20.30	27.71	
TABLE OF B (Timing) MEANS									
1 25% coverage 2dir; fb 1 week							33.2 a	37.2 a	
2 50% coverage, 2dir; fb 1 week							29.7 a	21.1 b	
LSD P=.05							5.59	7.02	
Standard Deviation							6.38	8.07	
CV							20.30	27.71	
TABLE OF A (Herbicide) B (Timing) MEANS									
1	Avenger AG.....d-limonene	70	L	50 % v/v	25%	fb1wk	A	13.5 c	13.5 c
1	Biolink	100	L	0.0313 % v/v	25%	fb1wk	A		
1 25% coverage 2dir; fb 1 week									
2	AMI-1001	100	GR	99 % w/v	25%	fb 1wk	A	72.5 a	76.3 a
2	Biolink	100	L	0.0313 % v/v	25%	fb 1wk	A		
1 25% coverage 2dir; fb 1 week									
3	Avenger AG.....d-limonene	70	L	50 % v/v	25%	fb 1wk	A	13.5 c	21.8 bc
3	AMI-1001	100	GR	99 % w/v	25%	fb 1wk	A		
3	Biolink	100	L	0.0313 % v/v	25%	fb 1wk	A		
1 25% coverage 2dir; fb 1 week									
1	Avenger AG.....d-limonene	70	L	50 % v/v	25%	fb1wk	A	17.8 c	16.5 bc
1	Biolink	100	L	0.0313 % v/v	25%	fb1wk	A		
2 50% coverage, 2dir; fb 1 week									
2	AMI-1001	100	GR	99 % w/v	25%	fb 1wk	A	31.3 b	20.5 bc
2	Biolink	100	L	0.0313 % v/v	25%	fb 1wk	A		
2 50% coverage, 2dir; fb 1 week									
3	Avenger AG.....d-limonene	70	L	50 % v/v	25%	fb 1wk	A	40.0 b	26.3 b
3	AMI-1001	100	GR	99 % w/v	25%	fb 1wk	A		
3	Biolink	100	L	0.0313 % v/v	25%	fb 1wk	A		
2 50% coverage, 2dir; fb 1 week									
LSD P=.05							9.67	12.16	
Standard Deviation							6.38	8.07	
CV							20.30	27.71	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm LeafBurn % 07/30/16 Missing values in column 1 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	22	11128.618599				
R	3	198.963134	66.321045	1.630	0.2274	
A	2	5517.237769	2758.618884	67.797	0.0001	6.8
B	1	73.629687	73.629687	1.810	0.1999	5.6
AB	2	4769.139003	2384.569502	58.604	0.0001	9.7
ERROR	14	569.649005	40.689215			

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm LeafBurn % 08/02/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	12034.625000				
R	3	12.125000	4.041667	0.062	0.9790	
A	2	4770.750000	2385.375000	36.618	0.0001	8.6
B	1	1552.041667	1552.041667	23.826	0.0002	7.0
AB	2	4722.583333	2361.291667	36.249	0.0001	12.2
ERROR	15	977.125000	65.141667			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Reglone for Staked/Plasticulture Tomato Production  
 Trial ID: Tom1-16      Location: Field #9      Trial Year: 2016  
 Protocol ID: Tom1-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact: Syngenta

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C LYPES Solanum lycopersicum Tomato      BBCH Scale: BVSO  
 Variety: Mariana  
 Attributes: Stake tomato  
 Planting Date: 06/01/16  
 Row Spacing: 5 ft      Planting Method: TRAHAN transplanted - hand  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 81 F      Soil Moisture: NORMAL normal, adequate

Crop 2: C SOLME Solanum melongena Eggplant      BBCH Scale: BVSO  
 Variety: Fairy Tale  
 Planting Date: 06/01/16  
 Row Spacing: 5 ft      Planting Method: TRAHAN transplanted - hand  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 81 F      Soil Moisture: NORMAL normal, adequate

Crop 3: C CPSAN Capsicum annum Bell pepper      BBCH Scale: BVSO  
 Variety: Paladin Bell  
 Planting Date: 06/01/16  
 Row Spacing: 5 ft      Planting Method: TRAHAN transplanted - hand  
 Seed Bed: SMOOTH smooth  
 Soil Temperature: 81 F      Soil Moisture: NORMAL normal, adequate

**Pest Description**

Pest 1 Type: W Code: AMBEL Ambrosia artemisiifolia  
 Common Name: Common ragweed

Pest 2 Type: W Code: IPOHE Ipomoea hederacea  
 Common Name: Ivyleaf morningglory

Pest 3 Type: W Code: AMAPA Amaranthus palmeri  
 Common Name: Palmer amaranth

Pest 4 Type: W Code: CHEAL Chenopodium album  
 Common Name: Common lambsquarters

Pest 5 Type: W Code: GGGAN Annual grasses  
 Common Name: Annual grasses

**Site and Design**

Treated Plot Width: 6 FT      Site Type: FIELD field  
 Treated Plot Length: 45 FT  
 Treated Plot Area: 270 FT<sup>2</sup>      Treatments: 12      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: STRBLO Strip-Block

Trial Initiation Comments:

Plastic was laid prior to treatments or transplanting.

Field Prep./Maintenance:

Gramoxone 2qt/A plus NIS 0.25% v/v was included in treatments 11 and 12 pre-transplant hooded applications on 3-31-16 for burndown.

**Soil Description**

% Sand: 83 % OM: 1.0 Texture: LS loamy sand  
 % Silt: 9 pH: 6.1  
 % Clay: 8 CEC: 3.9 Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B	C
Application Date	05/31/16	06/20/16	08/07/16
Appl. Stop Time	11:00 AM	04:30 PM	05:00 PM
Interval to Prev. Appl.		20 DAYS	48 DAYS
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRETrnplt	3"weeds	Post-Hrvst
Application Placement	BAND	BAND	BROADC
Applied By	VanGessl	VanGessl	VanGessl
Air Temperature Start, Stop	75 F	87 F	88 F
% Relative Humidity Start, Stop	75	29	34
Wind Velocity+Dir. Start	4 mph N	6 mph SW	3 mph NW
Wet Leaves (Y/N)	N no	N no	N no
Soil Temperature	75 F	87 F	88 F
Soil Moisture	NORMAL	NORMAL	NORMAL
% Cloud Cover	45	10	0

**Crop Stage At Each Application**

	A	B	C
Crop 1 Code, BBCH Scale	LYPES BVSO	LYPES BVSO	LYPES BVSO
Stage Scale Used		DESC	DESC
Stage Majority, Percent		veg 100	green 75
Stage Minimum, Percent			red 25
Stage Maximum, Percent			red 25
Height Average		15 in	30 in
Crop 2 Code, BBCH Scale	SOLME BVSO	SOLME BVSO	SOLME BVSO
Stage Scale Used	BBCH	BBCH	
Crop 3 Code, BBCH Scale	CPSAN BVSO	CPSAN BVSO	CPSAN BVSO
Stage Scale Used	BBCH	BBCH	

<b>Pest Stage At Each Application</b>			
	A	B	C
Pest 1 Code, Type, Scale	AMBEL W	AMBEL W	AMBEL W
Stage Majority, Percent	2-leaf 60	veg 100	veg 100
Stage Minimum, Percent	cotyl 40		
Stage Maximum, Percent	2-leaf 60		
Height Average	1 in	4 in	24 in
Height Minimum, Maximum	0.5 1.5	3 5	18 26
Density Average	12 m2	4 m2	2 m2
Pest 2 Code, Type, Scale	IPOHE W	IPOHE W	IPOHE W
Stage Majority, Percent	1-leaf 40	veg 100	flower 100
Stage Minimum, Percent	cotyl 30		
Stage Maximum, Percent	2-leaf 30		
Height Average	1.5 in	3 in	18 in
Height Minimum, Maximum	1 1.7	2 4	15 24
Density Average	5 m2	5 m2	5 m2
Pest 3 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent	2-leaf 60	veg 100	flower 100
Stage Minimum, Percent	cotyl 40		
Stage Maximum, Percent	2-leaf 60		
Height Average	0.5 in	5 in	30 in
Height Minimum, Maximum		2 8	20 40
Density Average	8 m2	10 m2	2 m2
Pest 4 Code, Type, Scale	CHEAL W	CHEAL W	CHEAL W
Stage Majority, Percent	cotyl 70		
Stage Minimum, Percent	cotyl 70		
Stage Maximum, Percent	2-leaf 30		
Height Average	0.5 in		
Density Average	10 m2		
Pest 5 Code, Type, Scale	GGGAN W	GGGAN W	GGGAN W
Stage Majority, Percent	2-3 lf 60	3-tilr 70	seed 100
Stage Minimum, Percent	1-leaf 20	2-tilr 15	
Stage Maximum, Percent	4-leaf 20	4-tilr 15	
Height Average	0.7 in	6 in	7 in
Height Minimum, Maximum	0.5 1	4 8	6 8
Density Average	30 m2	30 m2	30 m2

<b>Application Equipment</b>			
	A	B	C
Appl. Equipment	Backpack	Backpack	Backpack
Equipment Type	SPRBAC	SPRBAC	SPRBAC
Operation Pressure	33 psi	33 psi	40 psi
Nozzle Type	XRTEEJET	XRTEEJET	XRTEEJET
Nozzle Size	11002	11002	11005
Nozzle Spacing	16 in	16 in	18 in
Boom Length	2 nozl	2 nozl	6 ft
Boom Height	8 in	8 in	60 in
Ground Speed	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	50 gal/ac
Mix Size	2 L	2 L	2 GAL
Propellant	COMCO2	COMCO2	COMCO2

Reglone for Staked/Plasticulture Tomato Production		
Trial ID: Tom1-16	Location: Field #9	Trial Year: 2016
Protocol ID: Tom1-16	Investigator: Mark VanGessel	
Study Director:		
Sponsor Contact: Syngenta		

Trial Comments

05/31/16 and 06/20/16: Annual grasses consisted of large crabgrass, goosegrass, and stinkgrass.

06/10/16: winds are bending, breaking plants. 3rd rep, last 2 ranges are low land. water running downhill, very wet here - weed density is much lower. 209/210, 211/212 1 pepper badly wilted. 311/312 1 tom down, broken stem.

06/24/16: plots 111, 201 stems are laying down. 209/210 1 pepper dead; 211/212 1 pepper nibbled on. 303/304 1 pepper nibbled on.

08/03/16: At yield, Palmer amaranth was hand weeded out of plots mid-season.

08/29/16:

% desiccation from Reglone treatment

Rep	Tomato	AMAPA	IPOSS
I	85	80	85
II	88	.	80
III	88	.	80

09/02/16:

% desiccation from Reglone treatment

Rep	Tomato leaves	Tomato stems	AMAPA	IPOSS
I	90	70	85	80
II	95	80	.	85
III	95	80	.	75

Reglone was poor on crabgrass desiccation.

09/16/16:

% desiccation from Reglone treatment

Rep	Tomato leaves	Tomato stems
I	90	85
II	95	90
III	95	90

Reglone for Staked/Plasticulture Tomato Production Trial ID: Tom1-16      Location: Field #9      Trial Year: 2016 Protocol ID: Tom1-16      Investigator: Mark VanGessel Study Director: Sponsor Contact: Syngenta			
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Pest Code					C LYPES	C SOLME	C CPSAN
Pest Name					Tomato Stunting %	Eggplant Stunting %	BellPepr Stunting %
Crop Type, Code					06/09/16	06/09/16	06/09/16
Crop Name							
Rating Type							
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Check						
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	
							0.0 a
3	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A	0.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A	0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		PRETrnplt A	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A	0.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
5	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B	0.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B	0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B	0.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
7	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A	0.0 a
	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B	0.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B	0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B	0.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		3" weeds B	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B	0.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B	0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B	0.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
11	Spartan.....sulfentrazone	4	F	0.25 lb ai/a		PRETrnplt A	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A	0.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A	0.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
LSD P=.05							
Standard Deviation					0.00	0.00	0.00
CV					0.0	0.0	0.0
Replicate F					0.000	0.000	0.000
Replicate Prob(F)					1.0000	1.0000	1.0000
Treatment F					0.000	0.000	0.000
Treatment Prob(F)					1.0000	1.0000	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 t=Mean descriptions are reported in transformed data units, and are not de-transformed.  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns:Yates=34  
 Could not calculate LSD (% mean diff) for columns 1,2,3 because error mean square = 0.



Pest Code Pest Name					C LYPES	C SOLME	C CPSAN
Crop Type, Code					Tomato	Eggplant	BellPepr
Crop Name					Stunting	Stunting	Stunting
Rating Type					%	%	%
Rating Unit					06/17/16	06/17/16	06/17/16
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Check						
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
3	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A	0.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A	0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		PRETrnplt A	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A	0.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
5	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B	0.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B	0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B	0.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
7	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A	0.0 a
	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B	0.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B	0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B	0.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		3" weeds B	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B	0.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B	0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B	0.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B	0.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	0.0 a
11	Spartan.....sulfentrazone	4	F	0.25 lb ai/a		PRETrnplt A	3.3 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A	3.3 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A	3.3 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	3.3 a
LSD P=.05							4.29
Standard Deviation							2.36
CV							424.26
Replicate F							1.000
Replicate Prob(F)							0.4019
Treatment F							1.000
Treatment Prob(F)							0.4651

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 Missing data estimates are included in columns:Yates=34  
 Could not calculate LSD (% mean diff) for columns 1,2,3 because error mean square = 0.

Pest Code Pest Name	AMAPA PalmerAm	IPOSS Morngrly	ELEIN Goosegrs	ERAME Stnkgrs							
Crop Type, Code	C -	C -	C -	C -							
Crop Name	Control	Control	Control	Control							
Rating Type	%	%	%	%							
Rating Unit	06/17/16	06/17/16	06/17/16	06/17/16							
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 c	0.0 c	0.0 c	0.0 c
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
3	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		100.0 a	98.3 a	100.0 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		PRETrnplt A					
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
5	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B					
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B					
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
7	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		60.0 b	31.7 b	70.0 b	66.7 b
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A					
	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B					
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B					
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		3" weeds B					
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B					
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
11	Spartan.....sulfentrazone	4	F	0.25 lb ai/a		PRETrnplt A		100.0 a	100.0 a	100.0 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
LSD P=.05								11.25	7.45	4.99	7.63
Standard Deviation								3.54	3.73	2.50	3.82
CV								5.44	6.48	3.7	5.73
Replicate F								1.000	1.800	1.000	1.000
Replicate Prob(F)								0.3910	0.2441	0.4219	0.4219
Treatment F								357.333	536.200	1068.000	457.143
Treatment Prob(F)								0.0003	0.0001	0.0001	0.0001

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 Could not calculate LSD (% mean diff) for columns 1,2,3 because error mean square = 0.

Pest Code								
Pest Name								
Crop Type, Code						C LYPES	C LYPES	C SOLME
Crop Name						Tomato	Tomato	Eggplant
Rating Type						Stunting	LeafBm	Stunting
Rating Unit						%	%	%
Rating Date						06/24/16	06/24/16	06/24/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		0.0 a    0.0 c    0.0 b
3	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		0.0 a    4.0 bc    0.0 b
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A		
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A		
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		PRETrnplt A		
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A		
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
5	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B		2.7 a    5.0 abc    0.9 b
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B		
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B		
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B		
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B		
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
7	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		6.0 a    10.0 a    10.8 a
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A		
	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B		
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B		
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B		
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B		
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B		
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		3" weeds B		3.3 a    8.0 ab    0.9 b
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B		
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B		
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B		
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B		
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
11	Spartan.....sulfentrazone	4	F	0.25 lb ai/a		PRETrnplt A		7.3 a    3.3 bc    0.0 b
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A		
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A		
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
LSD P=.05						6.76	5.39	6.00 - 8.14
Standard Deviation						3.72	2.96	5.37t
CV						115.38	58.64	106.74t
Replicate F						3.971	2.775	1.614
Replicate Prob(F)						0.0538	0.1100	0.2470
Treatment F						1.984	4.284	5.781
Treatment Prob(F)						0.1668	0.0242	0.0092

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Pest Code Pest Name					C SOLME	C CPSAN	C CPSAN
Crop Type, Code					Eggplant	BellPepr	BellPepr
Crop Name					LeafBrn	Stunting	LeafBrn
Rating Type					%	%	%
Rating Unit					06/24/16	06/24/16	06/24/16
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Check						
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst	
					0.0	c	
3	Reglone.....diquat	2	SL	0.5 lb ai/a	PRETrnplt	A	
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a	PRETrnplt	A	
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a	PRETrnplt	A	
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a	PRETrnplt	A	
	Nonionic Surfactant	100	L	0.25 % v/v	PRETrnplt	A	
	Reglone.....diquat	2	SL	0 lb ai/a	Post-Hrvst		
					4.0	bc	
5	Reglone.....diquat	2	SL	0.5 lb ai/a	3" weeds	B	
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a	3" weeds	B	
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a	3" weeds	B	
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a	3" weeds	B	
	Nonionic Surfactant	100	L	0.25 % v/v	3" weeds	B	
	Reglone.....diquat	2	SL	0 lb ai/a	Post-Hrvst		
					16.0	a	
7	Reglone.....diquat	2	SL	0.5 lb ai/a	PRETrnplt	A	
	Nonionic Surfactant	100	L	0.25 % v/v	PRETrnplt	A	
	Reglone.....diquat	2	SL	0.5 lb ai/a	3" weeds	B	
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a	3" weeds	B	
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a	3" weeds	B	
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a	3" weeds	B	
	Nonionic Surfactant	100	L	0.25 % v/v	3" weeds	B	
	Reglone.....diquat	2	SL	0 lb ai/a	Post-Hrvst		
					16.0	a	
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	3" weeds	B	
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a	3" weeds	B	
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a	3" weeds	B	
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a	3" weeds	B	
	Nonionic Surfactant	100	L	0.25 % v/v	3" weeds	B	
	Reglone.....diquat	2	SL	0 lb ai/a	Post-Hrvst		
					10.0	ab	
11	Spartan.....sulfentrazone	4	F	0.25 lb ai/a	PRETrnplt	A	
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a	PRETrnplt	A	
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a	PRETrnplt	A	
	Reglone.....diquat	2	SL	0 lb ai/a	Post-Hrvst		
					2.3	c	
LSD P=.05					7.30		
Standard Deviation					4.01		
CV					49.79		
Replicate F					0.180		
Replicate Prob(F)					0.8383		
Treatment F					9.103		
Treatment Prob(F)					0.0017		
					4.66		
					2.56		
					102.5		
					0.663		
					0.5368		
					6.331		
					0.0067		
					6.21		
					3.41		
					57.43		

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Missing data estimates are included in columns:Yates=34  
Could not calculate LSD (% mean diff) for columns 1,2,3 because error mean square = 0.

Pest Code Pest Name			AMAPA PalmerAm	IPOSS Morngrly	ELEIN Goosegrs	ERAME Stnkgrs	
Crop Type, Code			C -	C -	C -	C -	
Crop Name			Control	Control	Control	Control	
Rating Type			%	%	%	%	
Rating Unit			06/24/16	06/24/16	06/24/16	06/24/16	
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code
1	Untreated Check						
	Reglone.....diquat	2 SL		0 lb ai/a	Post-Hrvst		0.0 c
3	Reglone.....diquat	2 SL		0.5 lb ai/a	PRETrnplt A		100.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.9 lb ai/a	PRETrnplt A		96.7 ab
	Prowl H2O.....pendimethalin	3.8 CS		0.413 lb ai/a	PRETrnplt A		100.0 a
	Sandea.....halosulfuron	75 DF		0.035 lb ai/a	PRETrnplt A		100.0 a
	Nonionic Surfactant	100 L		0.25 % v/v	PRETrnplt A		
	Reglone.....diquat	2 SL		0 lb ai/a	Post-Hrvst		
5	Reglone.....diquat	2 SL		0.5 lb ai/a	3" weeds B		92.5 b
	Dual Magnum.....s-metolachlor	7.62 E		1.9 lb ai/a	3" weeds B		93.3 b
	Prowl H2O.....pendimethalin	3.8 CS		0.413 lb ai/a	3" weeds B		85.0 b
	Sandea.....halosulfuron	75 DF		0.035 lb ai/a	3" weeds B		85.0 b
	Nonionic Surfactant	100 L		0.25 % v/v	3" weeds B		
	Reglone.....diquat	2 SL		0 lb ai/a	Post-Hrvst		
7	Reglone.....diquat	2 SL		0.5 lb ai/a	PRETrnplt A		97.5 ab
	Nonionic Surfactant	100 L		0.25 % v/v	PRETrnplt A		98.3 ab
	Reglone.....diquat	2 SL		0.5 lb ai/a	3" weeds B		91.7 ab
	Dual Magnum.....s-metolachlor	7.62 E		1.9 lb ai/a	3" weeds B		91.0 ab
	Prowl H2O.....pendimethalin	3.8 CS		0.413 lb ai/a	3" weeds B		
	Sandea.....halosulfuron	75 DF		0.035 lb ai/a	3" weeds B		
	Nonionic Surfactant	100 L		0.25 % v/v	3" weeds B		
	Reglone.....diquat	2 SL		0 lb ai/a	Post-Hrvst		
9	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	3" weeds B		95.0 ab
	Dual Magnum.....s-metolachlor	7.62 E		1.9 lb ai/a	3" weeds B		95.3 ab
	Prowl H2O.....pendimethalin	3.8 CS		0.413 lb ai/a	3" weeds B		91.0 ab
	Sandea.....halosulfuron	75 DF		0.035 lb ai/a	3" weeds B		90.0 ab
	Nonionic Surfactant	100 L		0.25 % v/v	3" weeds B		
	Reglone.....diquat	2 SL		0 lb ai/a	Post-Hrvst		
11	Spartan.....sulfentrazone	4 F		0.25 lb ai/a	PRETrnplt A		100.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.9 lb ai/a	PRETrnplt A		100.0 a
	Prowl H2O.....pendimethalin	3.8 CS		0.413 lb ai/a	PRETrnplt A		100.0 a
	Reglone.....diquat	2 SL		0 lb ai/a	Post-Hrvst		100.0 a
LSD P=.05				7.42	5.77	12.03	11.36
Standard Deviation				2.89	3.17	6.61	6.24
CV				3.57	3.93	8.48	8.04
Replicate F				4.000	7.066	2.464	2.513
Replicate Prob(F)				0.1019	0.0122	0.1349	0.1306
Treatment F				378.400	466.878	102.329	114.051
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001

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 Could not calculate LSD (% mean diff) for columns 1,2,3 because error mean square = 0.

Pest Code								
Pest Name								
Crop Type, Code						C LYPES	C SOLME	C CPSAN
Crop Name						Tomato	Eggplant	BellPepr
Rating Type						Stunting	Stunting	Stunting
Rating Unit						%	%	%
Rating Date						07/07/16	07/07/16	07/07/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		0.0 a
3	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A		0.0 b
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A		0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		PRETrnplt A		
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A		
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
5	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B		0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B		3.3 b
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B		5.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B		
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B		
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
7	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		4.0 a
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A		17.3 a
	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B		9.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B		
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B		
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B		
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B		
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		3" weeds B		0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B		4.0 b
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B		3.3 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B		
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B		
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
11	Spartan.....sulfentrazone	4	F	0.25 lb ai/a		PRETrnplt A		3.3 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A		7.0 b
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A		5.7 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst		
LSD P=.05						7.02	7.93	8.20
Standard Deviation						3.86	4.36	4.51
CV						315.7	82.64	117.54
Replicate F						0.463	0.607	1.782
Replicate Prob(F)						0.6424	0.5637	0.2179
Treatment F						0.731	6.606	1.805
Treatment Prob(F)						0.6161	0.0058	0.1996

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Could not calculate LSD (% mean diff) for columns 1,2,3 because error mean square = 0.

Pest Code Pest Name	AMAPA PalmerAm	IPOSS Morngrly	ELEIN Goosegrs	ERAME Stnkgrs							
Crop Type, Code	C -	C -	C -	C -							
Crop Name											
Rating Type	Control	Control	Control	Control							
Rating Unit	%	%	%	%							
Rating Date	07/07/16	07/07/16	07/07/16	07/07/16							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check							0.0 b	0.0 c	0.0 d	0.0 d
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
3	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		100.0 a	89.3 b	97.7 ab	98.3 ab
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		PRETrnplt A					
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
5	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B		98.3 a	96.7 a	88.3 c	83.3 c
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B					
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
7	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		96.7 a	95.3 ab	94.3 abc	93.3 abc
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A					
	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B					
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B					
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		3" weeds B		100.0 a	94.0 ab	91.7 bc	89.3 bc
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B					
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
11	Spartan.....sulfentrazone	4	F	0.25 lb ai/a		PRETrnplt A		100.0 a	100.0 a	100.0 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A					
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A					
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst					
LSD P=.05								4.39	6.50	6.80	10.00
Standard Deviation								2.42	3.57	3.74	5.50
CV								2.93	4.51	4.75	7.1
Replicate F								2.143	3.153	1.396	0.669
Replicate Prob(F)								0.1681	0.0867	0.2919	0.5337
Treatment F								841.000	357.132	322.730	146.340
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

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Pest Code	Pest Name	Crop Type, Code	C LYPES	C SOLME	C CPSAN					
Crop Name	Rating Type	Rating Unit	Rating Date	Tomato Stunting %	Eggplant Stunting %	BellPepr Stunting %				
				07/11/16	07/11/16	07/11/16				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code			
1	Untreated Check	Reglone.....diquat	2 SL	0 lb ai/a	Post-Hrvst			0.0 a	0.0 b	0.0 a
3	Reglone.....diquat	Dual Magnum.....s-metolachlor	7.62 E	1.9 lb ai/a	PRETrnplt A			0.0 a	0.0 b	0.0 a
	Prowl H2O.....pendimethalin	3.8 CS	0.413 lb ai/a	PRETrnplt A						
	Sandea.....halosulfuron	75 DF	0.035 lb ai/a	PRETrnplt A						
	Nonionic Surfactant	100 L	0.25 % v/v	PRETrnplt A						
	Reglone.....diquat	2 SL	0 lb ai/a	Post-Hrvst						
5	Reglone.....diquat	Dual Magnum.....s-metolachlor	7.62 E	1.9 lb ai/a	3" weeds B			4.0 a	1.4 b	6.0 a
	Prowl H2O.....pendimethalin	3.8 CS	0.413 lb ai/a	3" weeds B						
	Sandea.....halosulfuron	75 DF	0.035 lb ai/a	3" weeds B						
	Nonionic Surfactant	100 L	0.25 % v/v	3" weeds B						
	Reglone.....diquat	2 SL	0 lb ai/a	Post-Hrvst						
7	Reglone.....diquat	Nonionic Surfactant	100 L	0.25 % v/v	PRETrnplt A			9.0 a	26.8 a	6.7 a
	Reglone.....diquat	Dual Magnum.....s-metolachlor	7.62 E	1.9 lb ai/a	3" weeds B					
	Prowl H2O.....pendimethalin	3.8 CS	0.413 lb ai/a	3" weeds B						
	Sandea.....halosulfuron	75 DF	0.035 lb ai/a	3" weeds B						
	Nonionic Surfactant	100 L	0.25 % v/v	3" weeds B						
	Reglone.....diquat	2 SL	0 lb ai/a	Post-Hrvst						
9	Gramoxone SL....paraquat	Dual Magnum.....s-metolachlor	7.62 E	1.9 lb ai/a	3" weeds B			0.0 a	4.1 b	3.3 a
	Prowl H2O.....pendimethalin	3.8 CS	0.413 lb ai/a	3" weeds B						
	Sandea.....halosulfuron	75 DF	0.035 lb ai/a	3" weeds B						
	Nonionic Surfactant	100 L	0.25 % v/v	3" weeds B						
	Reglone.....diquat	2 SL	0 lb ai/a	Post-Hrvst						
11	Spartan.....sulfentrazone	Dual Magnum.....s-metolachlor	7.62 E	1.9 lb ai/a	PRETrnplt A			6.0 a	0.0 b	5.0 a
	Prowl H2O.....pendimethalin	3.8 CS	0.413 lb ai/a	PRETrnplt A						
	Reglone.....diquat	2 SL	0 lb ai/a	Post-Hrvst						
LSD	P=.05							6.65	14.23 - 20.37	12.45
Standard Deviation								3.66	9.08t	6.84
CV								115.45	110.01t	195.53
Replicate F								0.910	0.054	0.331
Replicate Prob(F)								0.4333	0.9480	0.7258
Treatment F								3.269	5.400	0.552
Treatment Prob(F)								0.0524	0.0115	0.7346

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Could not calculate LSD (% mean diff) for columns 1,2,3 because error mean square = 0.



Pest Code						IPOSS	ELEIN	ERAME	
Pest Name						Morngrly	Goosegrs	Stnkgrs	
Crop Type, Code						C -	C -	C -	C LYPES
Crop Name									Tomato
Rating Type						Control	Control	Control	Stunting
Rating Unit						%	%	%	%
Rating Date						07/11/16	07/11/16	07/11/16	08/03/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code		
1	Untreated Check							0.0 d	0.0 c
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst			0.0 d
3	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		82.0 c	100.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A			99.3 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A			3.3 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		PRETrnplt A			
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A			
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst			
5	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B		84.0 bc	78.7 b
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B			71.0 c
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B			2.7 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B			
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B			
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst			
7	Reglone.....diquat	2	SL	0.5 lb ai/a		PRETrnplt A		89.3 b	86.0 b
	Nonionic Surfactant	100	L	0.25 % v/v		PRETrnplt A			86.0 b
	Reglone.....diquat	2	SL	0.5 lb ai/a		3" weeds B			4.8 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B			
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B			
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B			
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B			
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst			
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a		3" weeds B		90.0 b	90.0 ab
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		3" weeds B			90.0 ab
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		3" weeds B			0.0 a
	Sandea.....halosulfuron	75	DF	0.035 lb ai/a		3" weeds B			
	Nonionic Surfactant	100	L	0.25 % v/v		3" weeds B			
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst			
11	Spartan.....sulfentrazone	4	F	0.25 lb ai/a		PRETrnplt A		98.3 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.9 lb ai/a		PRETrnplt A			100.0 a
	Prowl H2O.....pendimethalin	3.8	CS	0.413 lb ai/a		PRETrnplt A			4.0 a
	Reglone.....diquat	2	SL	0 lb ai/a		Post-Hrvst			
LSD P=.05						7.29	11.67	11.27	8.65
Standard Deviation						4.01	6.41	6.19	4.59
CV						5.42	8.46	8.33	186.86
Replicate F						4.820	4.346	4.056	2.059
Replicate Prob(F)						0.0342	0.0438	0.0513	0.1900
Treatment F						251.248	105.502	112.660	0.584
Treatment Prob(F)						0.0001	0.0001	0.0001	0.7133

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Pest Code	Pest Name	Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date	C SOLME	C CPSAN	IPOSS Morngrly C -	GGGAN AnnGrass C -
			Eggplant	Stunting %		08/03/16		BellPepr Stunting %	Control	Control
							08/03/16	08/03/16	08/03/16	08/03/16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code			
1	Untreated Check Reglone.....diquat	2	SL	0 lb ai/a	Post-Hrvst			0.0 c	0.0 b	0.0 c
3	Reglone.....diquat Dual Magnum.....s-metolachlor Prowl H2O.....pendimethalin Sanda.....halosulfuron Nonionic Surfactant Reglone.....diquat	2 7.62 3.8 75 100 2	SL E CS DF L SL	0.5 lb ai/a 1.9 lb ai/a 0.413 lb ai/a 0.035 lb ai/a 0.25 % v/v 0 lb ai/a	PRETrnplt A PRETrnplt A PRETrnplt A PRETrnplt A Post-Hrvst			0.0 c	0.0 b	88.7 ab
5	Reglone.....diquat Dual Magnum.....s-metolachlor Prowl H2O.....pendimethalin Sanda.....halosulfuron Nonionic Surfactant Reglone.....diquat	2 7.62 3.8 75 100 2	SL E CS DF L SL	0.5 lb ai/a 1.9 lb ai/a 0.413 lb ai/a 0.035 lb ai/a 0.25 % v/v 0 lb ai/a	3" weeds B 3" weeds B 3" weeds B 3" weeds B Post-Hrvst			4.5 b	5.0 ab	72.3 b
7	Reglone.....diquat Nonionic Surfactant Reglone.....diquat Dual Magnum.....s-metolachlor Prowl H2O.....pendimethalin Sanda.....halosulfuron Nonionic Surfactant Reglone.....diquat	2 100 2 7.62 3.8 75 100 2	SL L SL E CS DF L SL	0.5 lb ai/a 0.25 % v/v 0.5 lb ai/a 1.9 lb ai/a 0.413 lb ai/a 0.035 lb ai/a 0.25 % v/v 0 lb ai/a	PRETrnplt A PRETrnplt A 3" weeds B 3" weeds B 3" weeds B 3" weeds B 3" weeds B Post-Hrvst			13.9 a	10.0 a	79.0 ab
9	Gramoxone SL....paraquat Dual Magnum.....s-metolachlor Prowl H2O.....pendimethalin Sanda.....halosulfuron Nonionic Surfactant Reglone.....diquat	2 7.62 3.8 75 100 2	SL E CS DF L SL	0.5 lb ai/a 1.9 lb ai/a 0.413 lb ai/a 0.035 lb ai/a 0.25 % v/v 0 lb ai/a	3" weeds B 3" weeds B 3" weeds B 3" weeds B 3" weeds B Post-Hrvst			0.0 c	0.0 b	81.7 ab
11	Spartan.....sulfentrazone Dual Magnum.....s-metolachlor Prowl H2O.....pendimethalin Reglone.....diquat	4 7.62 3.8 2	F E CS SL	0.25 lb ai/a 1.9 lb ai/a 0.413 lb ai/a 0 lb ai/a	PRETrnplt A PRETrnplt A PRETrnplt A Post-Hrvst			0.0 c	6.0 a	90.7 a
	LSD P=.05							8.71 - 8.99	5.51	17.86
	Standard Deviation							4.99t	3.03	9.82
	CV							87.58t	86.5	14.28
	Replicate F							0.717	0.564	3.047
	Replicate Prob(F)							0.5118	0.5862	0.0926
	Treatment F							10.520	5.727	36.666
	Treatment Prob(F)							0.0010	0.0095	0.0001

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## University of Delaware

Weed Control for Processing Tomatoes on Bareground  
 Trial ID: Tom2-16 Location: Field #9 Trial Year: 2016  
 Protocol ID: Tom2-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C LYPES Solanum lycopersicum Tomato BBCH Scale: BVSO  
 Variety: Heinz 1301  
 Attributes: Processing tomato  
 Planting Date: 05/26/16  
 Planting Method: TRAHAN transplanted - hand  
 Row Spacing: 5 ft  
 Spacing within Row: 18 in  
 Soil Temperature: 56 F  
 Seed Bed: SMOOTH smooth  
 Soil Moisture: NORMAL normal, adequate

**Pest Description**

Pest 1 Type: W Code: AMAPA Amaranthus palmeri  
 Common Name: Palmer amaranth  
 Pest 2 Type: W Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 35 FT  
 Treated Plot Area: 350 FT<sup>2</sup> Treatments: 18 Tillage Type: CONTIL conventional-till  
 Replications: 3 Study Design: STRBLO Strip-Block

Trial Initiation Comments:  
 Each plot had two sets of twin rows on 5' centers (10 ft wide plots).

**Soil Description**

% Sand: 83 % OM: 1.0 Texture: LS loamy sand  
 % Silt: 9 pH: 6.1  
 % Clay: 8 CEC: 3.9 Fert. Level: G good  
 Soil Drainage: F fair

**Application Description**

	A	B	C	D
Application Date	05/25/16	05/25/16	06/24/16	08/07/16
Appl. Stop Time	12:00 PM	02:00 PM	12:30 PM	05:00 PM
Interval to Prev. Appl.	DAYS	DAYS	30 DAYS	44 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	PPI	PRE	POST	POSTHrvst
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	Johnson	Johnson	VanGessl	VanGessl
Air Temperature Start, Stop	84 F	85 F	79 F	88 F
% Relative Humidity Start, Stop	30	28	72	34
Wind Velocity+Dir. Start	4 mph W	4 mph W	1 mph E	3 mph NW
Wet Leaves (Y/N)	N no	N no	N no	N no
Soil Temperature	84 F	85 F	79 F	88 F
Soil Moisture	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover	40	40	90	0

**Crop Stage At Each Application**

	A	B	C	D
Crop 1 Code, BBCH Scale	LYPES BVSO	LYPES BVSO	LYPES BVSO	LYPES BVSO
Stage Scale Used			DESC	DESC
Stage Majority, Percent			flower 90	green 70
Stage Minimum, Percent			flower 90	red 30
Stage Maximum, Percent			fruit 10	red 30
Height Average			15 in	28 in
Height Minimum, Maximum			14 16	

**Pest Stage At Each Application**

	A	B	C	D
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent			veg 100	flower 100
Height Average			7 in	30 in
Height Minimum, Maximum			6 8	20 40
Density Average			5 m2	5 m2
Pest 2 Code, Type, Scale	IPOSS W	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent			run 100	flower 100
Height Average			6 in	18 in
Height Minimum, Maximum				15 24
Density Average			4 m2	4 m2

**Application Equipment**

	A	B	C	D
Appl. Equipment	Tractor	Tractor	Backpack	Backpack
Equipment Type	TRMOSP	TRMOSP	SPRBAC	SPRBAC
Operation Pressure	40 psi	40 psi	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size	11002	11002	11002	11002
Nozzle Spacing	20 in	20 in	18 in	18 in
Boom Length	10 ft	10 ft	9 ft	6 ft
Boom Height	18 in	18 in	32 in	60 in
Ground Speed	3 mph	3 mph	3 mph	3 mph
Carrier	WATER	WATER	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac	20 gal/ac	50 gal/ac
Mix Size	0.7 GAL	0.7 GAL	2 L	2 GAL
Propellant	COMAIR	COMAIR	COMCO2	COMCO2

Weed Control for Processing Tomatoes on Bareground		
Trial ID: Tom2-16	Location: Field #9	Trial Year: 2016
Protocol ID: Tom2-16	Investigator: Mark VanGessel	
Study Director:		
Sponsor Contact:		

Trial Comments

06/02/16: Note all transplants in the 3rd rep are smaller, less robust plants. This end is lower and wetter, sloped for runoff. Potential for a carryover from last season??

06/17/16: Obvious carryover in the 3rd rep, last 2 ranges. No Palmer amaranth to rate in last range.

06/22/16: Tomato 1 got a fair amount of drift from application in this trial on Monday (eggplant especially so).

07/05/16: Palmer amaranth now being hand weeded out of plots. No further ratings for this species.

08/12/16:

Rep	Gramoxone Tomato	Gramoxone AMAPA	Reglone Tomato	Reglone AMAPA
I	80	85	78	80
II	85	80	80	80
III	80	85	80	85

08/23/16: Reglone was poor on descication of morningglory, but excellent on Palmer amaranth  
Reglone looks very much like parquat in this trial.

Rep	Gramoxone Tomato leaves	Gramoxone Tomato stems	Reglone Tomato leaves	Reglone Tomato stems
I	100	70	100	75
II	100	95	100	85
III	100	85	100	85

University of Delaware

Weed Control for Processing Tomatoes on Bareground			
Trial ID: Tom2-16	Location: Field #9	Trial Year: 2016	
Protocol ID: Tom2-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Pest Code	Pest Name	Crop Type, Code	Crop Name	Rating Type	Rating Unit	Rating Date	Description	Crop Variety	C LYPES Tomato Stunting %	C LYPES Tomato Chloros %	C LYPES Tomato Stunting %
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code				
1	Untreated Check Reglone.....diquat	2	SL	0 lb ai/a		POSTHrvst			0.0	0.0	0.0
2	Untreated Check Reglone.....diquat Nonionic Surfactant	2 100	SL L	0.375 lb ai/a 0.25 % v/v		POSTHrvst D POSTHrvst D			0.0	0.0	0.0
3	Untreated Check Gramoxone SL....paraquat Nonionic Surfactant	2 100	SL L	0.5 lb ai/a 0.25 % v/v		POSTHrvst D POSTHrvst D			0.0	0.0	0.0
4	Authority MTZ Premix ----sulfentrazone ----metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat	45 18 27 7.62 2	DF   E SL	0.225 lb ai/a 0.09 0.135 1.19 lb ai/a 0 lb ai/a		PPI   PPI POSTHrvst	A   A		7.0	0.0	12.0
5	Authority MTZ Premix ----sulfentrazone ----metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat Nonionic Surfactant	45 18 27 7.62 2 100	DF   E SL L	0.225 lb ai/a 0.09 0.135 1.19 lb ai/a 0.375 lb ai/a 0.25 % v/v		PPI   PPI POSTHrvst D POSTHrvst D	A   A		5.0	5.0	15.0
6	Authority MTZ Premix ----sulfentrazone ----metribuzin Dual Magnum.....s-metolachlor Gramoxone SL....paraquat Nonionic Surfactant	45 18 27 7.62 2 100	DF   E SL L	0.225 lb ai/a 0.09 0.135 1.19 lb ai/a 0.5 lb ai/a 0.25 % v/v		PPI   PPI POSTHrvst D POSTHrvst D	A   A		10.0	10.0	12.0
7	Tricor DF.....metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat	75 7.62 2	DF E SL	0.248 lb ai/a 1.19 lb ai/a 0 lb ai/a		PPI PPI POSTHrvst	A A		5.0	5.0	18.0
8	Tricor DF.....metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat Nonionic Surfactant	75 7.62 2 100	DF E SL L	0.248 lb ai/a 1.19 lb ai/a 0.375 lb ai/a 0.25 % v/v		PPI PPI POSTHrvst D POSTHrvst D	A A		5.0	5.0	15.0
9	Tricor DF.....metribuzin Dual Magnum.....s-metolachlor Gramoxone SL....paraquat Nonionic Surfactant	75 7.62 2 100	DF E SL L	0.248 lb ai/a 1.19 lb ai/a 0.5 lb ai/a 0.25 % v/v		PPI PPI POSTHrvst D POSTHrvst D	A A		5.0	5.0	5.0
10	Tricor DF.....metribuzin Devrinol 2-XT...napropamide Reglone.....diquat	75 2 2	DF EC SL	0.248 lb ai/a 1 lb ai/a 0 lb ai/a		PPI PPI POSTHrvst	A A		0.0	0.0	10.0

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 Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18 because error mean square = 0.

Pest Code						C LYPES	C LYPES	AMAPA	IPOSS
Pest Name						Tomato	Tomato	PalmerAm	Morngrly
Crop Type, Code						Chloros	Stunting	C -	C -
Crop Name						%	%	Control	Control
Rating Type						06/08/16	06/17/16	06/17/16	06/17/16
Rating Unit								%	%
Rating Date									
Description									
Crop Variety									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
1	Untreated Check Reglone.....diquat	2	SL	0 lb ai/a	POSTHrvst		0.0	0.0	0.0
2	Untreated Check Reglone.....diquat Nonionic Surfactant	2	SL	0.375 lb ai/a	POSTHrvst D		0.0	0.0	0.0
		100	L	0.25 % v/v	POSTHrvst D				
3	Untreated Check Gramoxone SL....paraquat Nonionic Surfactant	2	SL	0.5 lb ai/a	POSTHrvst D		0.0		0.0
		100	L	0.25 % v/v	POSTHrvst D				
4	Authority MTZ Premix ----sulfentrazone ----metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat	45	DF	0.225 lb ai/a	PPI	A	0.0	7.0	90.0
		18		0.09					
		27		0.135					
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0 lb ai/a	POSTHrvst				
5	Authority MTZ Premix ----sulfentrazone ----metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat Nonionic Surfactant	45	DF	0.225 lb ai/a	PPI	A	0.0	10.0	80.0
		18		0.09					
		27		0.135					
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0.375 lb ai/a	POSTHrvst D				
		100	L	0.25 % v/v	POSTHrvst D				
6	Authority MTZ Premix ----sulfentrazone ----metribuzin Dual Magnum.....s-metolachlor Gramoxone SL....paraquat Nonionic Surfactant	45	DF	0.225 lb ai/a	PPI	A	10.0		85.0
		18		0.09					
		27		0.135					
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0.5 lb ai/a	POSTHrvst D				
		100	L	0.25 % v/v	POSTHrvst D				
7	Tricor DF.....metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat	75	DF	0.248 lb ai/a	PPI	A	0.0	0.0	70.0
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0 lb ai/a	POSTHrvst				
8	Tricor DF.....metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat Nonionic Surfactant	75	DF	0.248 lb ai/a	PPI	A	0.0	20.0	95.0
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0.375 lb ai/a	POSTHrvst D				
		100	L	0.25 % v/v	POSTHrvst D				
9	Tricor DF.....metribuzin Dual Magnum.....s-metolachlor Gramoxone SL....paraquat Nonionic Surfactant	75	DF	0.248 lb ai/a	PPI	A	5.0		90.0
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0.5 lb ai/a	POSTHrvst D				
		100	L	0.25 % v/v	POSTHrvst D				
10	Tricor DF.....metribuzin Devrinol 2-XT...napropamide Reglone.....diquat	75	DF	0.248 lb ai/a	PPI	A	0.0	12.0	78.0
		2	EC	1 lb ai/a	PPI	A			
		2	SL	0 lb ai/a	POSTHrvst				

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Pest Code					ELEIN	ERAME		AMAPA
Pest Name					Goosegrs	Stnkgrs		PalmerAm
Crop Type, Code					C -	C -	C LYPES	C -
Crop Name							Tomato	
Rating Type					Control	Control	Stunting	Control
Rating Unit					%	%	%	%
Rating Date					06/17/16	06/17/16	06/22/16	06/22/16
Description								
Crop Variety								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0
	Reglone.....diquat	2	SL	0 lb ai/a	ai/a	POSTHrvst		0.0
2	Untreated Check							0.0
	Reglone.....diquat	2	SL	0.375 lb ai/a	ai/a	POSTHrvst D		0.0
	Nonionic Surfactant	100	L	0.25 % v/v	% v/v	POSTHrvst D		0.0
3	Untreated Check							0.0
	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	ai/a	POSTHrvst D		0.0
	Nonionic Surfactant	100	L	0.25 % v/v	% v/v	POSTHrvst D		0.0
4	Authority MTZ Premix	45	DF	0.225 lb ai/a	ai/a	PPI	A	88.0
	----sulfentrazone	18		0.09				
	----metribuzin	27		0.135				
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	ai/a	PPI	A	
	Reglone.....diquat	2	SL	0 lb ai/a	ai/a	POSTHrvst		
5	Authority MTZ Premix	45	DF	0.225 lb ai/a	ai/a	PPI	A	95.0
	----sulfentrazone	18		0.09				
	----metribuzin	27		0.135				
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	ai/a	PPI	A	
	Reglone.....diquat	2	SL	0.375 lb ai/a	ai/a	POSTHrvst D		
	Nonionic Surfactant	100	L	0.25 % v/v	% v/v	POSTHrvst D		
6	Authority MTZ Premix	45	DF	0.225 lb ai/a	ai/a	PPI	A	100.0
	----sulfentrazone	18		0.09				
	----metribuzin	27		0.135				
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	ai/a	PPI	A	
	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	ai/a	POSTHrvst D		
	Nonionic Surfactant	100	L	0.25 % v/v	% v/v	POSTHrvst D		
7	Tricor DF.....metribuzin	75	DF	0.248 lb ai/a	ai/a	PPI	A	90.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	ai/a	PPI	A	
	Reglone.....diquat	2	SL	0 lb ai/a	ai/a	POSTHrvst		
8	Tricor DF.....metribuzin	75	DF	0.248 lb ai/a	ai/a	PPI	A	95.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	ai/a	PPI	A	
	Reglone.....diquat	2	SL	0.375 lb ai/a	ai/a	POSTHrvst D		
	Nonionic Surfactant	100	L	0.25 % v/v	% v/v	POSTHrvst D		
9	Tricor DF.....metribuzin	75	DF	0.248 lb ai/a	ai/a	PPI	A	100.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	ai/a	PPI	A	
	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	ai/a	POSTHrvst D		
	Nonionic Surfactant	100	L	0.25 % v/v	% v/v	POSTHrvst D		
10	Tricor DF.....metribuzin	75	DF	0.248 lb ai/a	ai/a	PPI	A	80.0
	Devrinol 2-XT...napropamide	2	EC	1 lb ai/a	ai/a	PPI	A	
	Reglone.....diquat	2	SL	0 lb ai/a	ai/a	POSTHrvst		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 1: >=99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18 because error mean square = 0.



Pest Code					IPOSS	ELEIN	ERAME	MOLVE
Pest Name					Morngrly	Goosegrs	Stnkgrs	Carpetwd
Crop Type, Code					C -	C -	C -	C -
Crop Name								
Rating Type					Control	Control	Control	Control
Rating Unit					%	%	%	%
Rating Date					06/22/16	06/22/16	06/22/16	06/22/16
Description								
Crop Variety								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Unit	Appl Timing	Appl Code	
1	Untreated Check							0.0
	Reglone.....diquat	2	SL	0 lb ai/a	POST	Hrvst		0.0
2	Untreated Check							0.0
	Reglone.....diquat	2	SL	0.375 lb ai/a	POST	Hrvst D		0.0
	Nonionic Surfactant	100	L	0.25 % v/v	POST	Hrvst D		0.0
3	Untreated Check							0.0
	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	POST	Hrvst D		0.0
	Nonionic Surfactant	100	L	0.25 % v/v	POST	Hrvst D		0.0
4	Authority MTZ Premix	45	DF	0.225 lb ai/a	PPI		A	72.0
	----sulfentrazone	18		0.09				88.0
	----metribuzin	27		0.135				88.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	PPI		A	78.0
	Reglone.....diquat	2	SL	0 lb ai/a	POST	Hrvst		78.0
5	Authority MTZ Premix	45	DF	0.225 lb ai/a	PPI		A	82.0
	----sulfentrazone	18		0.09				92.0
	----metribuzin	27		0.135				95.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	PPI		A	72.0
	Reglone.....diquat	2	SL	0.375 lb ai/a	POST	Hrvst D		
	Nonionic Surfactant	100	L	0.25 % v/v	POST	Hrvst D		
6	Authority MTZ Premix	45	DF	0.225 lb ai/a	PPI		A	78.0
	----sulfentrazone	18		0.09				95.0
	----metribuzin	27		0.135				95.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	PPI		A	85.0
	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	POST	Hrvst D		
	Nonionic Surfactant	100	L	0.25 % v/v	POST	Hrvst D		
7	Tricor DF.....metribuzin	75	DF	0.248 lb ai/a	PPI		A	68.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	PPI		A	82.0
	Reglone.....diquat	2	SL	0 lb ai/a	POST	Hrvst		90.0
8	Tricor DF.....metribuzin	75	DF	0.248 lb ai/a	PPI		A	72.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	PPI		A	84.0
	Reglone.....diquat	2	SL	0.375 lb ai/a	POST	Hrvst D		95.0
	Nonionic Surfactant	100	L	0.25 % v/v	POST	Hrvst D		95.0
9	Tricor DF.....metribuzin	75	DF	0.248 lb ai/a	PPI		A	75.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19 lb ai/a	PPI		A	95.0
	Gramoxone SL....paraquat	2	SL	0.5 lb ai/a	POST	Hrvst D		95.0
	Nonionic Surfactant	100	L	0.25 % v/v	POST	Hrvst D		80.0
10	Tricor DF.....metribuzin	75	DF	0.248 lb ai/a	PPI		A	80.0
	Devrinol 2-XT...napropamide	2	EC	1 lb ai/a	PPI		A	75.0
	Reglone.....diquat	2	SL	0 lb ai/a	POST	Hrvst		75.0

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Pest Code						C	LYPES	IPOSS	GGGAN
Pest Name									
Crop Type, Code						C	-	C	-
Crop Name						Tomato			
Rating Type						Stunting	Control	Control	
Rating Unit						%	%	%	
Rating Date						07/05/16	07/05/16	07/05/16	
Description									
Crop Variety									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Appl Timing	Appl Code			
1	Untreated Check Reglone.....diquat	2	SL	0 lb ai/a	POSTHrvst		0.0	0.0	0.0
2	Untreated Check Reglone.....diquat Nonionic Surfactant	2	SL	0.375 lb ai/a	POSTHrvst D		0.0	0.0	0.0
		100	L	0.25 % v/v	POSTHrvst D				
3	Untreated Check Gramoxone SL....paraquat Nonionic Surfactant	2	SL	0.5 lb ai/a	POSTHrvst D		0.0	0.0	0.0
		100	L	0.25 % v/v	POSTHrvst D				
4	Authority MTZ Premix ----sulfentrazone ----metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat	45	DF	0.225 lb ai/a	PPI	A	0.0	68.0	80.0
		18		0.09					
		27		0.135					
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0 lb ai/a	POSTHrvst				
5	Authority MTZ Premix ----sulfentrazone ----metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat Nonionic Surfactant	45	DF	0.225 lb ai/a	PPI	A	8.0	80.0	88.0
		18		0.09					
		27		0.135					
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0.375 lb ai/a	POSTHrvst D				
		100	L	0.25 % v/v	POSTHrvst D				
6	Authority MTZ Premix ----sulfentrazone ----metribuzin Dual Magnum.....s-metolachlor Gramoxone SL....paraquat Nonionic Surfactant	45	DF	0.225 lb ai/a	PPI	A	12.0	70.0	78.0
		18		0.09					
		27		0.135					
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0.5 lb ai/a	POSTHrvst D				
		100	L	0.25 % v/v	POSTHrvst D				
7	Tricor DF.....metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat	75	DF	0.248 lb ai/a	PPI	A	0.0	60.0	70.0
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0 lb ai/a	POSTHrvst				
8	Tricor DF.....metribuzin Dual Magnum.....s-metolachlor Reglone.....diquat Nonionic Surfactant	75	DF	0.248 lb ai/a	PPI	A	0.0	80.0	80.0
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0.375 lb ai/a	POSTHrvst D				
		100	L	0.25 % v/v	POSTHrvst D				
9	Tricor DF.....metribuzin Dual Magnum.....s-metolachlor Gramoxone SL....paraquat Nonionic Surfactant	75	DF	0.248 lb ai/a	PPI	A	7.0	75.0	72.0
		7.62	E	1.19 lb ai/a	PPI	A			
		2	SL	0.5 lb ai/a	POSTHrvst D				
		100	L	0.25 % v/v	POSTHrvst D				
10	Tricor DF.....metribuzin Devrinol 2-XT...napropamide Reglone.....diquat	75	DF	0.248 lb ai/a	PPI	A	0.0	75.0	75.0
		2	EC	1 lb ai/a	PPI	A			
		2	SL	0 lb ai/a	POSTHrvst				

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Pest Code						C LYPES	C LYPES	C LYPES
Pest Name						Tomato	Tomato	Tomato
Crop Type, Code						Stunting	Chloros	Stunting
Crop Name						%	%	%
Rating Type						06/02/16	06/02/16	06/08/16
Rating Unit								
Rating Date								
Description								
Crop Variety								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Appl Timing	Appl Code		
11	Tricor DF.....metribuzin	75	DF	0.248	lb ai/a PPI	A	5.0	7.0
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a PPI	A		8.0
	Reglone.....diquat	2	SL	0.375	lb ai/a POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v POSTHrvst	D		
12	Tricor DF.....metribuzin	75	DF	0.248	lb ai/a PPI	A	0.0	0.0
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a PPI	A		12.0
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v POSTHrvst	D		
13	Reflex.....fomesafen	2	L	0.375	lb ai/a PRE	B	10.0	5.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a PRE	B		20.0
	Reglone.....diquat	2	SL	0	lb ai/a POSTHrvst			
14	Reflex.....fomesafen	2	L	0.375	lb ai/a PRE	B	7.0	7.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a PRE	B		18.0
	Reglone.....diquat	2	SL	0.375	lb ai/a POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v POSTHrvst	D		
15	Reflex.....fomesafen	2	L	0.375	lb ai/a PRE	B	10.0	7.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a PRE	B		18.0
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v POSTHrvst	D		
16	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a PPI	A	0.0	5.0
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a PPI	A		8.0
	Matrix.....rimsulfuron	25	WG	0.0313	lb ai/a POST	C		
	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a POST	C		
	Nonionic Surfactant	100	L	0.25	% v/v POST	C		
	Reglone.....diquat	2	SL	0	lb ai/a POSTHrvst			
17	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a PPI	A	10.0	5.0
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a PPI	A		10.0
	Matrix.....rimsulfuron	25	WG	0.0313	lb ai/a POST	C		
	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a POST	C		
	Nonionic Surfactant	100	L	0.25	% v/v POST	C		
	Reglone.....diquat	2	SL	0.375	lb ai/a POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v POSTHrvst	D		
18	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a PPI	A	7.0	5.0
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a PPI	A		10.0
	Matrix.....rimsulfuron	25	WG	0.0313	lb ai/a POST	C		
	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a POST	C		
	Nonionic Surfactant	100	L	0.25	% v/v POST	C		
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v POSTHrvst	D		
LSD P=.05								
Standard Deviation						.	.	.
CV						.	.	.
Replicate F								
Replicate Prob(F)								
Treatment F								
Treatment Prob(F)								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 1: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18 because error mean square = 0.

Pest Code						C	C	AMAPA	IPOSS
Pest Name						LYPES	LYPES	PalmerAm	Mornnglry
Crop Type, Code						Tomato	Tomato	C -	C -
Crop Name						Chloros	Stunting	Control	Control
Rating Type						%	%	%	%
Rating Unit						06/08/16	06/17/16	06/17/16	06/17/16
Rating Date									
Description									
Crop Variety									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code		
11	Tricor DF.....metribuzin	75	DF	0.248	lb ai/a	PPI	A	0.0	0.0
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a	PPI	A		
	Reglone.....diquat	2	SL	0.375	lb ai/a	POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v	POSTHrvst	D		
12	Tricor DF.....metribuzin	75	DF	0.248	lb ai/a	PPI	A	0.0	
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a	PPI	A		
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v	POSTHrvst	D		
13	Reflex.....fomesafen	2	L	0.375	lb ai/a	PRE	B	0.0	18.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	B		
	Reglone.....diquat	2	SL	0	lb ai/a	POSTHrvst			
14	Reflex.....fomesafen	2	L	0.375	lb ai/a	PRE	B	0.0	12.0
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	B		
	Reglone.....diquat	2	SL	0.375	lb ai/a	POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v	POSTHrvst	D		
15	Reflex.....fomesafen	2	L	0.375	lb ai/a	PRE	B	10.0	
	Dual Magnum.....s-metolachlor	7.62	E	1.19	lb ai/a	PRE	B		
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v	POSTHrvst	D		
16	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a	PPI	A	0.0	0.0
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a	PPI	A		
	Matrix.....rimsulfuron	25	WG	0.0313	lb ai/a	POST	C		
	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a	POST	C		
	Nonionic Surfactant	100	L	0.25	% v/v	POST	C		
	Reglone.....diquat	2	SL	0	lb ai/a	POSTHrvst			
17	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a	PPI	A	0.0	7.0
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a	PPI	A		
	Matrix.....rimsulfuron	25	WG	0.0313	lb ai/a	POST	C		
	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a	POST	C		
	Nonionic Surfactant	100	L	0.25	% v/v	POST	C		
	Reglone.....diquat	2	SL	0.375	lb ai/a	POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v	POSTHrvst	D		
18	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a	PPI	A	15.0	
	Devrinol 2-XT...napropamide	2	EC	1	lb ai/a	PPI	A		
	Matrix.....rimsulfuron	25	WG	0.0313	lb ai/a	POST	C		
	Tricor DF.....metribuzin	75	DF	0.14	lb ai/a	POST	C		
	Nonionic Surfactant	100	L	0.25	% v/v	POST	C		
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	POSTHrvst	D		
	Nonionic Surfactant	100	L	0.25	% v/v	POSTHrvst	D		
LSD P=.05									
Standard Deviation						.	.	.	.
CV						.	.	.	.
Replicate F									
Replicate Prob(F)									
Treatment F									
Treatment Prob(F)									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Due to missing data, larger LSD values (col. 1: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.  
 Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18 because error mean square = 0.

University of Delaware						ELEIN	ERAME		AMAPA	
						Goosegrs	Stnkgrs		PalmerAm	
						C -	C -	C LYPES	C -	
						Control	Control	Tomato	Control	
						%	%	Stunting	%	
						06/17/16	06/17/16	06/22/16	06/22/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit Timing	Appl Code				
11	Tricor DF.....metribuzin	75 DF		0.248 lb ai/a	PPI	A	95.0	95.0	0.0	80.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A				
	Reglone.....diquat	2 SL		0.375 lb ai/a	POSTHrvst	D				
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D				
12	Tricor DF.....metribuzin	75 DF		0.248 lb ai/a	PPI	A	88.0	88.0	10.0	90.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A				
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	POSTHrvst	D				
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D				
13	Reflex.....fomesafen	2 L		0.375 lb ai/a	PRE	B	100.0	100.0	15.0	85.0
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	B				
	Reglone.....diquat	2 SL		0 lb ai/a	POSTHrvst					
14	Reflex.....fomesafen	2 L		0.375 lb ai/a	PRE	B	95.0	95.0	18.0	92.0
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	B				
	Reglone.....diquat	2 SL		0.375 lb ai/a	POSTHrvst	D				
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D				
15	Reflex.....fomesafen	2 L		0.375 lb ai/a	PRE	B	100.0	100.0	28.0	95.0
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	B				
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	POSTHrvst	D				
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D				
16	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PPI	A	82.0	82.0	0.0	77.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A				
	Matrix.....rimsulfuron	25 WG		0.0313 lb ai/a	POST	C				
	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	POST	C				
	Nonionic Surfactant	100 L		0.25 % v/v	POST	C				
	Reglone.....diquat	2 SL		0 lb ai/a	POSTHrvst					
17	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PPI	A	90.0	90.0	0.0	78.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A				
	Matrix.....rimsulfuron	25 WG		0.0313 lb ai/a	POST	C				
	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	POST	C				
	Nonionic Surfactant	100 L		0.25 % v/v	POST	C				
	Reglone.....diquat	2 SL		0.375 lb ai/a	POSTHrvst	D				
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D				
18	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PPI	A	95.0	95.0	7.0	
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A				
	Matrix.....rimsulfuron	25 WG		0.0313 lb ai/a	POST	C				
	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	POST	C				
	Nonionic Surfactant	100 L		0.25 % v/v	POST	C				
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	POSTHrvst	D				
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D				
LSD P=.05										
Standard Deviation						.	.	.	.	.
CV						.	.	.	.	.
Replicate F										
Replicate Prob(F)										
Treatment F										
Treatment Prob(F)										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18 because error mean square = 0.

Pest Code						IPOSS	ELEIN	ERAME	MOLVE
Pest Name						Mornnglry	Goosegrs	Stnkgrs	Carpetwd
Crop Type, Code						C -	C -	C -	C -
Crop Name									
Rating Type						Control	Control	Control	Control
Rating Unit						%	%	%	%
Rating Date						06/22/16	06/22/16	06/22/16	06/22/16
Description									
Crop Variety									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code		
11	Tricor DF.....metribuzin	75 DF		0.248 lb ai/a	PPI		A	85.0	75.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI		A		
	Reglone.....diquat	2 SL		0.375 lb ai/a	POSTHrvst		D		
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst		D		
12	Tricor DF.....metribuzin	75 DF		0.248 lb ai/a	PPI		A	80.0	88.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI		A		
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	POSTHrvst		D		
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst		D		
13	Reflex.....fomesafen	2 L		0.375 lb ai/a	PRE		B	75.0	90.0
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE		B		
	Reglone.....diquat	2 SL		0 lb ai/a	POSTHrvst				
14	Reflex.....fomesafen	2 L		0.375 lb ai/a	PRE		B	85.0	95.0
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE		B		
	Reglone.....diquat	2 SL		0.375 lb ai/a	POSTHrvst		D		
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst		D		
15	Reflex.....fomesafen	2 L		0.375 lb ai/a	PRE		B	78.0	90.0
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE		B		
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	POSTHrvst		D		
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst		D		
16	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PPI		A	60.0	80.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI		A		
	Matrix.....rimsulfuron	25 WG		0.0313 lb ai/a	POST		C		
	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	POST		C		
	Nonionic Surfactant	100 L		0.25 % v/v	POST		C		
	Reglone.....diquat	2 SL		0 lb ai/a	POSTHrvst				
17	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PPI		A	75.0	88.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI		A		
	Matrix.....rimsulfuron	25 WG		0.0313 lb ai/a	POST		C		
	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	POST		C		
	Nonionic Surfactant	100 L		0.25 % v/v	POST		C		
	Reglone.....diquat	2 SL		0.375 lb ai/a	POSTHrvst		D		
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst		D		
18	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PPI		A	70.0	88.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI		A		
	Matrix.....rimsulfuron	25 WG		0.0313 lb ai/a	POST		C		
	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	POST		C		
	Nonionic Surfactant	100 L		0.25 % v/v	POST		C		
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	POSTHrvst		D		
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst		D		
LSD P=.05						.	.	.	.
Standard Deviation						.	.	.	.
CV						.	.	.	.
Replicate F									
Replicate Prob(F)									
Treatment F									
Treatment Prob(F)									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 1: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18 because error mean square = 0.

University of Delaware						IPOSS	GGGAN
Pest Code						Morngrly	AnnGrass
Pest Name						C -	C -
Crop Type, Code						C LYPES	
Crop Name						Tomato	
Rating Type						Stunting	Control
Rating Unit						%	%
Rating Date						07/05/16	07/05/16
Description							
Crop Variety							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
11	Tricor DF.....metribuzin	75 DF		0.248 lb ai/a	PPI	A	0.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A	75.0
	Reglone.....diquat	2 SL		0.375 lb ai/a	POSTHrvst	D	80.0
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D	
12	Tricor DF.....metribuzin	75 DF		0.248 lb ai/a	PPI	A	0.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A	80.0
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	POSTHrvst	D	60.0
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D	
13	Reflex.....fomesafen	2 L		0.375 lb ai/a	PRE	B	8.0
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	B	40.0
	Reglone.....diquat	2 SL		0 lb ai/a	POSTHrvst		75.0
14	Reflex.....fomesafen	2 L		0.375 lb ai/a	PRE	B	10.0
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	B	68.0
	Reglone.....diquat	2 SL		0.375 lb ai/a	POSTHrvst	D	85.0
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D	
15	Reflex.....fomesafen	2 L		0.375 lb ai/a	PRE	B	18.0
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	PRE	B	60.0
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	POSTHrvst	D	85.0
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D	
16	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PPI	A	0.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A	75.0
	Matrix.....rimsulfuron	25 WG		0.0313 lb ai/a	POST	C	75.0
	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	POST	C	
	Nonionic Surfactant	100 L		0.25 % v/v	POST	C	
	Reglone.....diquat	2 SL		0 lb ai/a	POSTHrvst		
17	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PPI	A	0.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A	85.0
	Matrix.....rimsulfuron	25 WG		0.0313 lb ai/a	POST	C	88.0
	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	POST	C	
	Nonionic Surfactant	100 L		0.25 % v/v	POST	C	
	Reglone.....diquat	2 SL		0.375 lb ai/a	POSTHrvst	D	
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D	
18	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	PPI	A	10.0
	Devrinol 2-XT...napropamide	2 EC		1 lb ai/a	PPI	A	90.0
	Matrix.....rimsulfuron	25 WG		0.0313 lb ai/a	POST	C	70.0
	Tricor DF.....metribuzin	75 DF		0.14 lb ai/a	POST	C	
	Nonionic Surfactant	100 L		0.25 % v/v	POST	C	
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/a	POSTHrvst	D	
	Nonionic Surfactant	100 L		0.25 % v/v	POSTHrvst	D	
LSD P=.05						.	.
Standard Deviation						.	.
CV						.	.
Replicate F						.	.
Replicate Prob(F)						.	.
Treatment F						.	.
Treatment Prob(F)						.	.

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Due to missing data, larger LSD values (col. 1: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.

Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18 because error mean square = 0.

Summer Squash Tolerance to Reflex  
 Trial ID: Veg05b-16      Location: Field #4      Trial Year: 2016  
 Protocol ID: Veg05b-16      Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel      Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947      E-mail: mjv@udel.edu  
 Country: USA      United States

**Crop Description**

Crop 1: C CUUPE Cucurbita pepo      Summer squash  
 Variety: Early Prolific  
 Attributes: For seed, transplants same day  
 Planting Date: 05/18/16  
 Depth: 0.75 in  
 Row Spacing: 5 FT  
 Soil Temperature: 64 F  
 Emergence Date: 05/22/16  
 Planting Method: PLANTD planted  
 Planting Equipment: PP plot planter  
 Seed Bed: MEDIUM medium  
 Soil Moisture: NORMAL normal, adequate

Crop 2: C CUUPG Cucurbita pepo giromontiina      Zucchini  
 Variety: Black Zucchini  
 Attributes: For seed, transplants same day  
 Planting Date: 05/18/16  
 Depth: 0.75 in  
 Row Spacing: 5 FT  
 Soil Temperature: 64 F  
 Emergence Date: 05/22/16  
 Planting Method: PLANTD planted  
 Planting Equipment: PP plot planter  
 Seed Bed: MEDIUM medium  
 Soil Moisture: NORMAL normal, adequate

**Site and Design**

Treated Plot Width: 10 FT      Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup>      Treatments: 16      Tillage Type: CONTIL conventional-till  
 Replications: 3      Study Design: FACTOR Factorial

**Soil Description**

Description Name: Field 4  
 % Sand: 79      % OM: 1.3      Texture: LS      loamy sand  
 % Silt: 13      pH: 6.6      Soil Name: Hammonton loamy sand, 0-2% slopes  
 % Clay: 8      CEC: 5.7      Fert. Level: G      good  
 Soil Drainage: F      fair

**Application Description**

	A
Application Date	05/17/16
Appl. Stop Time	10:00 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	63 F
% Relative Humidity Start, Stop	73
Wind Velocity+Dir. Start	1 mph N
Wet Leaves (Y/N)	N no
Soil Temperature	63 F
Soil Moisture	NORMAL
% Cloud Cover	30



**Application Equipment**

	A
Appl. Equipment	Bckpck6Nozl
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMCO2

**Trial Comments**

05/23/16: Some leaf necrosis and bleaching in topyralate trts that came in contact with the ground and splashing injury. 1.4 inches of rain shortly after spray.

06/07/16: Yellow rocket control 100% in all treated plots. Plot 307 severe cucumber beetle damage. Weed populations drop off severely at 3rd rep. Also possible carryover injury to the last range.

Summer Squash Tolerance to Reflex			
Trial ID: Veg05b-16	Location: Field #4	Trial Year: 2016	
Protocol ID: Veg05b-16	Investigator: Mark VanGessel		
Study Director:			
Sponsor Contact:			

Pest Code					C	C	C	C
Pest Name					CUUSS	CUUSS	CUUSS	CUUSS
Crop Type, Code					Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc
Crop Name					ChlorEdges	Emerged	Stunting	LeafBurn
Rating Type					%	#	%	%
Rating Unit					05/31/16	05/31/16	06/07/16	06/07/16
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code	
1	Yellow squash Seeded Untreated Check							0.0 a 9.0 b 0.0 a 0.0 c
2	Yellow squash Seeded Reflex.....fomesafen	2 L		0.188 lb ai/a	PRE	A		4.0 a 9.0 b 2.1 a 11.0 ab
3	Yellow squash Seeded Topyralate	3.34 L		0.026 lb ai/a	PRE	A		0.0 a 5.7 c 10.6 a 0.0 c
4	Yellow squash Seeded Topyralate	3.34 L		0.039 lb ai/a	PRE	A		2.3 a 10.7 ab 4.6 a 2.7 c
5	Yellow squash Transplanted Untreated Check							0.0 a 0.0 a 0.0 a 0.0 c
6	Yellow squash Transplanted Reflex.....fomesafen	2 L		0.188 lb ai/a	PRE	A		2.3 a 1.2 a 12.3 a
7	Yellow squash Transplanted Topyralate	3.34 L		0.026 lb ai/a	PRE	A		1.7 a 0.0 a 0.0 c
8	Yellow squash Transplanted Topyralate	3.34 L		0.039 lb ai/a	PRE	A		0.0 a 0.0 a 2.3 c
9	Zucchini Seeded Untreated Check							0.0 a 10.3 ab 0.0 a 0.0 c
10	Zucchini Seeded Reflex.....fomesafen	2 L		0.188 lb ai/a	PRE	A		4.7 a 9.3 ab 0.8 a 5.0 bc
11	Zucchini Seeded Topyralate	3.34 L		0.026 lb ai/a	PRE	A		2.3 a 12.0 a 1.1 a 0.0 c
12	Zucchini Seeded Topyralate	3.34 L		0.039 lb ai/a	PRE	A		0.0 a 10.7 ab 1.2 a 0.0 c
13	Zucchini Transplanted Untreated Check							0.0 a 0.0 a 0.0 a 0.0 c

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=3,4,10,12,13; Average=5,6,7

Pest Code Pest Name	AMAPA PalmerAm	IPOSS morngrly	OEOLA CEpmrse	C CUUSS Sqsh/Zuc Stunting %	C CUUSS Sqsh/Zuc Stunting %						
Crop Type, Code Crop Name Rating Type Rating Unit Rating Date	C - Control % 06/07/16	C - Control % 06/07/16	C - Control % 06/07/16	06/15/16	06/21/16						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code					
1 Yellow squash Seeded Untreated Check			0.0 b	25.0 a	0.0 b	0.0 c	0.0 c				
2 Yellow squash Seeded Reflex.....fomesafen	2 L		0.188 lb ai/a	PRE	A		95.0 a	48.3 a	92.5 a	6.7 ab	6.0 ab
3 Yellow squash Seeded Topyralate	3.34 L		0.026 lb ai/a	PRE	A		87.5 a	50.0 a	85.0 a	11.7 a	9.3 a
4 Yellow squash Seeded Topyralate	3.34 L		0.039 lb ai/a	PRE	A		95.0 a	50.0 a	87.5 a	10.7 a	9.0 a
5 Yellow squash Transplanted Untreated Check										0.0 c	0.0 c
6 Yellow squash Transplanted Reflex.....fomesafen	2 L		0.188 lb ai/a	PRE	A					0.0 c	0.0 c
7 Yellow squash Transplanted Topyralate	3.34 L		0.026 lb ai/a	PRE	A					0.0 c	0.0 c
8 Yellow squash Transplanted Topyralate	3.34 L		0.039 lb ai/a	PRE	A					0.0 c	0.0 c
9 Zucchini Seeded Untreated Check			0.0 b	0.0 a	0.0 b		0.0 b	0.0 a	0.0 b	0.0 c	0.0 c
10 Zucchini Seeded Reflex.....fomesafen	2 L		0.188 lb ai/a	PRE	A					2.7 bc	0.0 c
11 Zucchini Seeded Topyralate	3.34 L		0.026 lb ai/a	PRE	A					0.0 c	2.3 bc
12 Zucchini Seeded Topyralate	3.34 L		0.039 lb ai/a	PRE	A					0.0 c	0.0 c
13 Zucchini Transplanted Untreated Check										0.0 c	0.0 c

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 t=Mean descriptions are reported in transformed data units, and are not de-transformed.  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=3,4,10,12,13; Average=5,6,7

Pest Code Pest Name	AMAPA PalmerAm	IPOSS mornglry	EROCI RdstmFil	ERAME Stinkgrs
Crop Type, Code Crop Name	C -	C -	C -	C -
Rating Type Rating Unit Rating Date	Control % 06/21/16	Control % 06/21/16	Control % 06/21/16	Control % 06/21/16
Trt Treatment No. Name	Form Form Conc Type Rate	Rate Unit	Appl Timing	Appl Code
1 Yellow squash Seeded Untreated Check				
2 Yellow squash Seeded Reflex.....fomesafen	2 L	0.188 lb ai/a	PRE	A
3 Yellow squash Seeded Topyralate	3.34 L	0.026 lb ai/a	PRE	A
4 Yellow squash Seeded Topyralate	3.34 L	0.039 lb ai/a	PRE	A
5 Yellow squash Transplanted Untreated Check				
6 Yellow squash Transplanted Reflex.....fomesafen	2 L	0.188 lb ai/a	PRE	A
7 Yellow squash Transplanted Topyralate	3.34 L	0.026 lb ai/a	PRE	A
8 Yellow squash Transplanted Topyralate	3.34 L	0.039 lb ai/a	PRE	A
9 Zucchini Seeded Untreated Check				
10 Zucchini Seeded Reflex.....fomesafen	2 L	0.188 lb ai/a	PRE	A
11 Zucchini Seeded Topyralate	3.34 L	0.026 lb ai/a	PRE	A
12 Zucchini Seeded Topyralate	3.34 L	0.039 lb ai/a	PRE	A
13 Zucchini Transplanted Untreated Check				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
 t=Mean descriptions are reported in transformed data units, and are not de-transformed.  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=3,4,10,12,13; Average=5,6,7

Pest Code Pest Name					C	C	C	C			
Crop Type, Code					CUUSS	CUUSS	CUUSS	CUUSS			
Crop Name Rating Type					Sqsh/Zuc ChlorEdges	Sqsh/Zuc Emerged	Sqsh/Zuc Stunting	Sqsh/Zuc LeafBurn			
Rating Unit Rating Date					% 05/31/16	# 05/31/16	% 06/07/16	% 06/07/16			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Appl Unit	Appl Timing	Code				
14	Zucchini Transplanted Reflex.....fomesafen	2 L		0.188 lb ai/a	PRE	A		1.7 a	1.1 a	3.3 c	
15	Zucchini Transplanted Topyralate	3.34 L		0.026 lb ai/a	PRE	A		5.0 a	0.0 a	2.3 c	
16	Zucchini Transplanted Topyralate	3.34 L		0.039 lb ai/a	PRE	A		2.3 a	0.8 a	3.3 c	
LSD	P=.05							5.26	2.69	7.43 - 9.35	6.39
	Standard Deviation							3.15	1.54	0.42t	3.83
	CV							191.62	16.02	162.77t	144.64
	Replicate F							2.227	5.162	1.710	0.112
	Replicate Prob(F)							0.1254	0.0209	0.1986	0.8941
	Treatment F							0.941	4.515	1.607	3.091
	Treatment Prob(F)							0.5339	0.0080	0.1331	0.0045

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,4,10,12,13; Average=5,6,7

Pest Code Pest Name	AMAPA PalmerAm	IPOSS mornglry	OEOLA CEprmrse		
Crop Type, Code Crop Name	C -	C -	C -	C CUUSS Sqsh/Zuc	C CUUSS Sqsh/Zuc
Rating Type Rating Unit Rating Date	Control % 06/07/16	Control % 06/07/16	Control % 06/07/16	Stunting % 06/15/16	Stunting % 06/21/16
Trt Treatment No. Name	Form Form Conc Type	Rate Rate	Appl Unit	Appl Timing	Appl Code
14 Zucchini Transplanted Reflex.....fomesafen	2 L	0.188 lb ai/a	PRE	A	
15 Zucchini Transplanted Topyralate	3.34 L	0.026 lb ai/a	PRE	A	
16 Zucchini Transplanted Topyralate	3.34 L	0.039 lb ai/a	PRE	A	
LSD P=.05	41.94	84.81	18.00	5.74	5.47
Standard Deviation	9.75	40.41	4.18	3.44	3.28
CV	17.56	116.56	7.89	162.04	196.93
Replicate F	0.237	0.338	2.286	0.575	2.514
Replicate Prob(F)	0.6746	0.7284	0.2697	0.5690	0.0978
Treatment F	54.237	0.897	268.357	3.958	3.065
Treatment Prob(F)	0.0182	0.5289	0.0037	0.0007	0.0044

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
t=Mean descriptions are reported in transformed data units, and are not de-transformed.  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
Missing data estimates are included in columns: Yates=3,4,10,12,13; Average=5,6,7

Pest Code Pest Name	AMAPA PalmerAm	IPOSS mornglry	EROCI RdstmFil	ERAME Stinkgrs
Crop Type, Code Crop Name	C -	C -	C -	C -
Rating Type Rating Unit Rating Date	Control % 06/21/16	Control % 06/21/16	Control % 06/21/16	Control % 06/21/16
Trt Treatment No. Name	Form Form Conc Type	Rate Rate	Appl Unit	Appl Timing Code
14 Zucchini Transplanted Reflex.....fomesafen	2 L	0.188 lb ai/a	PRE	A
15 Zucchini Transplanted Topyralate	3.34 L	0.026 lb ai/a	PRE	A
16 Zucchini Transplanted Topyralate	3.34 L	0.039 lb ai/a	PRE	A
LSD P=.05	10.18	28.50	19.03	17.30
Standard Deviation	4.85	14.26	9.07	8.24
CV	7.3	45.05	21.69	15.62
Replicate F	0.420	1.546	0.045	1.249
Replicate Prob(F)	0.6780	0.2874	0.9563	0.3632
Treatment F	251.586	7.154	32.413	54.832
Treatment Prob(F)	0.0001	0.0209	0.0011	0.0003

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,4,10,12,13; Average=5,6,7

Summer Squash Tolerance to Reflex		
Trial ID: Veg05b-16	Location: Field #4	Trial Year: 2016
Protocol ID: Veg05b-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact:	

Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name	Sqsh/Zuc		Sqsh/Zuc		Sqsh/Zuc		Sqsh/Zuc		Sqsh/Zuc	
Rating Type	ChlorEdges		Stunting		LeafBurn		Stunting		Stunting	
Rating Unit	%		%		%		%		%	
Rating Date	05/31/16		06/07/16		06/07/16		06/15/16		06/21/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit					
<b>TABLE OF R MEANS</b>										
Replicate 1		0.9		0.8		2.4		1.7		0.6
Replicate 2		3.0		1.5		3.0		2.9		3.1
Replicate 3		1.1		0.3		2.6		1.8		1.3
<b>TABLE OF A (Crop) MEANS</b>										
1 Yellow squash		1.3 a		1.1 a		3.5 a		3.6 a		3.0 a
2 Zucchini		2.0 a		0.5 a		1.8 a		0.6 b		0.3 b
LSD P=.05		1.86		0.94 - 1.20		2.26		2.03		1.93
Standard Deviation		3.15		0.42t		3.83		3.44		3.28
CV		191.62		162.77t		144.64		162.04		196.93
<b>TABLE OF B (Planting) MEANS</b>										
1 Seeded		1.7 a		1.5 a		2.3 a		4.0 a		3.3 a
2 Transplanted		1.6 a		0.3 b		3.0 a		0.3 b		0.0 b
LSD P=.05		1.86		1.01 - 1.11		2.26		2.03		1.93
Standard Deviation		3.15		0.42t		3.83		3.44		3.28
CV		191.62		162.77t		144.64		162.04		196.93
<b>TABLE OF C (Herbicide) MEANS</b>										
1 Untreated Check		0.0 a		0.0 a		0.0 b		0.0 a		0.0 a
2 Reflex.....fomesafen	2 L	0.188 lb ai/a		3.2 a		1.3 a		7.9 a		2.3 a
3 Topyralate	3.34 L	0.026 lb ai/a		2.3 a		1.2 a		0.6 b		3.5 a
4 Topyralate	3.34 L	0.039 lb ai/a		1.2 a		1.2 a		2.1 b		2.7 a
LSD P=.05		2.63		1.26 - 2.74		3.20		2.87		2.74
Standard Deviation		3.15		0.42t		3.83		3.44		3.28
CV		191.62		162.77t		144.64		162.04		196.93
<b>TABLE OF A (Crop) B (Planting) MEANS</b>										
1 Yellow squash 1 Seeded		1.6 a		2.8 a		3.4 a		7.3 a		6.1 a
2 Zucchini 1 Seeded		1.8 a		0.7 a		1.3 a		0.7 b		0.6 b
1 Yellow squash 2 Transplanted		1.0 a		0.2 a		3.7 a		0.0 b		0.0 b
2 Zucchini 2 Transplanted		2.3 a		0.4 a		2.3 a		0.6 b		0.0 b
LSD P=.05		2.63		1.53 - 2.11		3.20		2.87		2.74
Standard Deviation		3.15		0.42t		3.83		3.44		3.28
CV		191.62		162.77t		144.64		162.04		196.93
<b>TABLE OF A (Crop) C (Herbicide) MEANS</b>										
1 Yellow squash 1 Untreated Check		0.0 a		0.0 a		0.0 b		0.0 a		0.0 a
2 Zucchini 1 Untreated Check		0.0 a		0.0 a		0.0 b		0.0 a		0.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
t=Mean descriptions are reported in transformed data units, and are not de-transformed.



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Crop Type, Code				C CUUSS	C CUUSS	C CUUSS	C CUUSS	C CUUSS		
Crop Name				Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc		
Rating Type				ChlorEdges	Stunting	LeafBurn	Stunting	Stunting		
Rating Unit				%	%	%	%	%		
Rating Date				05/31/16	06/07/16	06/07/16	06/15/16	06/21/16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit					
1	Yellow squash					3.2 a	1.6 a	11.7 a	3.3 a	3.0 a
2	Reflex.....fomesafen	2 L		0.188 lb ai/a						
2	Zucchini					3.2 a	0.9 a	4.2 b	1.3 a	0.0 a
2	Reflex.....fomesafen	2 L		0.188 lb ai/a						
1	Yellow squash					0.8 a	2.4 a	0.0 b	5.8 a	4.7 a
3	Topyralate	3.34 L		0.026 lb ai/a						
2	Zucchini					3.7 a	0.4 a	1.2 b	1.2 a	1.2 a
3	Topyralate	3.34 L		0.026 lb ai/a						
1	Yellow squash					1.2 a	1.4 a	2.5 b	5.3 a	4.5 a
4	Topyralate	3.34 L		0.039 lb ai/a						
2	Zucchini					1.2 a	1.0 a	1.7 b	0.0 a	0.0 a
4	Topyralate	3.34 L		0.039 lb ai/a						
LSD P=.05				3.72	2.33 - 3.12	4.52	4.06	3.87		
Standard Deviation				3.15	0.42t	3.83	3.44	3.28		
CV				191.62	162.77t	144.64	162.04	196.93		
TABLE OF B (Planting) C (Herbicide) MEANS										
1	Seeded					0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
1	Untreated Check									
2	Transplanted					0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
1	Seeded					4.3 a	1.4 a	8.0 a	4.7 a	3.0 a
2	Reflex.....fomesafen	2 L		0.188 lb ai/a						
2	Transplanted					2.0 a	1.2 a	7.8 a	0.0 a	0.0 a
2	Reflex.....fomesafen	2 L		0.188 lb ai/a						
1	Seeded					1.2 a	3.9 a	0.0 a	5.8 a	5.8 a
3	Topyralate	3.34 L		0.026 lb ai/a						
2	Transplanted					3.3 a	0.0 a	1.2 a	1.2 a	0.0 a
3	Topyralate	3.34 L		0.026 lb ai/a						
1	Seeded					1.2 a	2.5 a	1.3 a	5.3 a	4.5 a
4	Topyralate	3.34 L		0.039 lb ai/a						
2	Transplanted					1.2 a	0.3 a	2.8 a	0.0 a	0.0 a
4	Topyralate	3.34 L		0.039 lb ai/a						
LSD P=.05				3.72	2.91 - 3.36	4.52	4.06	3.87		
Standard Deviation				3.15	0.42t	3.83	3.44	3.28		
CV				191.62	162.77t	144.64	162.04	196.93		
TABLE OF A (Crop) B (Planting) C (Herbicide) MEANS										
1	Yellow squash					0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
1	Seeded									
1	Untreated Check									
2	Zucchini					0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
1	Seeded									
1	Untreated Check									
1	Yellow squash					0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
2	Transplanted									
1	Untreated Check									
2	Zucchini					0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
2	Transplanted									
1	Untreated Check									

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## University of Delaware

Crop Type, Code				C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name				Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc	Sqsh/Zuc
Rating Type				ChlorEdges	Stunting	LeafBurn	Stunting	Stunting	Stunting	Stunting	Stunting	Stunting	Stunting
Rating Unit				%	%	%	%	%	%	%	%	%	%
Rating Date				05/31/16	06/07/16	06/07/16	06/15/16	06/15/16	06/15/16	06/15/16	06/21/16	06/21/16	06/21/16
Trt	Treatment	Form	Form	Rate									
No.	Name	Conc	Type	Rate	Unit								
1	Yellow squash					4.0 a	2.1 a	11.0 a	6.7 a	6.0 a			
1	Seeded												
2	Reflex.....fomesafen	2 L		0.188 lb ai/a									
2	Zucchini					4.7 a	0.8 a	5.0 a	2.7 a	0.0 a			
1	Seeded												
2	Reflex.....fomesafen	2 L		0.188 lb ai/a									
1	Yellow squash					2.3 a	1.2 a	12.3 a	0.0 a	0.0 a			
2	Transplanted												
2	Reflex.....fomesafen	2 L		0.188 lb ai/a									
2	Zucchini					1.7 a	1.1 a	3.3 a	0.0 a	0.0 a			
2	Transplanted												
2	Reflex.....fomesafen	2 L		0.188 lb ai/a									
1	Yellow squash					0.0 a	10.6 a	0.0 a	11.7 a	9.3 a			
1	Seeded												
3	Topyralate	3.34 L		0.026 lb ai/a									
2	Zucchini					2.3 a	1.1 a	0.0 a	0.0 a	2.3 a			
1	Seeded												
3	Topyralate	3.34 L		0.026 lb ai/a									
1	Yellow squash					1.7 a	0.0 a	0.0 a	0.0 a	0.0 a			
2	Transplanted												
3	Topyralate	3.34 L		0.026 lb ai/a									
2	Zucchini					5.0 a	0.0 a	2.3 a	2.3 a	0.0 a			
2	Transplanted												
3	Topyralate	3.34 L		0.026 lb ai/a									
1	Yellow squash					2.3 a	4.6 a	2.7 a	10.7 a	9.0 a			
1	Seeded												
4	Topyralate	3.34 L		0.039 lb ai/a									
2	Zucchini					0.0 a	1.2 a	0.0 a	0.0 a	0.0 a			
1	Seeded												
4	Topyralate	3.34 L		0.039 lb ai/a									
1	Yellow squash					0.0 a	0.0 a	2.3 a	0.0 a	0.0 a			
2	Transplanted												
4	Topyralate	3.34 L		0.039 lb ai/a									
2	Zucchini					2.3 a	0.8 a	3.3 a	0.0 a	0.0 a			
2	Transplanted												
4	Topyralate	3.34 L		0.039 lb ai/a									
LSD	P=.05					5.26	7.43 - 9.35	6.39	5.74	5.47			
Standard	Deviation					3.15	0.42t	3.83	3.44	3.28			
CV						191.62	162.77t	144.64	162.04	196.93			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

FACTORIAL/POOLED ERROR AOV For C CUUSS Sqsh/Zuc ChlorEdges % 05/31/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	482.979167				
R	2	44.291667	22.145833	2.227	0.1254	
A	1	6.020833	6.020833	0.605	0.4426	1.9
B	1	0.020833	0.020833	0.002	0.9638	1.9
AB	1	3.520833	3.520833	0.354	0.5563	2.6
C	3	67.395833	22.465278	2.259	0.1019	2.6
AC	3	18.062500	6.020833	0.605	0.6167	3.7
BC	3	30.395833	10.131944	1.019	0.3982	3.7
ABC	3	14.895833	4.965278	0.499	0.6856	5.3
ERROR	30	298.375000	9.945833			

FACTORIAL/POOLED ERROR AOV For C CUUSS Sqsh/Zuc Stunting % 06/07/16 Missing values in column 3 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	10.124214				
R	2	0.612705	0.306352	1.710	0.1986	
A	1	0.250681	0.250681	1.399	0.2464	0.9 - 1.2
B	1	1.001559	1.001559	5.591	0.0250	1.0 - 1.1
AB	1	0.490217	0.490217	2.737	0.1089	1.5 - 2.1
C	3	1.083483	0.361161	2.016	0.1336	1.3 - 2.7
AC	3	0.236883	0.078961	0.441	0.7256	2.3 - 3.1
BC	3	0.965059	0.321686	1.796	0.1700	2.9 - 3.4
ABC	3	0.288957	0.096319	0.538	0.6602	7.4 - 9.3
ERROR	29	5.194668	0.179126			

FACTORIAL/POOLED ERROR AOV For C CUUSS Sqsh/Zuc LeafBurn % 06/07/16 Missing values in column 4 results in unbalanced data, Least Squares Analysis is preferred						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	1106.979167				
R	2	3.291667	1.645833	0.112	0.8941	
A	1	38.520833	38.520833	2.630	0.1157	2.3
B	1	4.687500	4.687500	0.320	0.5759	2.3
AB	1	1.687500	1.687500	0.115	0.7367	3.2
C	3	472.229167	157.409722	10.748	0.0001	3.2
AC	3	136.395833	45.465278	3.104	0.0419	4.5
BC	3	6.229167	2.076389	0.142	0.9341	4.5
ABC	3	19.229167	6.409722	0.438	0.7277	6.4
ERROR	29	424.708333	14.645115			

FACTORIAL/POOLED ERROR AOV For C CUUSS Sqsh/Zuc Stunting % 06/15/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1073.250000				
R	2	13.625000	6.812500	0.575	0.5690	
A	1	108.000000	108.000000	9.109	0.0052	2.0
B	1	161.333333	161.333333	13.607	0.0009	2.0
AB	1	154.083333	154.083333	12.995	0.0011	2.9
C	3	80.916667	26.972222	2.275	0.1001	2.9
AC	3	54.666667	18.222222	1.537	0.2253	4.1
BC	3	54.666667	18.222222	1.537	0.2253	4.1
ABC	3	90.250000	30.083333	2.537	0.0754	5.7
ERROR	30	355.708333	11.856944			

FACTORIAL/POOLED ERROR AOV For C CUUSS Sqsh/Zuc Stunting % 06/21/16						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	872.666667				
R	2	54.166667	27.083333	2.514	0.0978	
A	1	90.750000	90.750000	8.424	0.0069	1.9
B	1	133.333333	133.333333	12.378	0.0014	1.9
AB	1	90.750000	90.750000	8.424	0.0069	2.7
C	3	56.500000	18.833333	1.748	0.1783	2.7
AC	3	33.750000	11.250000	1.044	0.3872	3.9
BC	3	56.500000	18.833333	1.748	0.1783	3.9
ABC	3	33.750000	11.250000	1.044	0.3872	5.5
ERROR	30	323.166667	10.772222			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Non-Chemical Treatments for At-Planting Weed Management  
 Trial ID: Veg8-16\_2 Location: Field #4 Trial Year: 2016  
 Protocol ID: Veg8-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

**Crop Description**

Crop 1: C PHSLU Phaseolus lunatus Lima bean  
 Variety: C-Elite  
 Planting Date: 07/27/16 Planting Rate: 4 S/ROWFT  
 Depth: 1 in  
 Rows per Plot: 1 Planting Method: PLANTD planted  
 Row Spacing: 30 in Planting Equipment: FE Field Equipment  
 Seed Bed: MEDIUM medium  
 Soil Temperature: 92 F Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 08/01/16

**Site and Design**

Treated Plot Width: 1.5 FT Site Type: FIELD field  
 Treated Plot Length: 12.5 FT  
 Treated Plot Area: 18.75 FT<sup>2</sup> Treatments: 8 Tillage Type: CONTIL conventional-till  
 Replications: 24 Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**

Description Name: Field 4  
 % Sand: 79 % OM: 1.6 Texture: LS loamy sand  
 % Silt: 13 pH: 6.7 Soil Name: Hammonton loamy sand, 0-2% slopes  
 % Clay: 8 CEC: 5.8 Fert. Level: E excellent  
 Soil Drainage: F fair

**Application Description**

	A
Application Date	07/28/16
Appl. Stop Time	11:00 AM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	89 F
% Relative Humidity Start, Stop	65
Wind Velocity+Dir. Start	2 mph SE
Wet Leaves (Y/N)	N no
Soil Temperature	75 F
Soil Moisture	NORMAL
% Cloud Cover	80

**Application Equipment**

	A
Appl. Equipment	Bkpk2NzlHood
Equipment Type	SPRBAC
Operation Pressure	26 psi
Nozzle Type	TeeJet
Nozzle Size	8002E
Nozzle Spacing	16 in
Boom Length	32 in
Boom Height	18 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMCO2

Non-Chemical Treatments for At-Planting Weed Management		
Trial ID: Veg8-16_2	Location: Field #4	Trial Year: 2016
Protocol ID: Veg8-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact:	

Pest Code		MOLVE	AMAPA
Pest Name		Carpetwd	PalmerAm
Rating Type		Count	Count
Rating Unit		plts/10'	plts/10'
Rating Date		08/10/16	08/10/16
Trt No.	Treatment Name	Form Conc	Form Appl Timing
			Code
1	Untreated		
2	SU-1	12 L	PRE A
3	SU-1	12 L	PRE A
4	SU-1	12 L	PRE A
5	Corn Gluten Meal	4 GR	PRE A
6	Corn Gluten Meal	4 GR	PRE A
7	AgroBlitz	100 L	PRE A
8	Dual II Magnum..s-metolachlor	7.64 E	PRE A
LSD P=.05		17.36	2.34
Standard Deviation		30.39	4.11
CV		31.35	82.75
Replicate F		19.600	4.106
Replicate Prob(F)		0.0001	0.0001
Treatment F		24.792	4.566
Treatment Prob(F)		0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates are included in columns: Yates=3,4

Crop Safety When Using Overlapping Residuals for Lima Beans  
 Trial ID: Veg9-16\_lima Location: REC Fld 4 Trial Year: 2016  
 Protocol ID: Veg9-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C PHSLU Phaseolus lunatus Lima bean  
 Variety: C-Elite  
 Planting Date: 06/15/16 Planting Rate: 4 S/ROWFT  
 Depth: 1 in  
 Rows per Plot: 4 Planting Method: PLANTD planted  
 Row Spacing: 30 in Planting Equipment: FE Field Equipment  
 Seed Bed: MEDIUM medium  
 Soil Temperature: 90 F Soil Moisture: NORMAL normal, adequate  
 Emergence Date: 06/20/16

**Site and Design**

Treated Plot Width: 10 FT Site Type: FIELD field  
 Treated Plot Length: 25 FT  
 Treated Plot Area: 250 FT<sup>2</sup> Treatments: 4 Tillage Type: CONTIL conventional-till  
 Replications: 3 Study Design: RACOB� Randomized Complete Block (RCB)

**Soil Description**

Description Name: Field 4  
 % Sand: 79 % OM: 1.6 Texture: LS loamy sand  
 % Silt: 13 pH: 6.7 Soil Name: Hammonton loamy sand, 0-2% slopes  
 % Clay: 8 CEC: 5.8 Fert. Level: E excellent  
 Soil Drainage: F fair

**Application Description**

	A
Application Date	07/08/16
Appl. Stop Time	02:45 PM
Application Method	SPRAY
Application Timing	POST
Application Placement	BROADC
Applied By	VanGessl
Air Temperature Start, Stop	91 F
% Relative Humidity Start, Stop	49
Wind Velocity+Dir. Start	1 mph W
Wet Leaves (Y/N)	N no
Soil Temperature	91 F
Soil Moisture	NORMAL
% Cloud Cover	40

**Crop Stage At Each Application**

	A
Crop 1 Code, BBCH Scale	PHSLU BVBE
Stage Scale Used	DESC
Stage Majority, Percent	4-trif 100
Height Average	8 in

**Application Equipment**

	A
Appl. Equipment	Bckpck6Nozl
Equipment Type	SPRBAC
Operation Pressure	31 psi
Nozzle Type	AIRMIX
Nozzle Size	11002
Nozzle Spacing	18 in
Boom Length	9 ft
Boom Height	26 in
Ground Speed	3 mph
Carrier	WATER
Application Amount	20 gal/ac
Propellant	COMCO2

**Trial Comments**

07/20/16: Stunting is based on amount of vining in row middles. Some leaf puckering observed with Outlook; it appears the puckering was on the leaves just emerging at time of application.

Crop Safety When Using Overlapping Residuals for Lima Beans		
Trial ID: Veg9-16_lima	Location: REC Fld 4	Trial Year: 2016
Protocol ID: Veg9-16	Investigator: Mark VanGessel	
	Study Director:	
	Sponsor Contact:	

Crop Type, Code	C PHSLU	C PHSLU	C PHSLU
Crop Name	LimaBean	LimaBean	LimaBean
Rating Type	Lf Burn	Stunting	Stunting
Rating Unit	%	%	%
Rating Date	07/12/16	07/12/16	07/20/16
Trt Treatment	Form	Form	Rate
No. Name	Conc	Type	Rate Unit
Appl	Appl		
Timing	Code		
1 Untreated Check	0.0 a	0.0 a	0.0 b
2 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/a	POST A
3 Outlook.....dimethenamid-p	6 L	0.75 lb ai/a	POST A
4 Prowl H2O.....pendimethalin	3.8 CS	0.95 lb ai/a	POST A
LSD P=.05	1.63	6.63	5.19
Standard Deviation	0.82	3.32	2.60
CV	244.95	99.62	40.49
Replicate F	2.000	1.141	0.309
Replicate Prob(F)	0.2160	0.3802	0.7454
Treatment F	1.000	1.370	8.407
Treatment Prob(F)	0.4547	0.3388	0.0144

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



Crop Safety When Using Overlapping Residuals in Pumpkins  
 Trial ID: Veg9-16\_pmkn Location: REC Fld 25b Trial Year: 2016  
 Protocol ID: Veg9-16 Investigator: Mark VanGessel  
 Study Director:  
 Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist  
 Organization: University of Delaware  
 Address: 16483 County Seat Hwy  
 City+State/Prov: Georgetown, Delaware  
 Postal Code: 19947 E-mail: mjv@udel.edu  
 Country: USA United States

**Crop Description**

Crop 1: C CUUSS Cucurbita sp. Pumpkin BBCH Scale: BVVT  
 Variety: Jack-O-Lantern  
 Planting Date: 07/12/16 Planting Rate: 1 1.5 ft  
 Depth: 1 IN  
 Row Spacing: 6 FT Planting Method: SEEDED seeded  
 Spacing within Row: 18 IN Planting Equipment: HA By Hand  
 Soil Temperature: 84 F Seed Bed: SMOOTH smooth  
 Emergence Date: 07/19/16 Soil Moisture: NORMAL normal, adequate

**Pest Description**

Pest 1 Type: W Code: IPOSS Ipomoea sp.  
 Common Name: Morning glory  
 Pest 2 Type: W Code: MOLVE Mollugo verticillata  
 Common Name: Carpetweed  
 Pest 3 Type: W Code: DIGSA Digitaria sanguinalis  
 Common Name: large crabgrass  
 Pest 4 Type: W Code: ELEIN Eleusine indica  
 Common Name: Goosegrass

**Site and Design**

Treated Plot Width: 4 m Site Type: FIELD field  
 Treated Plot Length: 6 m  
 Treated Plot Area: 24 m<sup>2</sup> Treatments: 6 Tillage Type: CONTIL conventional-till  
 Replications: 3 Study Design: FACTOR Factorial

**Maintenance**

No.	Date	Maintenance Product Name	Rate	Rate Unit
1.	07/12/16	Strategy	48	FL OZ/A
2.	07/12/16	Curbit	14.5	FL OZ/A

**Field Prep./Maintenance:**

A broad PRE application of Strategy and Curbit was made on 7/12/16.

**Soil Description**

Description Name: Field 25B  
 % Sand: 77 % OM: 1.5 Texture: SL sandy loam  
 % Silt: 14 pH: 6.7 Soil Name: Hammonton loamy sand, 0-2% slopes  
 % Clay: 9 CEC: 4.4 Fert. Level: G good  
 Soil Drainage: G good

**Application Description**

	A	B
Application Date	07/25/16	07/30/16
Appl. Stop Time	11:45 AM	12:00 PM
Application Method	Spray	SPRAY
Application Timing	3WAP	4WAP
Application Placement	BROADC	BROADC
Applied By	Barb	VanGesl
Air Temperature Start, Stop	91 F	85 F
% Relative Humidity Start, Stop	65	61
Wind Velocity+Dir. Start	5 MPH W	3 mph S
Wet Leaves (Y/N)	N no	N no
Soil Temperature	91 F	85 F
Soil Moisture	NORMAL	NORMAL
% Cloud Cover	0	90

**Crop Stage At Each Application**

	A	B
Crop 1 Code, BBCH Scale	CUUSS BVVT	CUUSS BVVT
Stage Scale Used	DESC	DESC
Stage Majority, Percent	4-trueLf 100	8-Leaf 100
Height Average	5 IN	7 in

**Pest Stage At Each Application**

	A	B
Pest 1 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent	veg 100	veg 100
Height Average	2 in	3 in
Height Minimum, Maximum	2 3	2 4
Density Average	8 m2	8 m2
Pest 2 Code, Type, Scale	MOLVE W	MOLVE W
Stage Majority, Percent	veg 100	veg 100
Diameter	1 in	2 in
Density Average	32 m2	32 m2
Pest 3 Code, Type, Scale	DIGSA W	DIGSA W
Stage Majority, Percent	veg 100	veg 100
Height Average	1 IN	2 in
Density Average	8 m2	8 m2
Pest 4 Code, Type, Scale	ELEIN W	ELEIN W
Stage Majority, Percent	veg 100	veg 100
Height Average	1 IN	2 in
Density Average	8 m2	8 m2

<b>Application Equipment</b>		
	A	B
Appl. Equipment	Bckpck4Nozl	Bckpck4Nozl
Equipment Type	SPRBAC	SPRBAC
Operation Pressure	31 psi	31 psi
Nozzle Type	AIRMIX	AIRMIX
Nozzle Size	11002	11002
Nozzle Spacing	18 in	18 in
Nozzles/Row		4
Boom Length	6 ft	6 ft
Boom Height	18 in	18 in
Ground Speed	3 mph	3 mph
Carrier	WATER	WATER
Application Amount	20 gal/ac	20 gal/ac
Propellant	COMCO2	COMCO2

Trial Comments

Crop Safety When Using Overlapping Residuals in Pumpkins							
Trial ID: Veg9-16_pmkn		Location: REC Fld 25b		Trial Year: 2016			
Protocol ID: Veg9-16		Investigator: Mark VanGessel			Study Director:		
Sponsor Contact:							
Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS	
Crop Name		Pumpkin		Pumpkin		Pumpkin	
Rating Type		Stunting		Chlrosis		Stunting	
Rating Unit		%		%		%	
Rating Date		07/29/16		07/29/16		08/05/16	
						08/15/16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code
1	Dual Magnum.....s-metolachlor 3 WAP	7.62 E		1.19 lb ai/a		3WAP	A
2	Dual Magnum.....s-metolachlor 4 WAP	7.62 E		1.19 lb ai/a		4WAP	B
3	Outlook.....dimethenamid-p 3 WAP	6 L		0.75 lb ai/a		3WAP	A
4	Outlook.....dimethenamid-p 4 WAP	6 L		0.75 lb ai/a		4WAP	B
5	Prowl H2O.....pendimethalin	3.8 CS		0.95 lb ai/a		3 WAP	A
6	Untreated Check						
LSD P=.05		5.02		5.58		11.39	11.16
Standard Deviation		2.51		2.79		6.26	6.13
CV		66.96		50.8		89.4	131.4
Replicate F		2.974		1.826		0.974	0.124
Replicate Prob(F)		0.1267		0.2403		0.4105	0.8846
Treatment F		8.930		32.868		4.963	2.663
Treatment Prob(F)		0.0124		0.0004		0.0152	0.0880

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Safety When Using Overlapping Residuals in Pumpkins						
Trial ID: Veg9-16_pmkn		Location: REC Fld 25b		Trial Year: 2016		
Protocol ID: Veg9-16		Investigator: Mark VanGessel				
Study Director:						
Sponsor Contact:						
Crop Type, Code	C	CUUSS	C	CUUSS	C	CUUSS
Crop Name		Pumpkin		Pumpkin		Pumpkin
Rating Type		Stunting		Chlorosis		Stunting
Rating Unit		%		%		%
Rating Date		07/29/16		07/29/16		08/05/16
						08/15/16
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate Unit	Appl Timing	Appl Code	
TABLE OF R MEANS						
Replicate 1						0.0
Replicate 2						5.5
Replicate 3						9.3
TABLE OF A (Herbicide) MEANS						
1 Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	3WAP	A	6.5 a
2 Outlook.....dimethenamid-p	6 L		0.75 lb ai/a	3WAP	A	3.3 a
LSD P=.05						7.78
Standard Deviation						5.51
CV						112.07
TABLE OF B (Timing) MEANS						
1 3 WAP						6.2 a
2 4 WAP						3.7 a
LSD P=.05						7.78
Standard Deviation						5.51
CV						112.07
TABLE OF A (Herbicide) B (Timing) MEANS						
1 Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	3WAP	A	2.3 a
1 3 WAP						1.0 a
2 Outlook.....dimethenamid-p	6 L		0.75 lb ai/a	3WAP	A	2.7 a
1 3 WAP						1.7 a
1 Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/a	3WAP	A	. .
2 4 WAP						4.0 a
2 Outlook.....dimethenamid-p	6 L		0.75 lb ai/a	3WAP	A	. .
2 4 WAP						3.3 a
LSD P=.05						5.02
Standard Deviation						2.51
CV						100.44
						5.58
						2.79
						11.01
						5.51
						12.88
						6.45
						209.14

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Randomized Complete Block (RCB) AOV For C CUUSS Pumpkin Stunting % 07/29/16 Missing factor B levels prevents analyzing column 1 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	244.250000			
Replicate	2	37.500000	18.750000	2.974	0.1267
Treatment	3	168.916667	56.305556	8.930	0.0124
ERROR	6	37.833333	6.305556		

Randomized Complete Block (RCB) AOV For C CUUSS Pumpkin Chlorosis % 07/29/16 Missing factor B levels prevents analyzing column 2 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	845.000000			
Replicate	2	28.500000	14.250000	1.826	0.2403
Treatment	3	769.666667	256.555556	32.868	0.0004
ERROR	6	46.833333	7.805556		

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin Stunting % 08/05/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	11	422.916667				
R	2	173.166667	86.583333	2.852	0.1347	
A	1	30.083333	30.083333	0.991	0.3580	7.8
B	1	18.750000	18.750000	0.618	0.4619	7.8
AB	1	18.750000	18.750000	0.618	0.4619	11.0
ERROR	6	182.166667	30.361111			

FACTORIAL/POOLED ERROR AOV For C CUUSS Pumpkin BiomRed % 08/15/16

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	11	354.916667				
R	2	63.166667	31.583333	0.760	0.5081	
A	1	24.083333	24.083333	0.579	0.4755	9.1
B	1	14.083333	14.083333	0.339	0.5818	9.1
AB	1	4.083333	4.083333	0.098	0.7646	12.9
ERROR	6	249.500000	41.583333			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.