



Final Weights and Finishing Holstein Steers

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Outline

- The goals
- Final weight and carcass weight
- Cost per unit of energy
- Anabolic implants and beta-agonists
- UWEX Wis Beef Information Center



Goals

- Optimal fit to carcass grid pricing
- Cost of gain is less than value of gain
- Optimal use of farm resources





An Example – Finished Holstein Steer Carcass Price Grid

JBS Packerland, Green Bay, WI

March 18, 2016

Base USDA Quality and Yield Grade: Ch & YG3

Base (“par”) weight: 750-1,000 lbs

Ch & YG3: \$2.06/lb carc

Prime: +\$0.08	Over 30 mo: -\$0.35
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Select: -\$0.09	Dark cutter: -\$0.35
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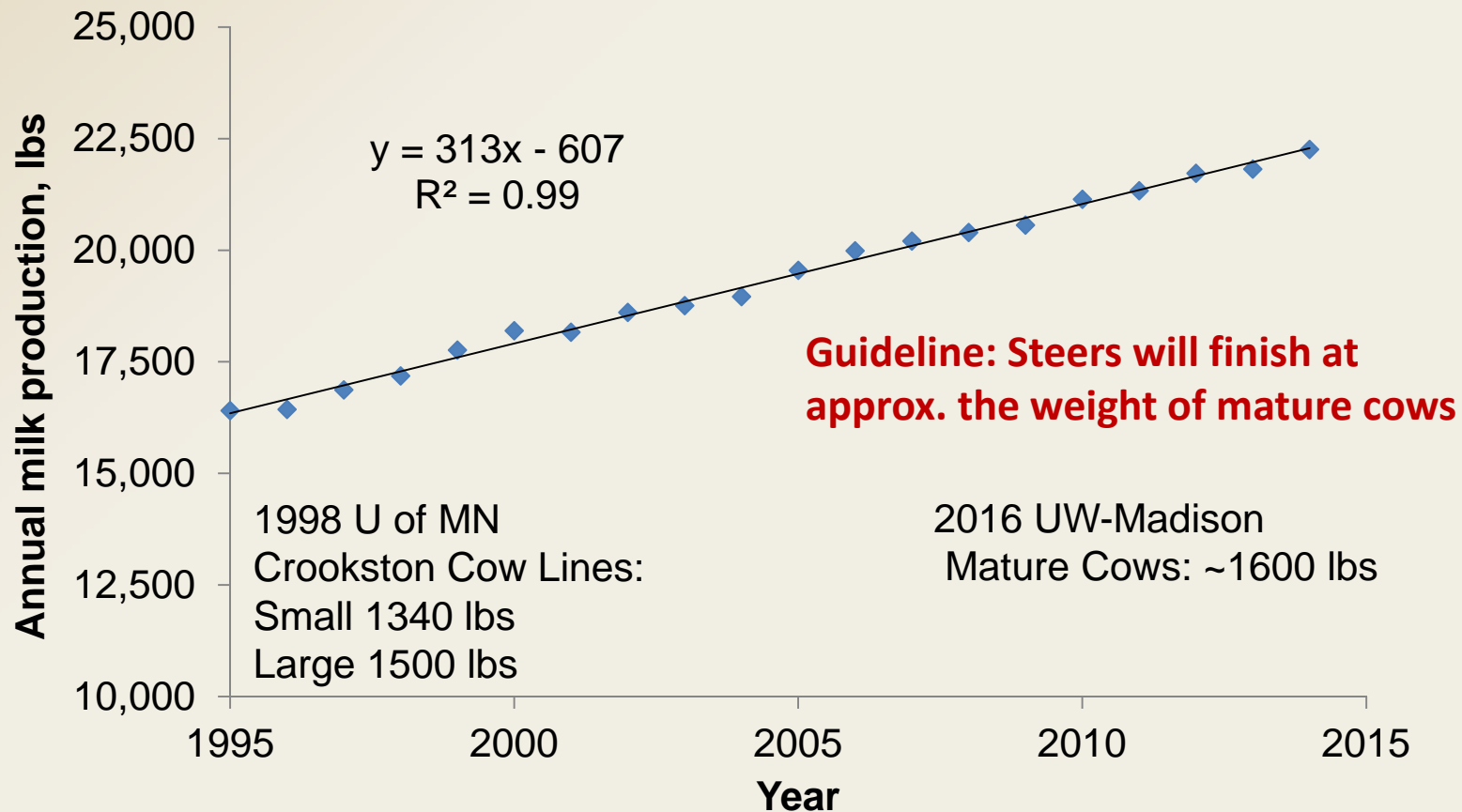
Standard: -\$0.35	1001-1050 lbs: -\$0.10
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YG1&2: +\$0.00	1051-1100 lbs: -\$0.15
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Stag: -\$0.35



The Holstein cow is big! Milk production and cow size have increased over the past 20 years



Milk production - USDA statistics; MN Cow size - Hansen et al., JDS 1999;
UW cow size - personal communication 2016

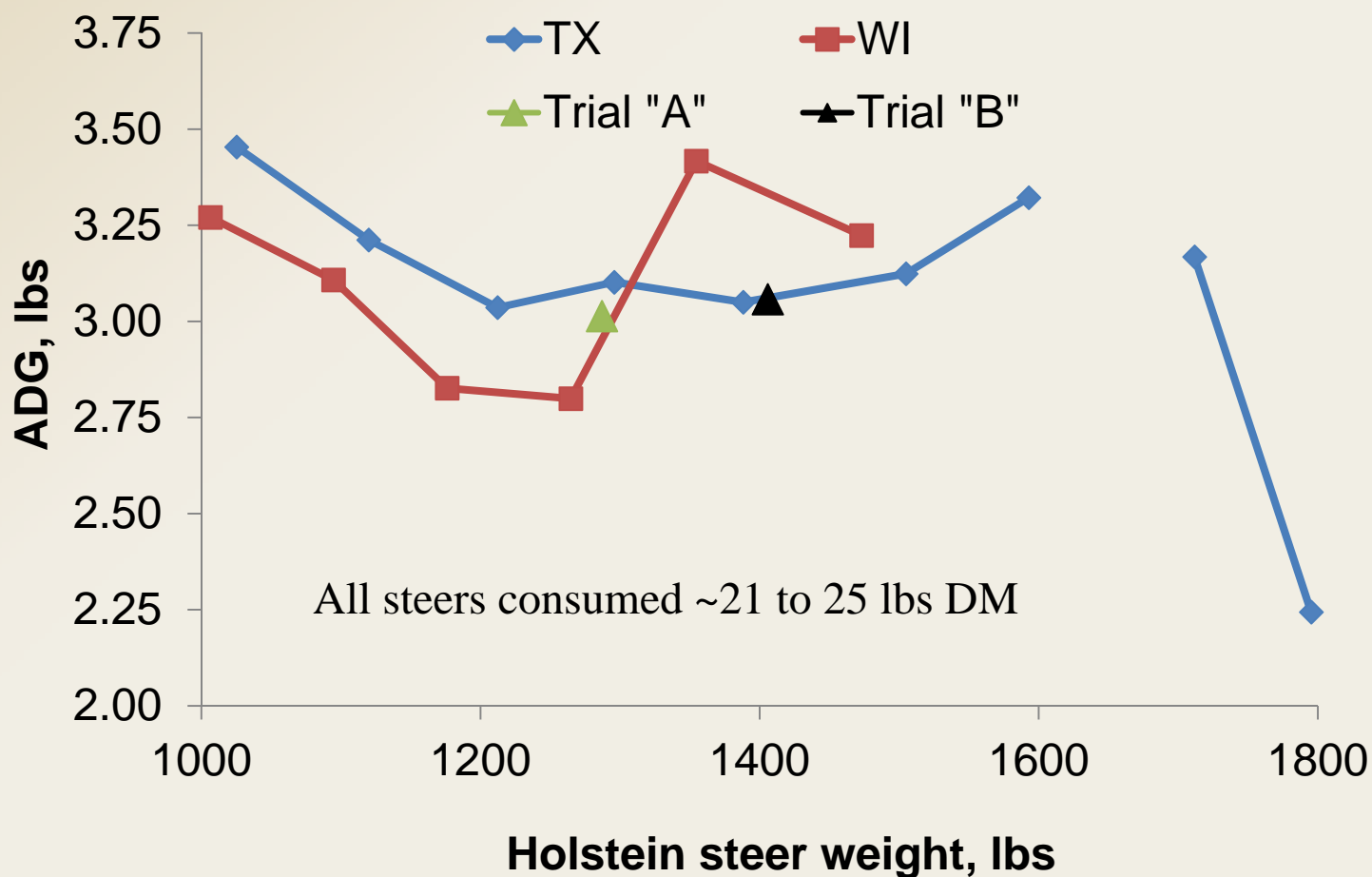


Holstein steer return per day at the end of the finishing period

Per Day					
ADG, lbs	DMI, lbs	Feed Cost (\$0.08/lb DM)	Total Cost ¹	Value (\$1.15/lb LW)	Net Return
2.75	25.0	\$2.00	\$2.70	\$3.16	\$0.46
2.50	25.0	\$2.00	\$2.70	\$2.87	\$0.18
2.25	25.0	\$2.00	\$2.70	\$2.59	\$(0.11)

¹Yardage assumed to be \$0.50/d, and interest cost \$0.20/d

When does Holstein growth rate diminish?



TX = Walter et al., 2014 PNC; WI = Schaefer et al., 2014 unpublished; Trials A and B = Brown et al., 2014 JAS or Vogel et al., 2009 PAS.



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So... It's profitable to feed Holsteins heavier



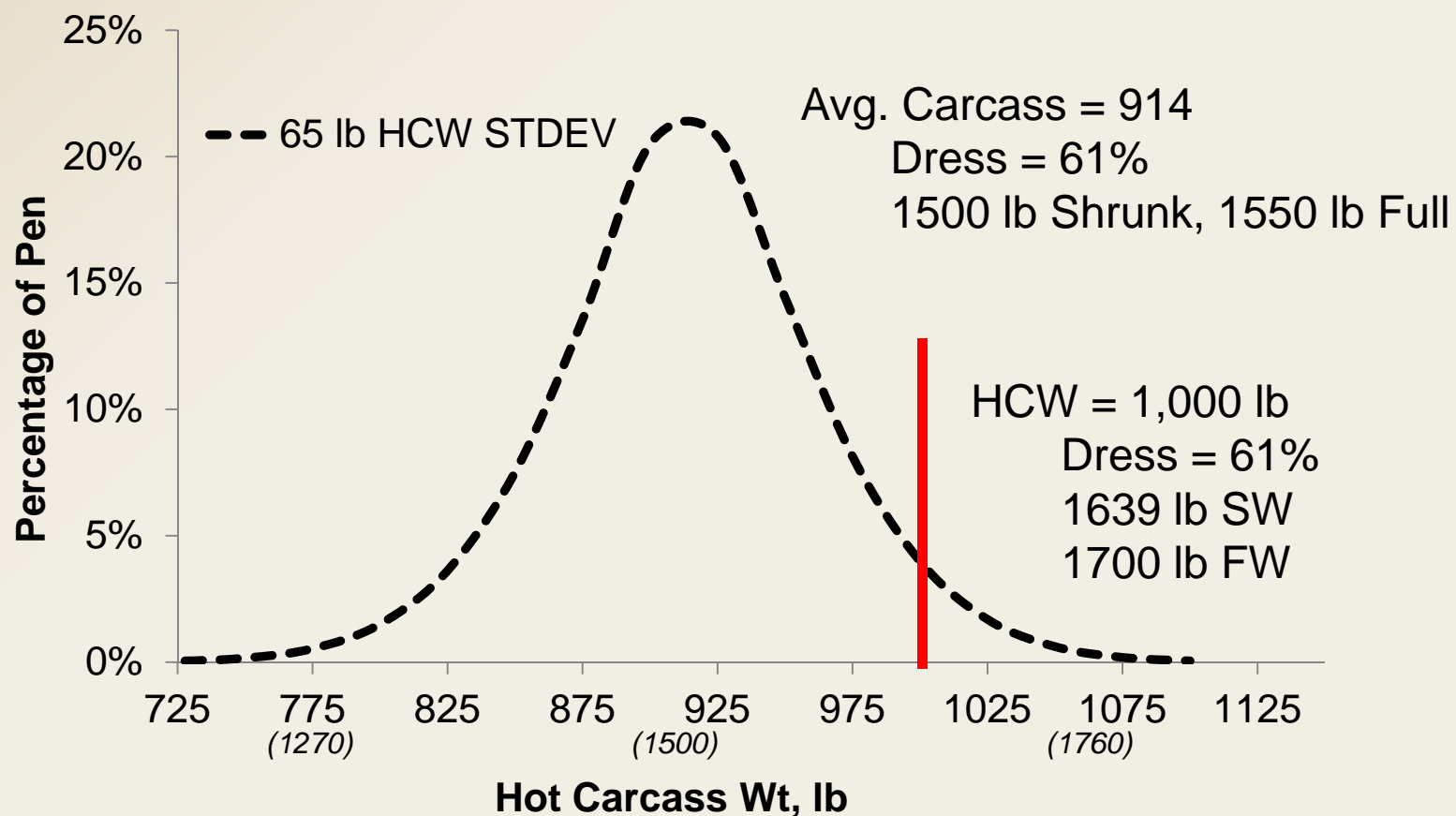
Implication for Carcass Weight

At which shrunk weight does the carcass weight discount take effect?

Dressing Percentage			
	59%	60%	61%
Carcass wt, lb	1000	1000	1000
Shrunk live wt, lb	1695	1667	1639
Full live wt, lb	1758	1728	1700

Shrunk weight was calculated as 96.3% of full weight.
Therefore, 3.7% shrink factor.

But if a pen of cattle is sold, variation exists



Economic effect of feeding a pen of Holstein steers to heavier finish weights



Carcass, lb		854		885		915		946
Shrunk, lb		1400		1450		1500		1550
Full, lb		1452		1504		1556		1607
Carc, \$/lb	\$	2.06	\$	2.06	\$	2.06	\$	2.06
\$/hd gross	\$	1,759	\$	1,822	\$	1,885	\$	1,948
<hr/>								
>1000 lb, %		1		3.6		8.8		17.8
>1050 lb, %		0		0.5		1.8		5.6
\$/hd deducts	\$	1.0	\$	4.4	\$	11.6	\$	26.6
<hr/>								
Added DOF		0		17		34		51
Added inputs	\$	-	\$	45.9	\$	91.8	\$	137.7
Adj Gross, \$/hd	\$	1,758	\$	1,772	\$	1,781	\$	1,783

¹ Assumed dress = 61%

² Shrink = 3.7%

³ Assumed HCW standard deviation to be 65 lbs

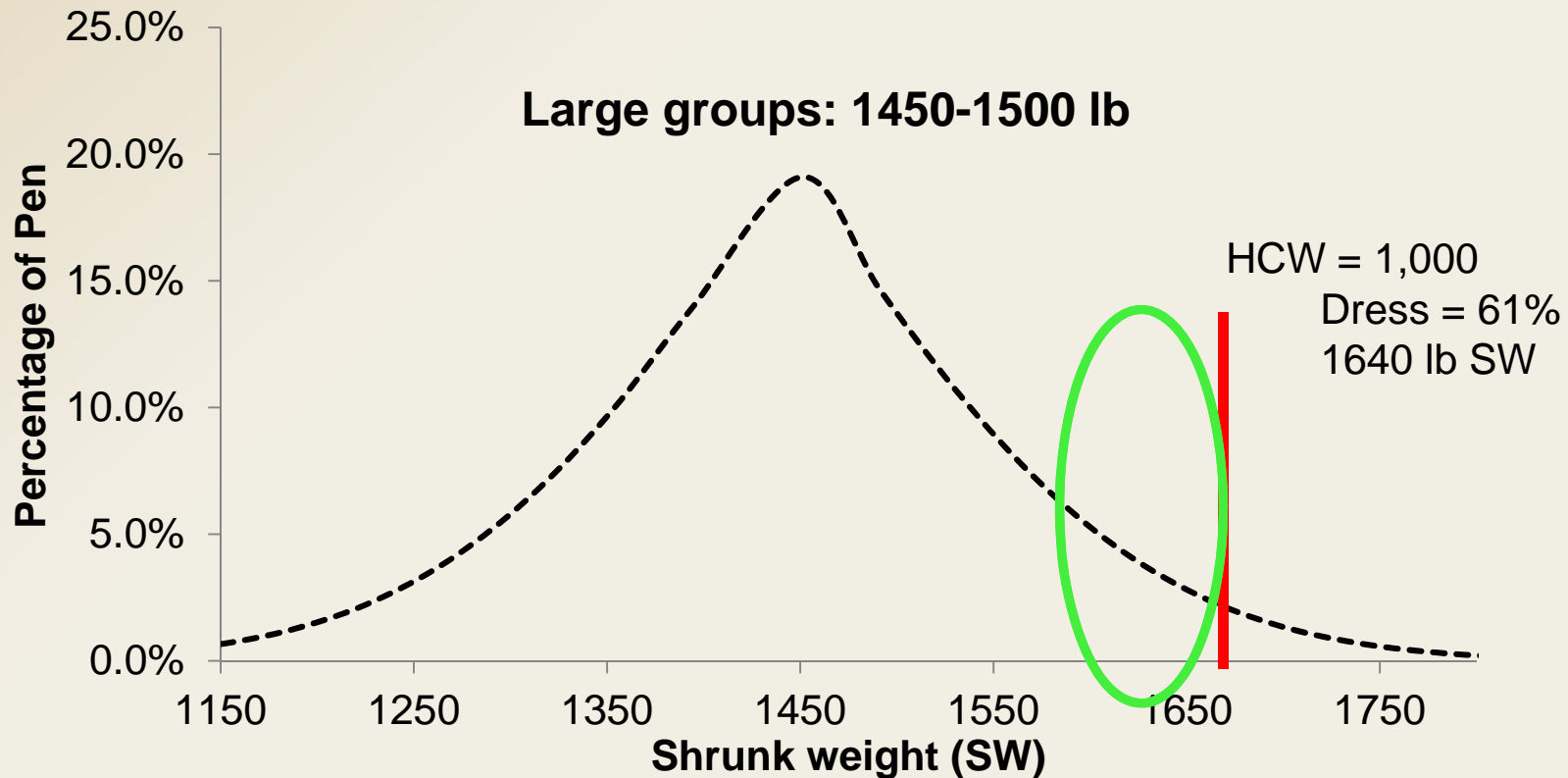
⁴ Discount for > 1,000 HCW = \$0.10/lb,

Discount for > 1,050 HCW = \$0.15/lb

⁵ Assumed cost of each additional day on feed = \$2.70

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Maximum Finishing Weights



Small, highly sorted groups: 1550-1600 lb

Market Signal

- JBS Packerland: “Finished Holstein steers have gotten too heavy. We prefer 1375-1425 lb calf-fed steers and will reflect this in our pricing. If they are greater than 1600 lb, we will walk away.”



Summary

- Mature weight of Holstein steers has and will continue to increase
- Challenge is to finish these steers before they incur carcass weight discounts or market discrimination





Nutrition of Growing & Finishing Cattle

- “growing/finishing” – traditional reference to a two-phase feeding program;
- “growing” phase emphasizes growth of skeleton and muscle
- “finishing” phase emphasizes diet with higher energy concentration for fattening





Reasons for Holstein steers becoming too heavy

- Too much “growing” diet before “finishing” diet begins
 - Get them transitioned to finishing diet by 850 lb
- “Finishing” diet does not have sufficient energy concentration to satisfy muscle growth potential as well as support fat deposition
 - Too much corn silage and not enough grain



Nutrients of Interest for Diet Formulation

- Energy (NE_{gain})
- Protein
- Calcium
- Phosphorus
- Potassium
- Vitamin A
- Salt, trace mineralized





Nutrients of Interest for Diet Formulation

- **Energy (NE_{gain})**
 - Protein
 - Calcium
 - Phosphorus
 - Potassium
 - Vitamin A
 - Salt, trace mineralized
- **“Energy” accounts for largest component of required nutrients**

Nutrients of Interest - Energy



- Goal – Maximize ADG and feed conversion efficiency
 - feed energy-dense diets
 - maximize dry matter intake, therefore palatability and bunk management are important
- “Energy” feeds of lowest cost are desired

Energy Concentrations in Grains and Forages



Feed	NEgain (Mcal/cwt DM)	Ratio to Corn
Corn, whole, 15% moisture	65	100
Corn, ~28% moisture	71	109
Modified wet distillers	66	102
Barley	61	94
Oats	52	80
Bakery	68	105
Corn silage	47	72
Alfalfa hay, mid-bloom, 103-124 RFQ	26	40

BEEF Magazine, 2016



Cost per Mcal of Dry Corn NEg

- Bushel of dry corn = 56 lbs @15% H₂O
- 56 lbs * 0.85 lb DM/lb as-fed = 47.6 lb DM
- Dry corn: 0.65 Mcal NEg/lb DM
- 47.6 lb DM * 0.65 Mcal NEg/lb DM = 30.94 Mcal NEg
- Corn price = \$3.40/ bushel
- \$3.40/ 30.94 Mcal = \$0.11/Mcal NEg

Cost per Unit of Net Energy for Gain



Feed	Unit	DM,%	\$/unit	\$/Mcal NEg
Corn, dry	Bu	85	3.40	0.110
Corn, HM	Bu		3.40	0.101
Corn silage	Ton	35	34	0.103
Alfalfa hay	Ton	88	74	0.162

- Corn silage calories are less expensive than alfalfa hay calories.
- Corn silage is a cost-effective forage source in the diet, but its NEg concentration is too low to be the main NEg source

Cost per Unit of Net Energy for Gain

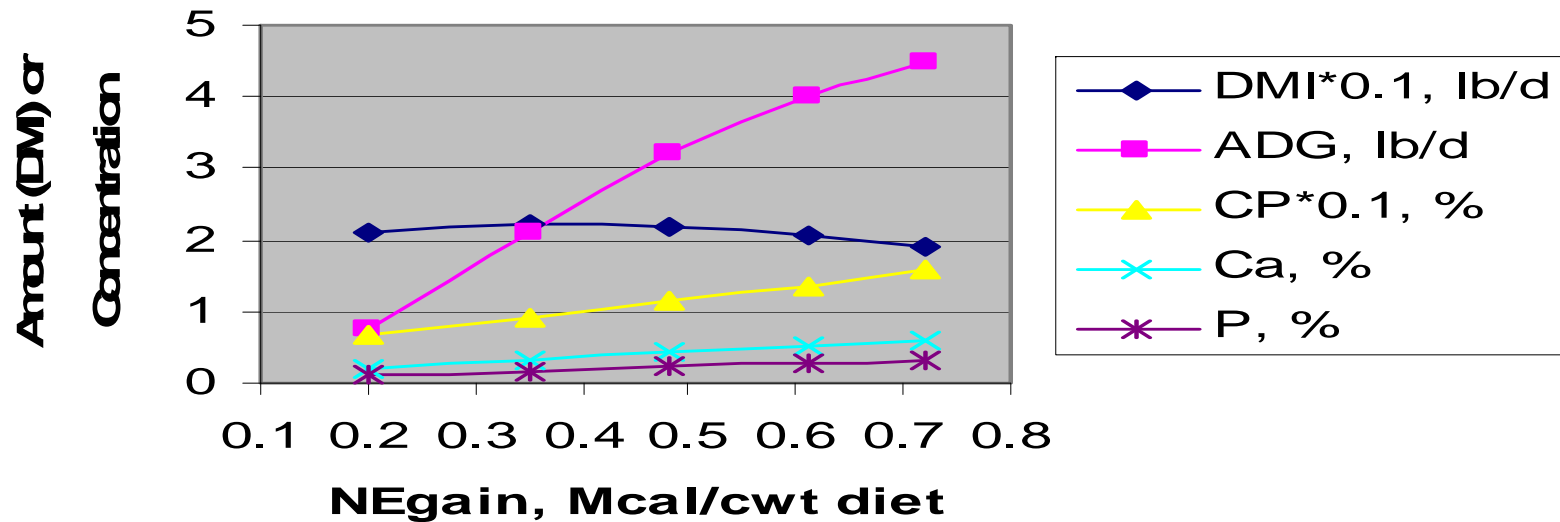


Feed	Unit	DM, %	\$/unit	\$/Mcal NEg
Corn, dry	Bu	85	3.40	0.110
Wheat	Bu	87	4.00	0.118
Modif. wet DG	Ton	45	50	0.088
Corn gluten feed pellets	Ton	90	100	0.099
Wheat midds	Ton	90	85	0.094
Sweet corn silage	Ton	23	10	0.051

<http://agebb.missouri.edu/dairy/byprod/AllProducts.asp>



DMI and Nutrient Requirements at 845 lbs



DMI and nutrient reqts based on beef steer that would attain USDA Choice at 1300 lbs

As NEgain concentration in diet increases ...

- ADG increases
- CP, Ca and P requirements increase modestly

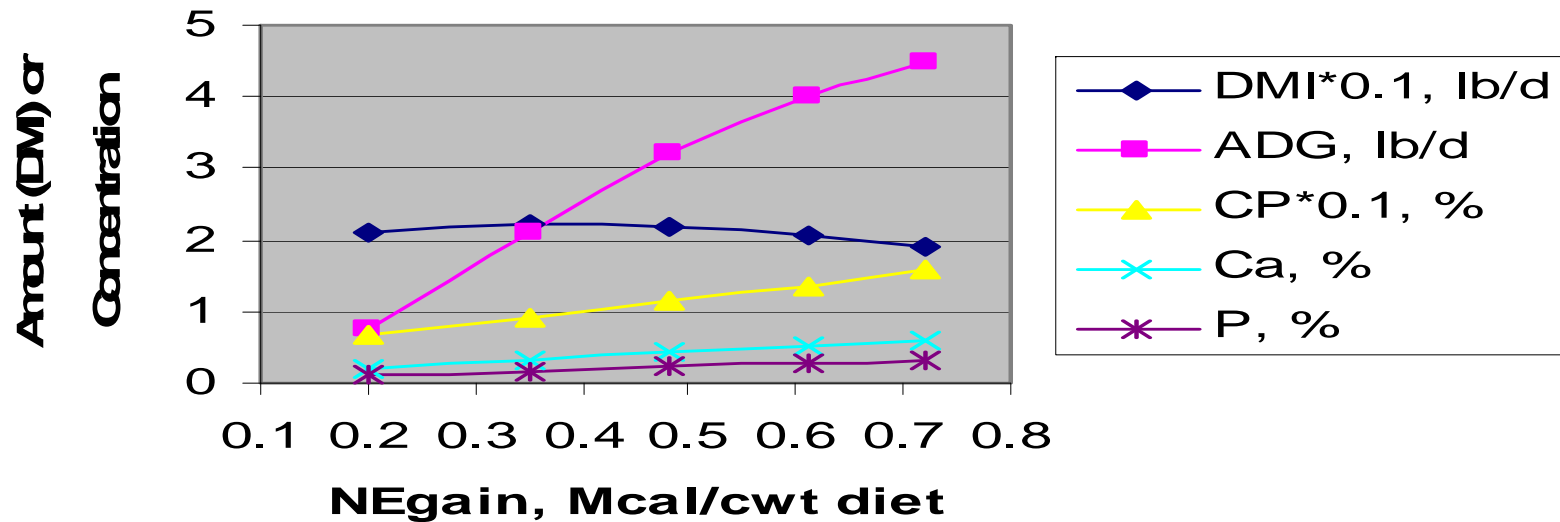
Corn silage dilutes the NEg concentration



	DM formula	NEg/lb	NEg	
Supplement	5	0.25	1.25	
Corn silage	40	0.47	18.8	
MWDG	20	0.63	12.6	
Corn	35	0.65	22.75	
Total	100		55.4	NEg/cwt
	DM Formula, % Corn Silage	Diet NEg, Mcal/cwt		
	10	60.8		
	15	59.9		
	25	58.1		
	40	55.4		



DMI and Nutrient Requirements at 845 lbs



DMI and nutrient reqts based on beef steer that would attain USDA Choice at 1300 lbs

As NEgain concentration in diet increases from 0.55 to 0.60 Mcal/lb diet, ADG increases from 3.5 to 4.0 lb/day!

Summary

- Mature weight of Holstein steers has and will continue to increase
- Challenge is to finish these steers before they incur carcass weight discounts or market discrimination
- Less corn silage means faster weight gain
 - 15% corn silage in DM formula is safe
 - steers will deposit some fat



Anabolic Implant Products

Ingredients	Brand	Potency	Cost/dose
EB+P	Synovex-C	Weak	\$1.21
EB+P	Synovex-S	Intermed	\$1.21
EB+TBA	Synovex-Plus	Strong	\$3.63
Estradiol	Compudose	Weak	\$2.55
Estradiol	Encore	Weak	\$2.86
Zeranol	Ralgro	Weak	\$1.41
EB+TBA	Revalor S	Intermed	\$3.51
EB+TBA	Revalor XS	Intermed	\$8.63

EB=estradiol benzoate; P=progesterone;
TBA=trenbolone acetate, updated 3/14/16



Common Implant Usage and Potency

Steer Calf		Initial (140-200 d pre-kill)		Terminal (70-120 d pre-kill)	
Ralgro	W	Synovex S or H	I	Synovex S or H	I
Synovex C	W	Synovex Choice	I	Revalor S or H	I
Revalor G	M	Revalor S or H	I	Revalor IS or IH	I
		Revalor IS or IH	I	Synovex Plus	S
				Revalor 200	S
Encore (350 days)					W
		Compudose (175 days)			W
		Revalor XS (Rev-IS then Rev-S, 200 days)			I

Potency: W = weak, M = mild, I = intermediate, S= strong

Holstein steer performance and economic returns when administered various implant regimens and fed for 244 days



	Implant Regimen ¹			SEM
	Control	Encore	E/S/S	
Initial BW ² , lbs	772	776	773	28
Final BW ² , lbs	1416 ^a	1555 ^b	1607 ^b	19
ADG, lbs	2.64 ^a	3.19 ^b	3.42 ^b	0.12
pDMI, lbs	22.8	24.1	24.6	-
F:G	8.6	7.5	7.2	-
HCW, lbs	833 ^c	915 ^b	954 ^a	13
USDA Prime, %	32	40	10	10
Net return over control ³ , \$	-	\$124.00	\$167.00	-

¹ Control = non-implanted, Encore = administered Encore (E) on d 0, and E/S/S = administered E on d 0, Revalor-S (S) on d 109 and 196.

² Body weights reported were shrunk 3% of scale weight.

³ Assumptions: In value = \$130/cwt, out value = \$115/cwt, feed cost \$0.08/lb DM, E = \$3.00, S = \$3.50, and each implanting occurrence was charged \$2 as a chute charge.

*Avg 1552# pre-fed weight, 1495# packer pre-harvest weight (3.7%)

Feeding Optaflexx¹ to Holstein Steers



Item	Change when fed Optaflexx
Increase in final weight, lbs	+17
Increase in HCW, lbs	+11
Cost	\$16.5
Net Return SW basis (\$1.25/lb)	+\$4.7
Net Return Carcass basis (\$2.06/lb)	+\$6.2

¹Assumed Optaflexx was fed for 28 to 35 days at 200 mg/hd/d.

Brown et al., 2014 JAS; Vogel et al., 2009 PAS; Bass et al., 2009 PAS; Elanco 2011, AI11140 bulletin.

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- Mature weight of Holstein steers has and will continue to increase
- Challenge is to finish these steers before they incur carcass weight discounts or market discrimination
- Less corn silage means faster weight gain
 - 15% corn silage in DM formula is safe
- Anabolic implant program is highly profitable
- Feeding Optaflexx is only slightly profitable



Feeding modern Holstein steers: Conclusions



- They have the ability to maintain terminal finishing phase gain > 2.5 lb/d; up to 3.4 lb/d is possible
- Pen gross value maximized at 1450 lb ave; heavier if careful sorting occurs
- Steers must be pushed with high-grain diets to overcome their genetic predisposition to finish at weights that would incur carcass weight discount
- Implanting still offers large net return

Wis Beef Information Center

<http://fyi.uwex.edu/wbic/dairybeef/>

UWEX Publications

- [UW Extension Holstein Steer Yardage Summary](#) (pdf)
- [Use of Beta Agonists in Finishing Beef Cattle](#) (pdf)
- [UW Ext Feedlot Enterprise Budget Spreadsheet](#) (excel)
- [Fall 2014 Example Holstein and Beef Feeder Budgets](#) (excel)
- [Management and Feeding of Holstein Steers](#) presentation by Dr. Dan Schaefer (pdf)
- [Managing and Feeding Holstein Steers, Birth to 350 lbs](#)
- [Managing and Feeding Holstein Steers, Purchase to 350 lbs](#)

Other Extension Publications

- [Dairy Beef Feeding as an Alternative Enterprise](#) (IL)
- [Optimizing Use of Distillers Grains for Dairy Beef Production](#) (IL)
- [Implant Strategies of Dairy and Beef Steers](#) (MN)
- [Holstein Feeding Programs](#) (MN)
- [Implant Strategies for Dairy Steers](#) (MN)
- [Dairy Beef Production](#) (PA)
- [Accelerated Feeding Study for Dairy Steers](#) (UT)

National Marketing and Managing Quality Holstein Steer Conference Proceedings

Thank you!

Questions?



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