Caneberry Insecticide/Miticide Decline Study - 2018

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Insecticide and Miticide Decline Study – 2018

Localities:

2 Raspberry Sites (Lynden, WA and Aurora, OR) - Gerdeman and DeFrancesco

1 Blackberry Site (Aurora, OR) - DeFrancesco

Treatments replicated 3X (WA) and 4X (OR)
WA declines carried out to 21 DAT, OR 21 DAT
WA = over-the-row boom; OR = backpack sprayer
Analyses performed by Synergistic Pesticide Lab, Portland, OR
MRLs usually but not always the same for Raspberry and Blackberry

- Samples received in laboratory were frozen and in good condition.
- WA raspberry samples shipped overnight, OR samples hand delivered.
- Samples homogenized in a food processor and stored in freezer pending extraction.
- Extraction method – Int'l recognized QUick, Easy, Cheap, Effective, Rugged, Safe (QuEChERs) for extracting residue from food matrices (EU method 15662).
- Following extraction, dSPE was used to clean up the samples.
- Samples analyzed by a Varian 4000 GC/MS Ion Trap and Thermo Endura LC/MS/MS.

***Acequinocyl and fenbutatin-oxide analytical difficulties**

Replicate samples averaged for each DAT for each site.
Error bars represent a 95% Confidence Interval.
MRLs used are from www.globalmrl.com database and current as of 11/17.

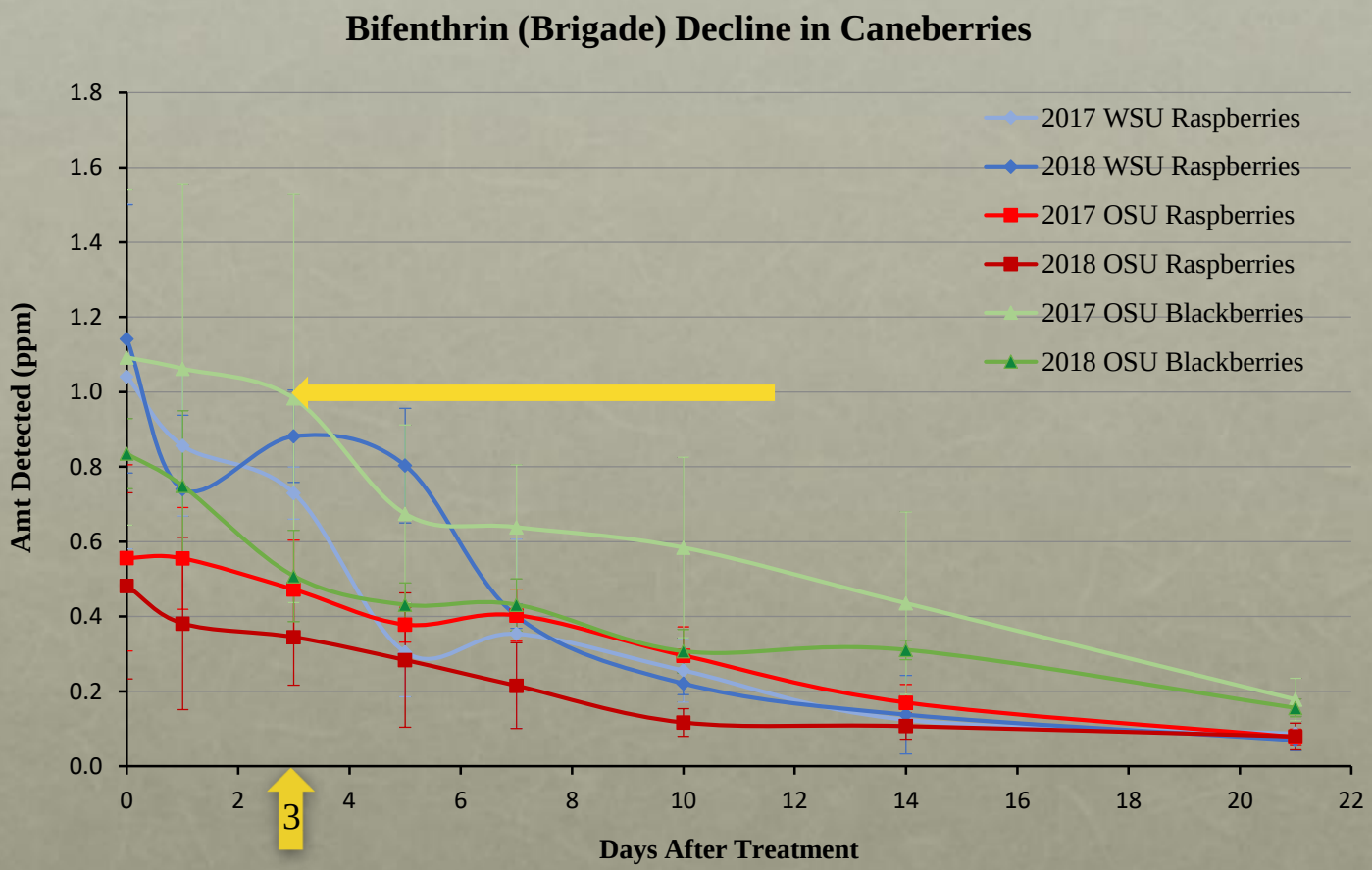
2018 Caneberry Insecticide/Miticide Decline Study
Product/treatment List

Active ingredient	Trade name	IRAC	Rate (lb ai/A)	Rate (product/A)	USA PHI (days)
Treatment #1 (T1) tank mix					
bifenazate	Acramite 50WS	25	0.5	16 oz.	1
bifenthrin	**Brigade 2EC**	**3A**	**0.1**	**6.4 fl. oz.**	**3**
fenbutatin (hexakis)	Vendex 50W	12B	1.0	32 oz.	3
hexythiazox	GWN=10666	10A	0.1875	24.0 fl. oz.	3
imidacloprid	**Admire Pro**	**4A**	**0.1**	**2.8 fl. oz.**	**3**
methoxyfenozide	**Intrepid**	**18A**	**0.25**	**16 fl. oz.**	**3**
spinetoram	**Delegate WG**	**5**	**0.09**	**6.0 oz.**	**1**
flupyridifurone	**Sivanto Prime**	**4D**	**0.18**	**14 fl oz**	**0**
Treatment #2 (T2) tank mix					
acequinocyl	Kanemite 15SC	20B	0.3	31 fl. oz.	1
cyantraniliprole	**Exirel *****	**28**	**0.133**	**20.5 fl. oz.**	**3**
fenpropathrin	**Danitol 2.4EC**	**3A**	**0.3**	**16.0 fl. oz.**	**3**
malathion	Malathion 8F	1B	2.0	32.0 fl. oz.	1
spinosad	**Success**	**5**	**0.09**	**6.0 fl. oz.**	**1**
thiamethoxam	**Actara**	**4A**	**0.047**	**3.0 oz.**	**3**
zeta-cypermethrin	**Mustang MAXX**	**3A**	**0.025**	**4.0 fl. oz.**	**1**

*** registration in red rasberries coming soon

15 ai's in 2018

2017 - 2018 Caneberry Insecticide/Miticide Decline Study
Bifenthrin (Brigade 2EC)

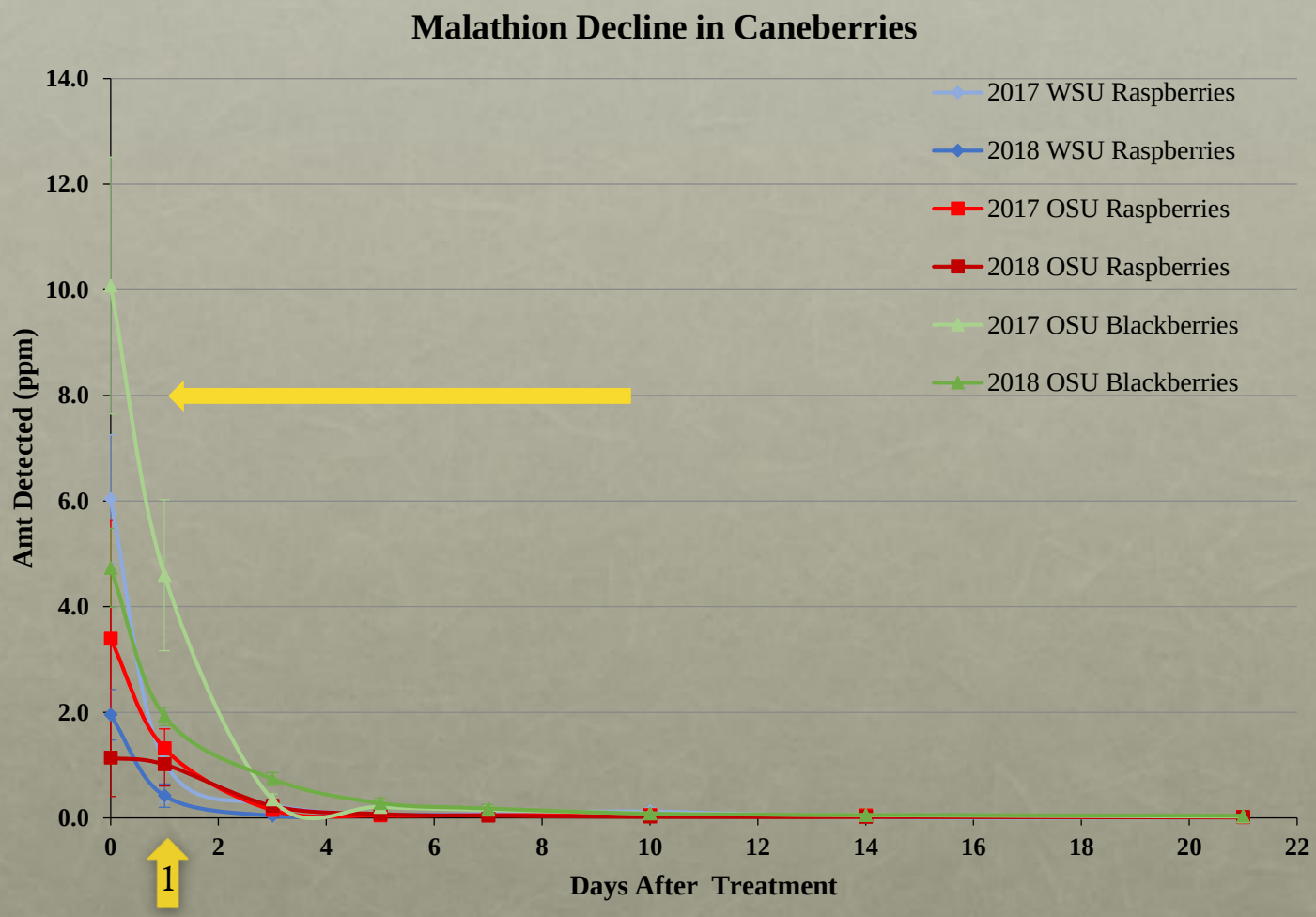


	RR	BB
US	1	1
AU	3	3
CA	1	1
CH	NT	1
EU	1	1
HK	1	1
JA	1	1
KO	1	1
TA	1	1

3 PHI US 1ppm

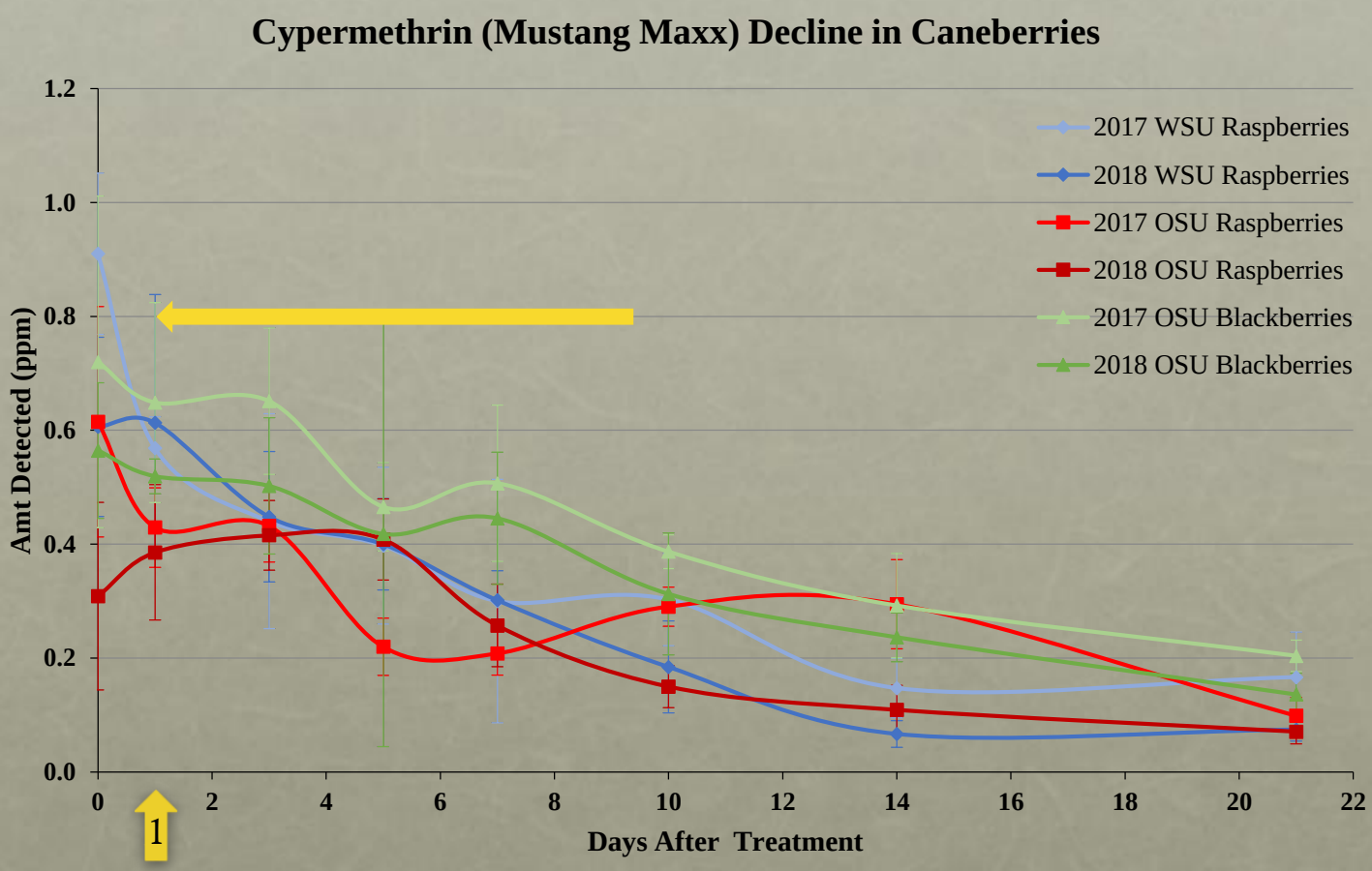
CH - RR, BB No Tolerance (NT)

2017 – 2018 Caneberry Insecticide/Miticide Decline Study
Malathion (Malathion 8F)



	RR	BB
US	8	8
AU	10	10
CA	8	8
CH	NT	NT
EU	0.02	0.02
HK	8	8
JA	8	8
KO	0.5	0.5
TA	0.01	0.01

2017 - 2018Caneberry Insecticide/Miticide Decline Study
Cypermethrin and Zeta-cypermethrin (Mustang Maxx)



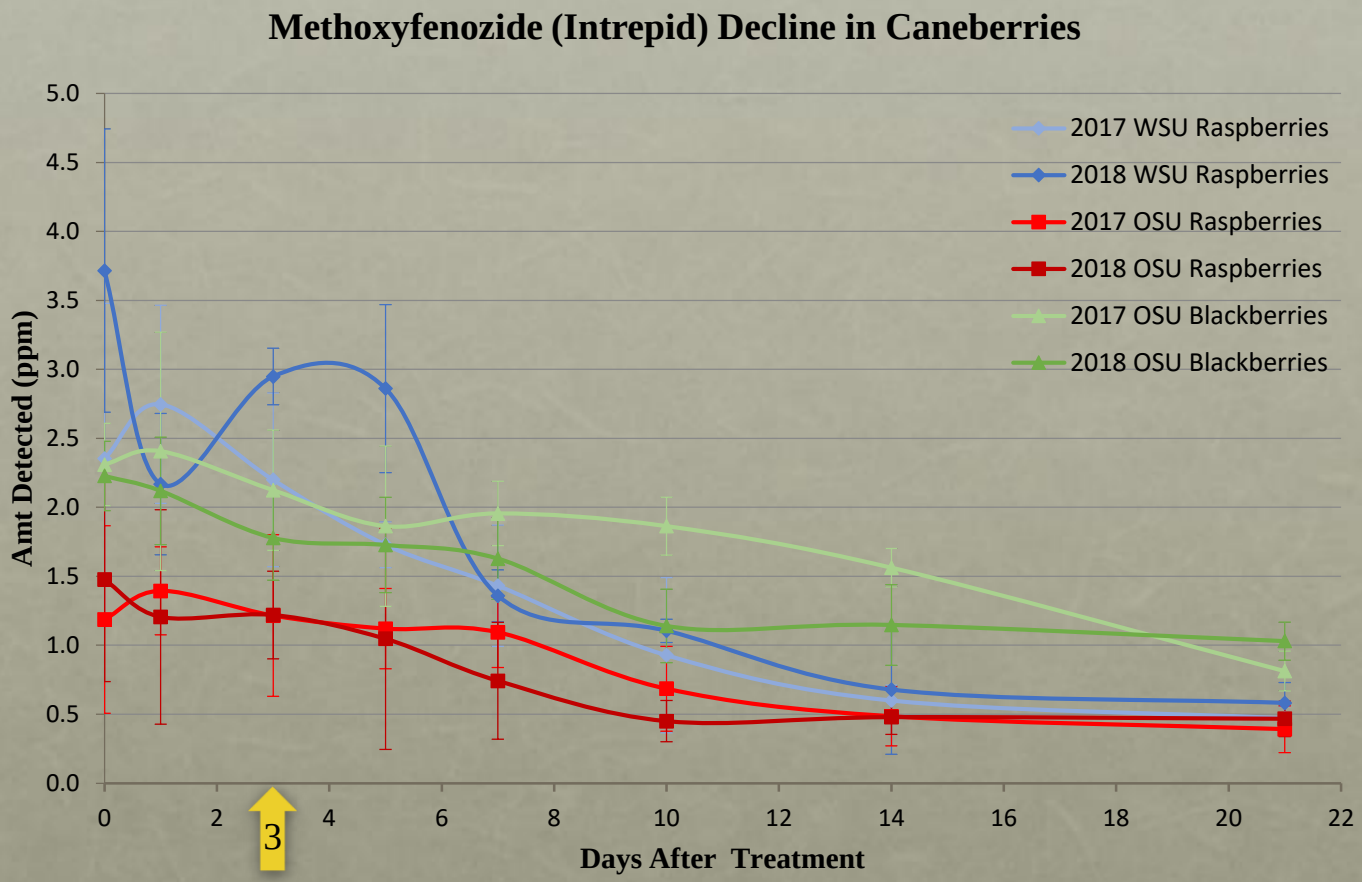
	RR	BB
US	0.8	0.8
AU	0.5	0.5
CA	NT	NT
CH	NT	NT
EU	0.5	0.5
HK	NT	NT
JA	0.5	0.5
KO	0.5	2
TA	2	2

1 PHI US 0.8 ppm

~ 5 DAT to reach 0.5 (AU, JA, KO)

>21 DAT CA and NT for CH and HK

2017 - 2018 Caneberry Insecticide/Miticide Decline Study
Methoxyfenozide (Intrepid 2F)

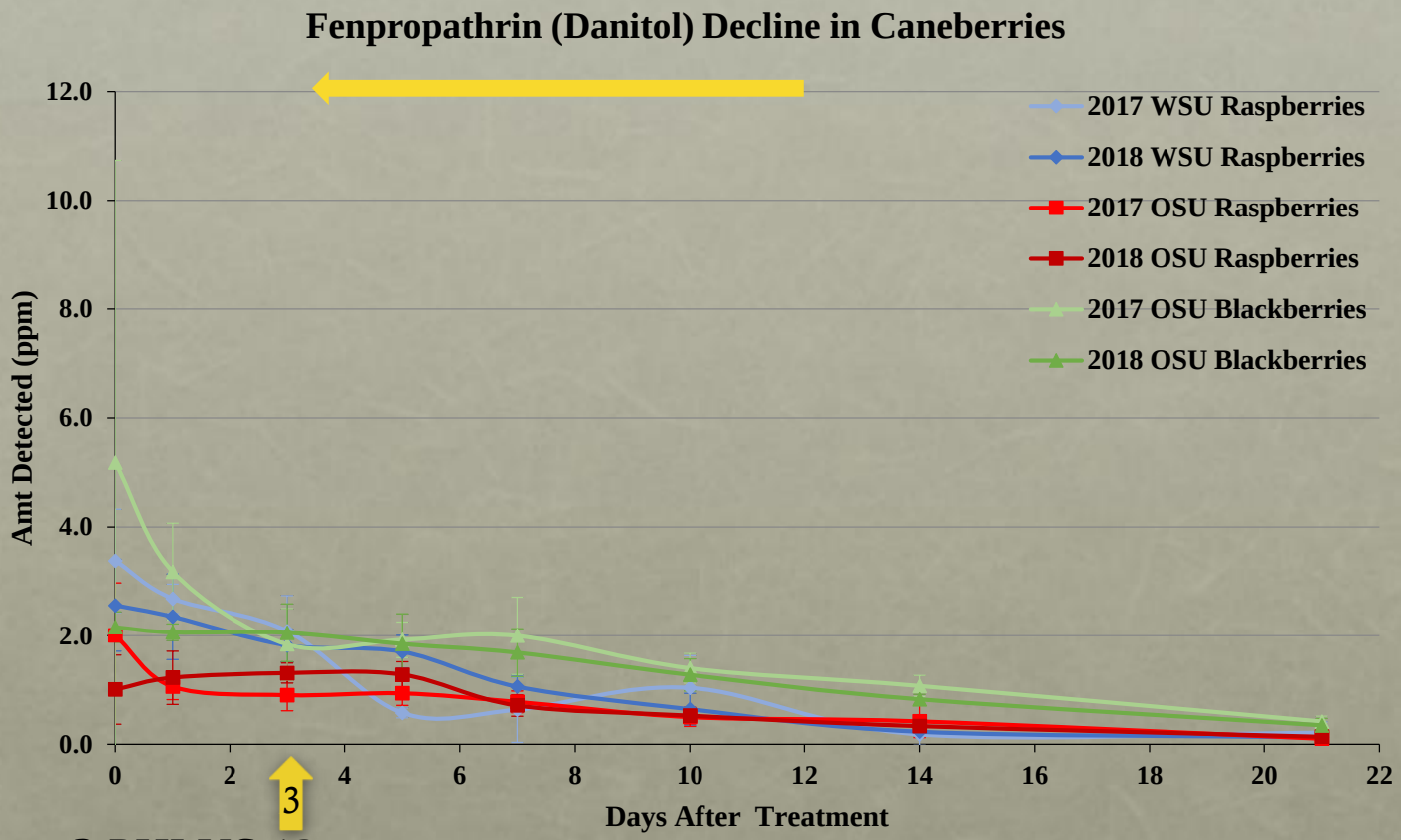


	RR	BB
US	6	6
AU	0.3	0.3
CA	6	6
CH	NT	NT
EU	0.01	0.01
HK	NT	NT
JA	NT	NT
KO	1.0	1.0
TA	0.01	0.01

3 PHI US < 6 ppm

AU at 0.3 both & (KO 1.0, TA 0.01, EU 0.01 CH, HK and JA = NT)

2017 - 2018 Caneberry Insecticide/Miticide Decline Study
Fenpropathrin (Danitol 2.4 EC)

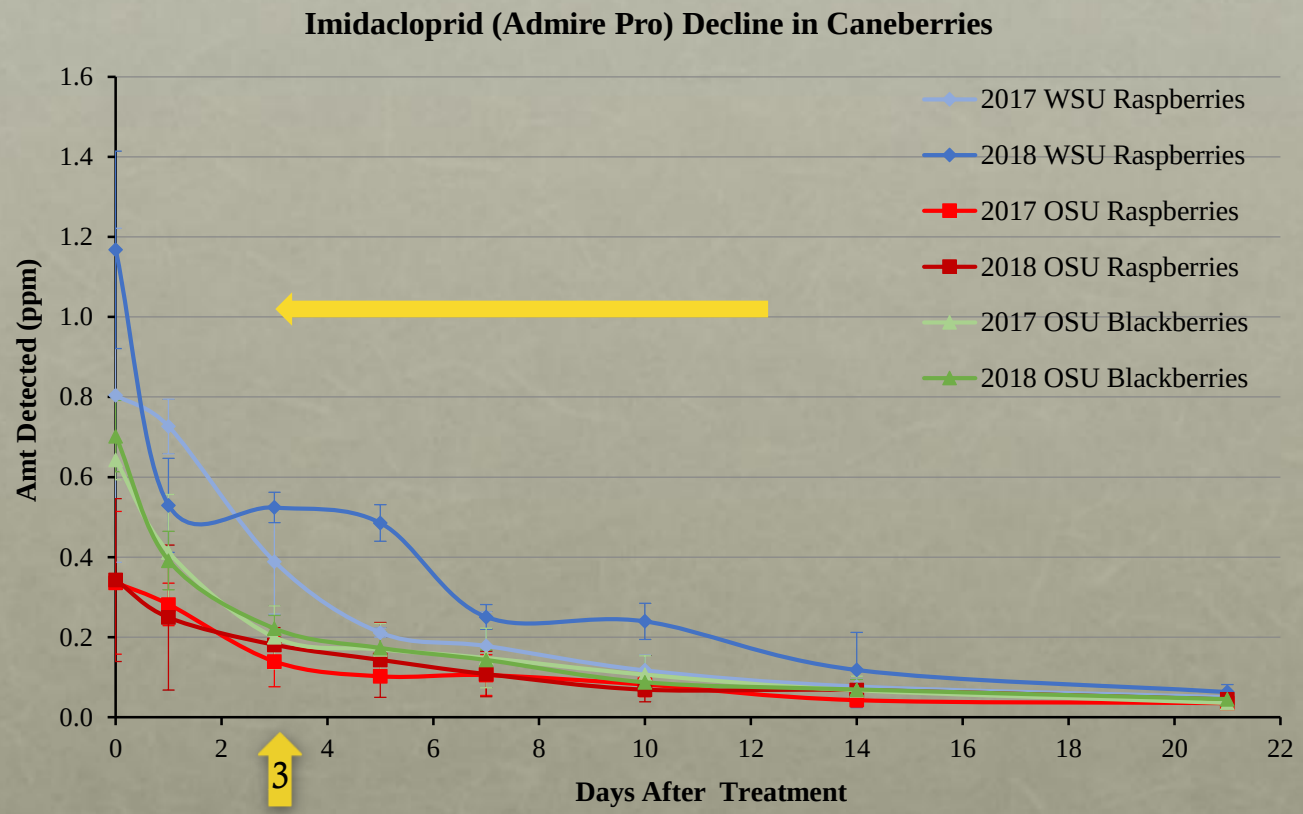


	RR	BB
US	12	12
AU	NT	NT
CA	12	12
CH	5	5
EU	0.01	0.01
HK	5	5
JA	5	5
KO	0.5	0.5
TA	3	3

3 PHI US 12 ppm

Residues < 3 ppm at DAT 3 (KO 0.5 at 14 – 21 days BB and > 10 days RR
Above EU >21 days

2017 - 2018 Caneberry Insecticide/Miticide Decline Study
Imidacloprid (Admire Pro)

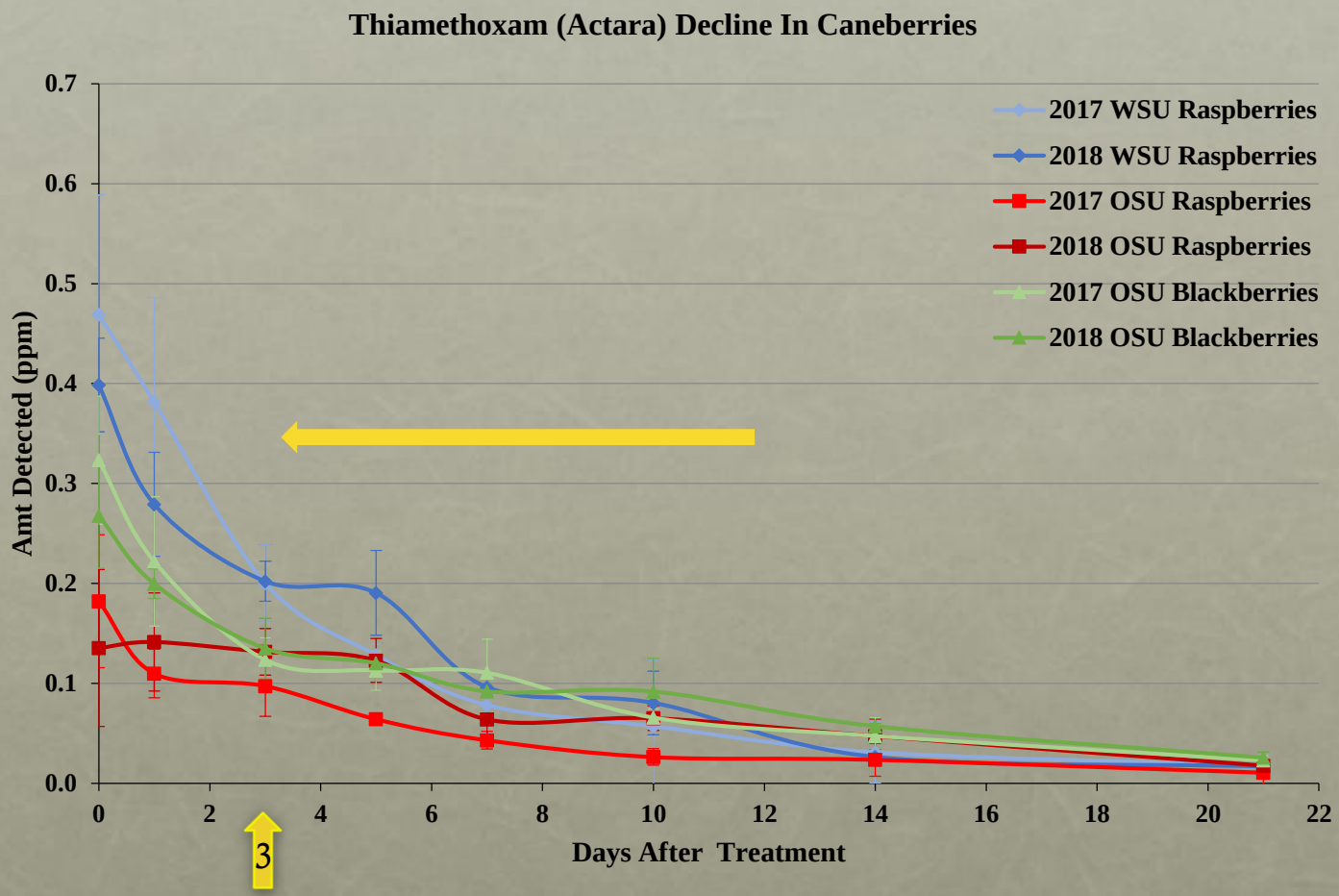


	RR	BB
US	2.5	2.5
AU	5	5
CA	2.5	2.5
CH	NT	NT
EU	5	5
HK	5	5
JA	4	4
KO	1.5	1.5
TA	1	1

3 PHI US 2.5 ppm

CH RR NT BB NT

2017 - 2018 Caneberry Insecticide/Miticide Decline Study
Thiamethoxam (Actara)

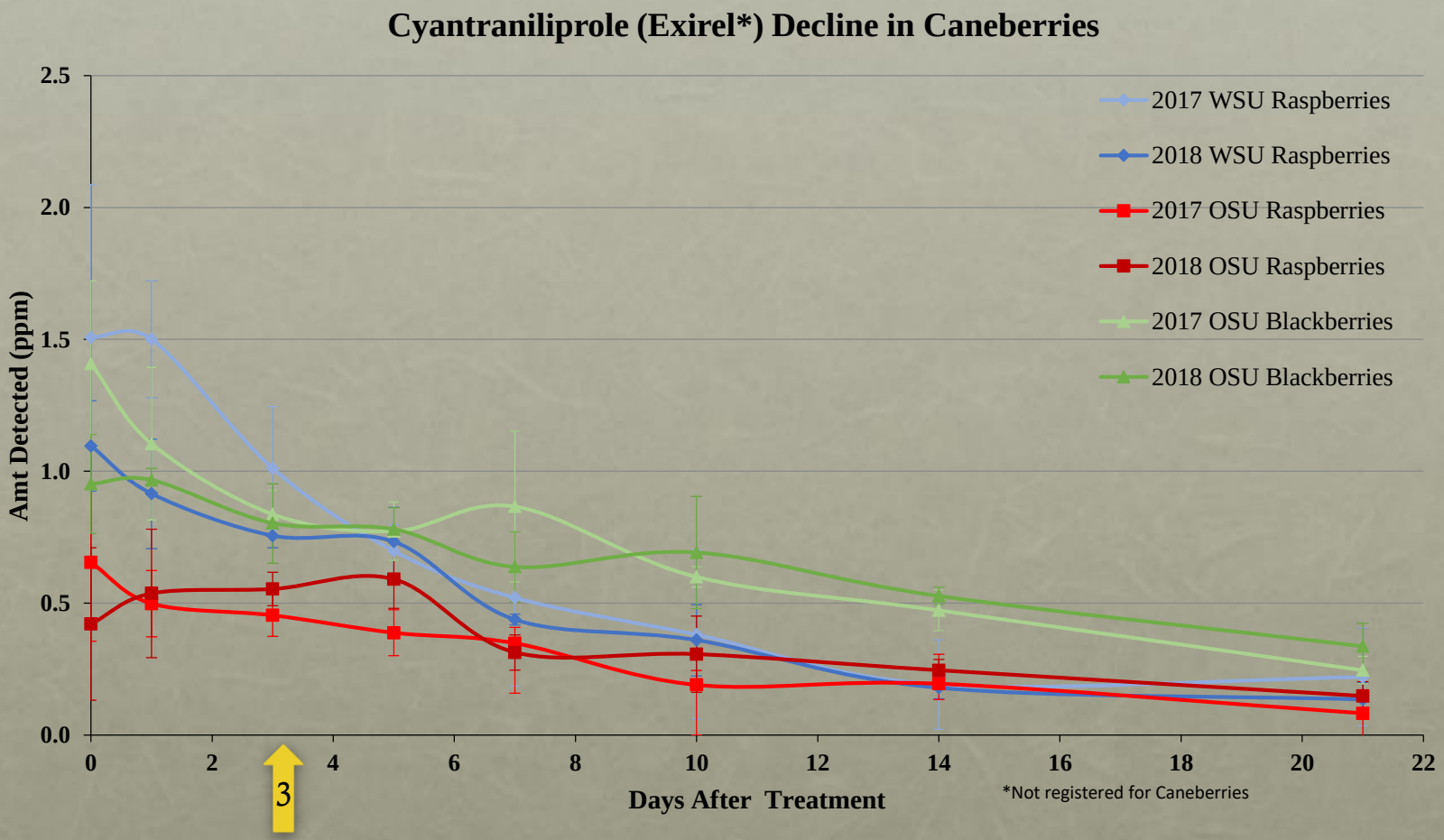


ExC	RR	BB
US	3.5	3.5
AU	0.5	0.5
CA	0.5	0.5
CH	NT	NT
EU	0.01	0.01
HK	0.5	0.5
JA	0.5	0.5
KO	1	1
TA	0.5	0.5

US 0.35ppm at 3.5 PHI

EU 0.01 > 21 days and China NT

2017 - 2018 Caneberry Insecticide/Miticide Decline Study
Cyantraniliprole (Exirel)

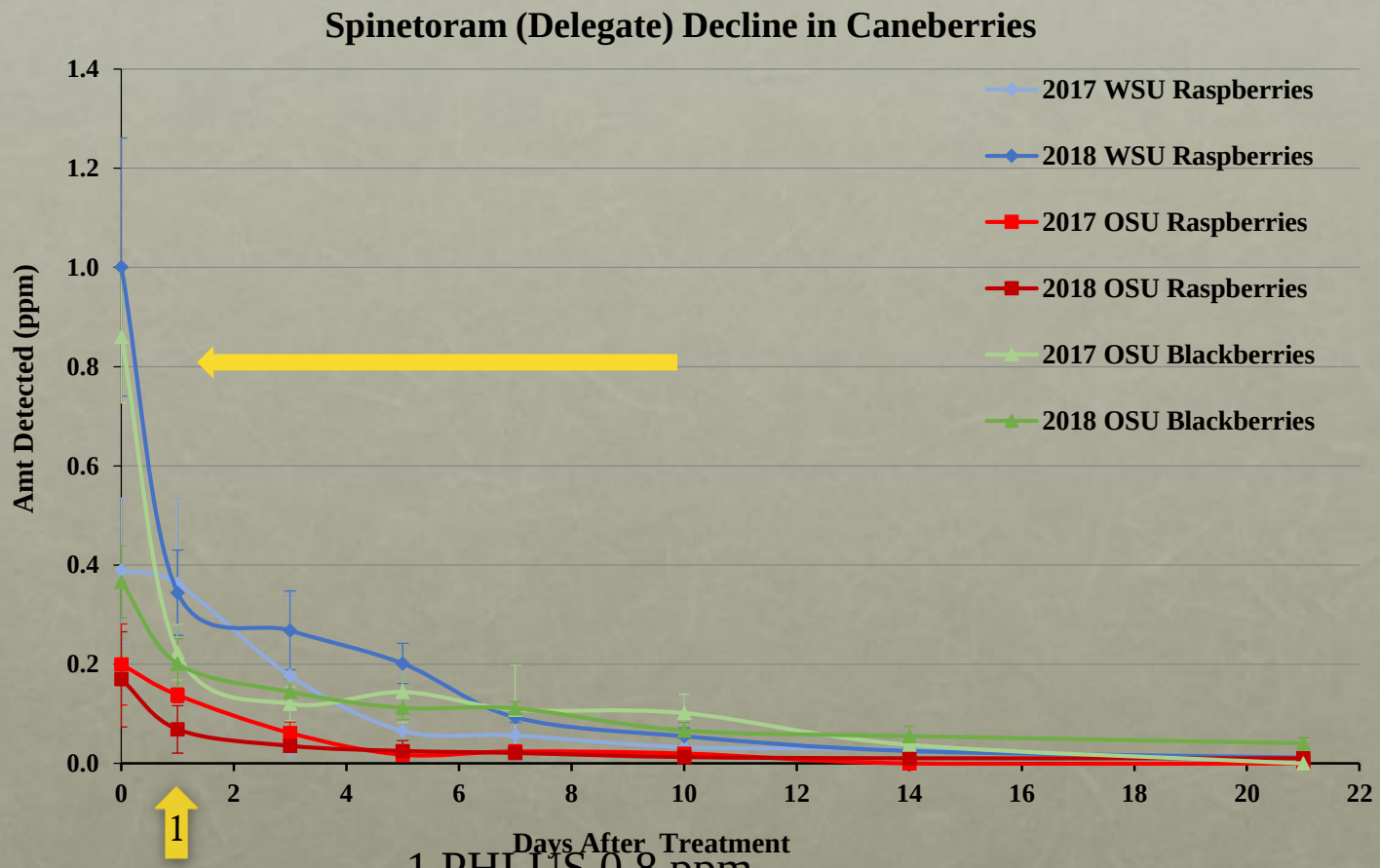


Assume a 3-day PHI; **US Maybe set at 4.0as in BB**

Residues greater than 0.1 ppm past DAT 21 in WA Raspberries

Default tolerances for JA set at **0.01** ppm *limit of quantitation* (LOQ)

2018 - 2017 Caneberry Insecticide/Miticide Decline Study
Spinetoram (Delegate WG)

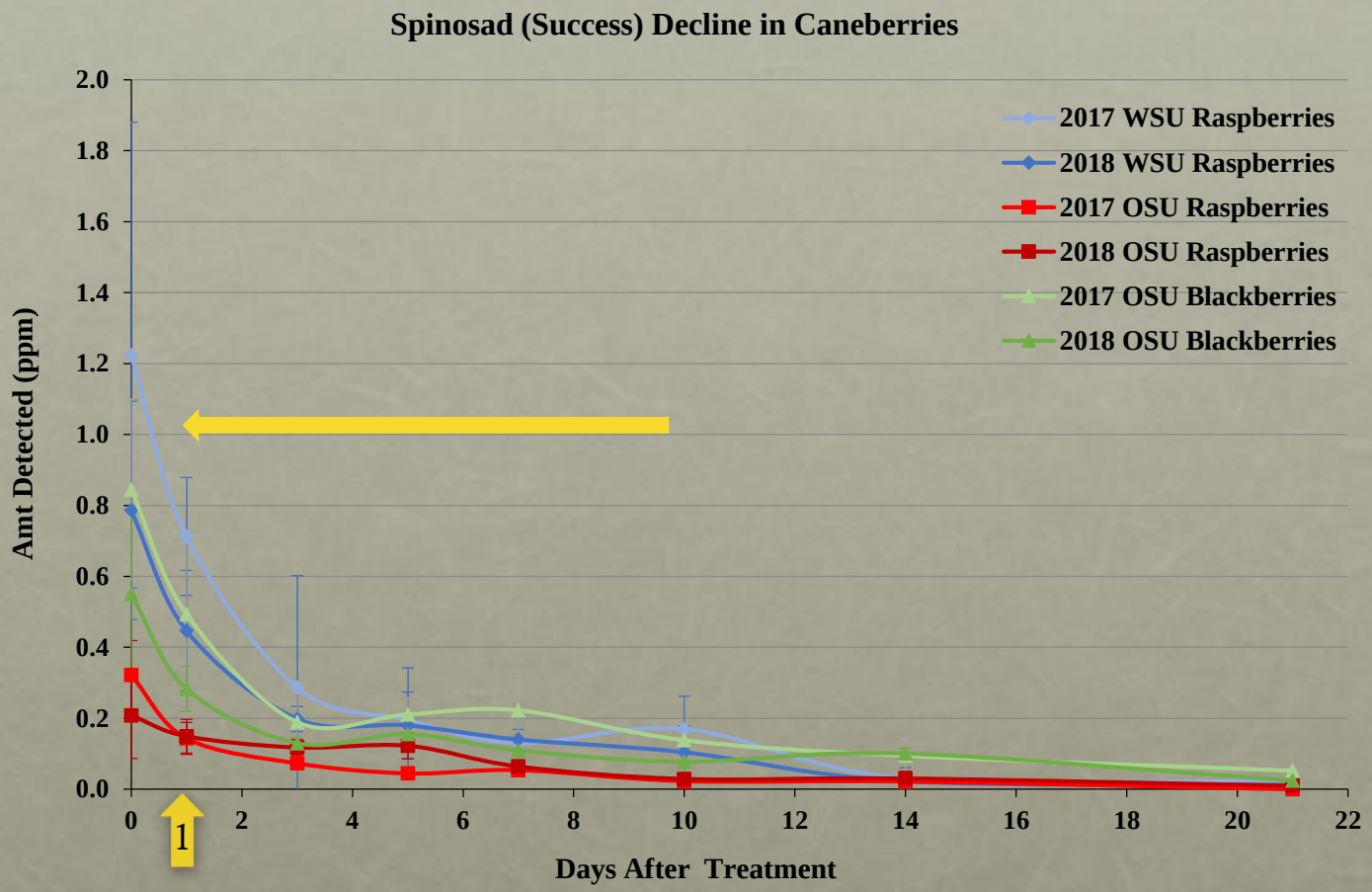


	RR	BB
US	0.8	0.8
AU	0.5	0.5
CA	0.5	0.5
CH	NT	NT
EU	1	1
HK	NT	NT
JA	0.8	0.7
KO	0.7	0.7
TA	0.5	0.01

1 PHI US 0.8 ppm

All residues < 0.5 ppm (TA 0.01 12 -14 days)

2017 - 2018 Caneberry Insecticide/Miticide Decline Study
Spinosad (Success)

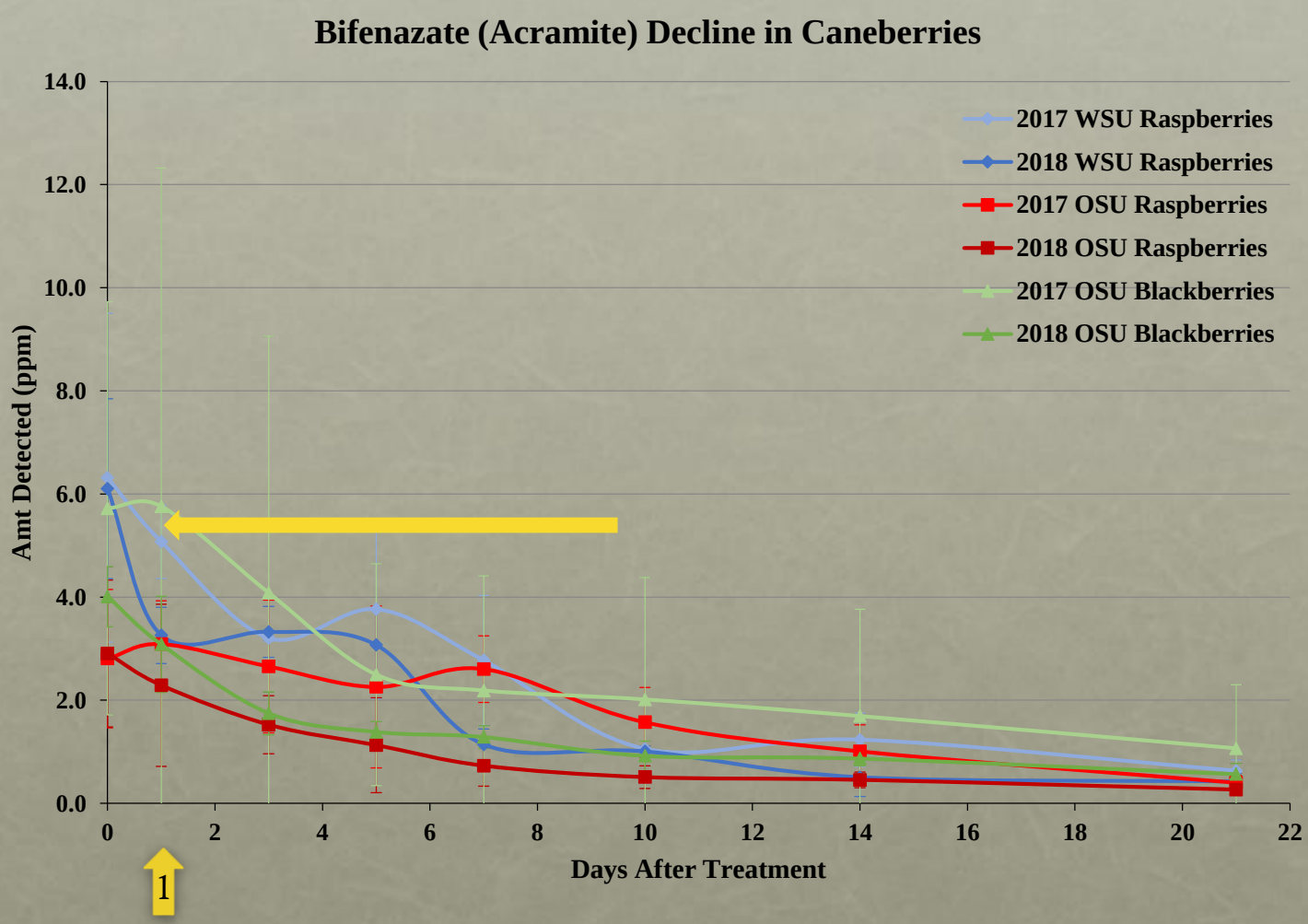


	RR	BB
US	1	1
AU	0.7	0.7
CA	0.5	0.5
CH	NT	1
EU	1.5	1.5
HK	NT	NT
JA	1	1
KO	0.5	0.5
TA	1	1

1 PHI US 1 ppm

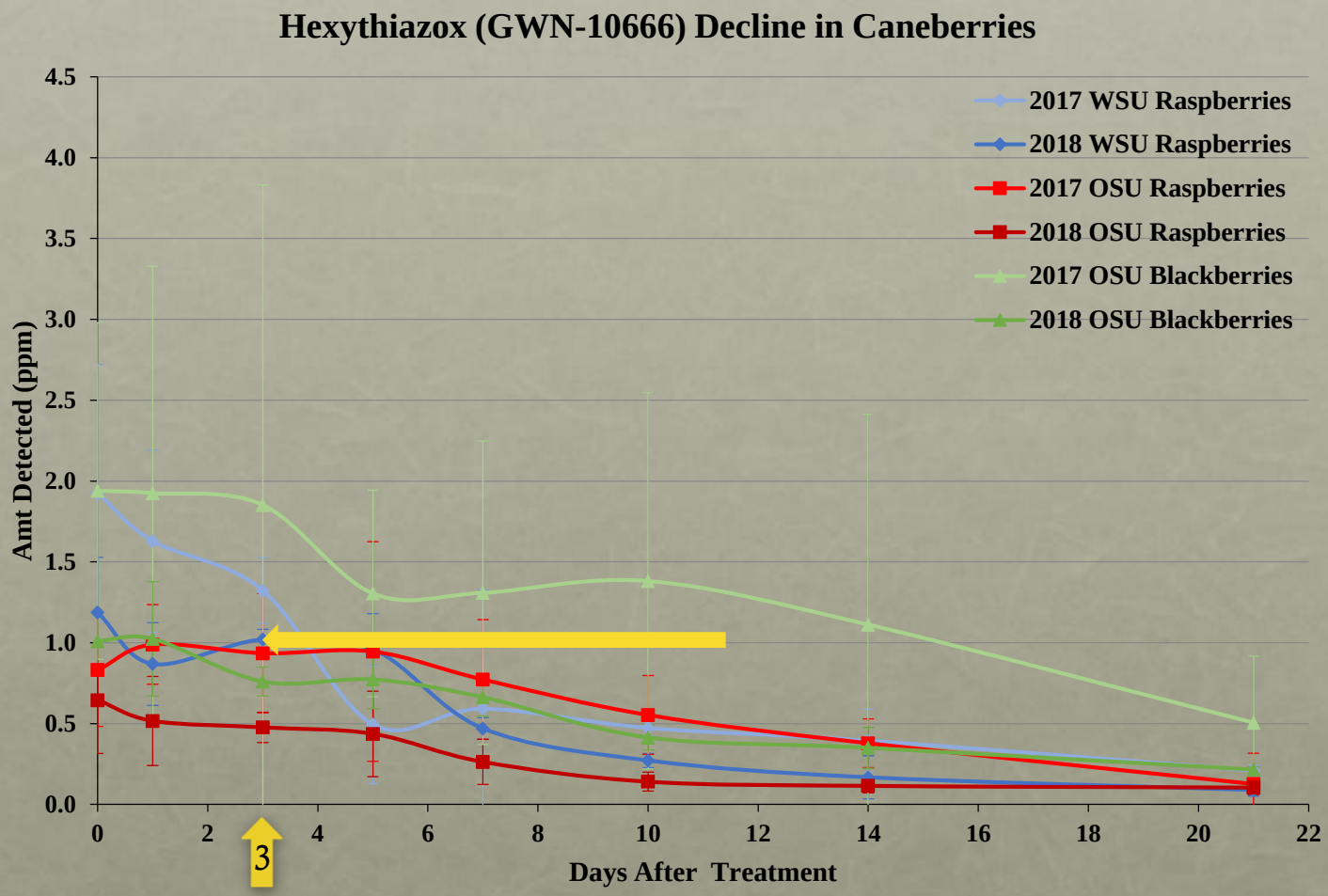
AU = 0.7 at DAT2, CA at 3 DAT

2017 – 2018 Caneberry Insecticide/Miticide Decline Study
Bifenazate (Acramite 50 WS)



	RR	BB
US	5	5
AU	7	7
CA	5	5
CH	7	NT
EU	7	7
HK	NT	NT
JA	7	7
KO	7	7
TA	0.01	0.01

2017 - 2018Caneberry Insecticide/Miticide Decline Study
Hexythiazox (GWN-10666)



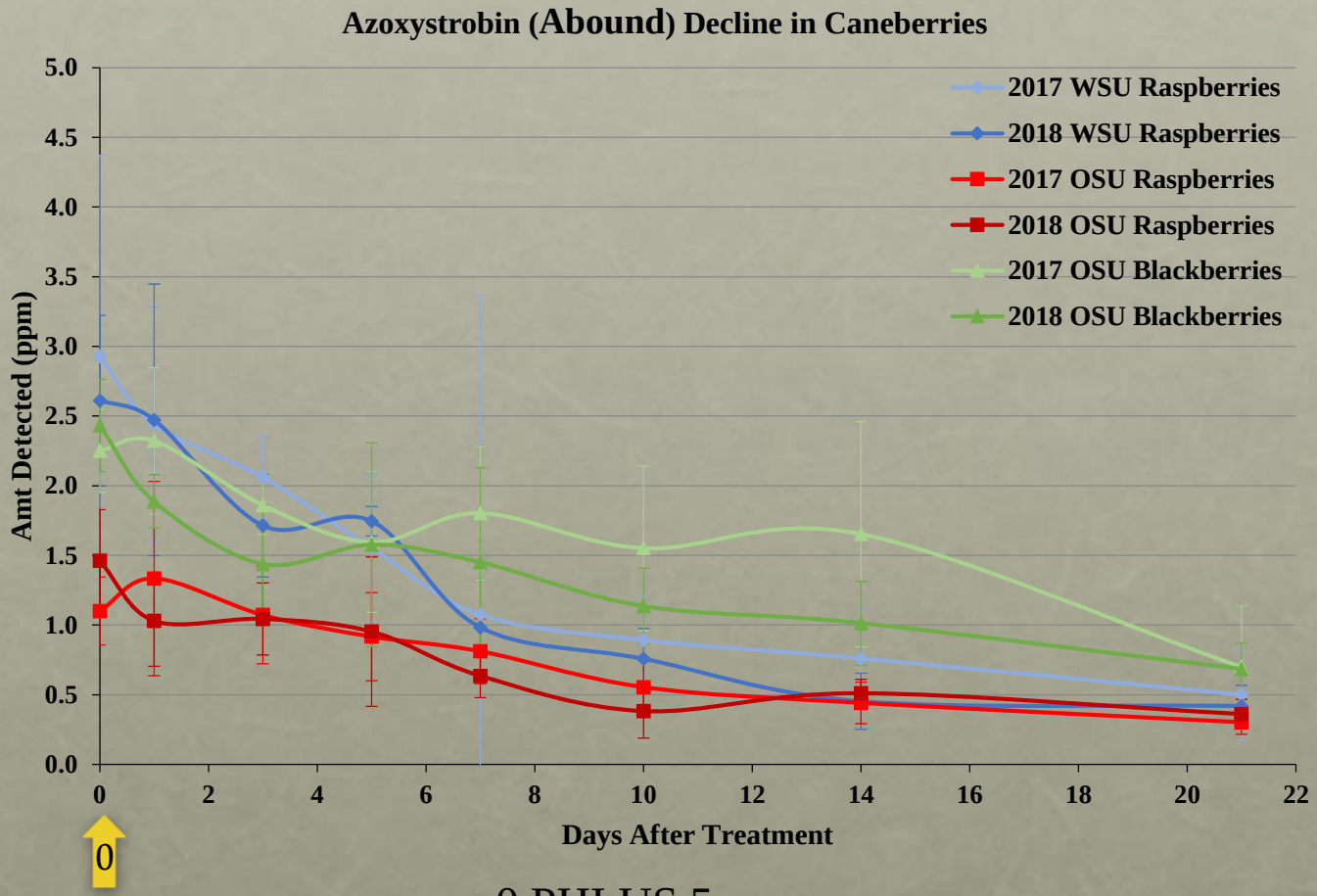
	RR	BB
US	1	1
AU	1	1
CA	1.5	1.5
CH	NT	NT
EU	0.5	0.5
HK	NT	NT
JA	NT	NT
KO	1	1
TA	1	1

2018 Caneberry Fungicides Decline Study
Product/Treatment List {18 ai's}

TREATMENT # 3 (T3). A tank mix of the following fungicide products:					
Chemical Name (ai)	**Product**	**FRAC**	**Rate (lb. a.i./A**	**Rate (product/A)**	**PHI**
Azoxystrobin	Abound	11	0.25	15.5 fl. oz.	0
Captan	Captan 4L	M4	2.0	64 fl. oz.	3
Fenhexamid	Elevate	17	0.75	24 oz..	0
Fluopyram + pyrimethanil	Luna Tranq	7 & 9	0.9	27 fl. oz.	0
Myclobutanil	Rally	3	Rasp = 0.075 Black = 0.125	Rasp = 3 oz. Black = 5 oz.	0
Penthiopyrad	Fontelis 200	7	0.313	24 fl. oz.	0
Polyoxin-D	Ph-D	19	0.044	6.2 oz.	0

TREATMENT # 4 (T4). A tank mix of the following fungicide products:					
Chemical Name (ai)	**Product**	**FRAC**	**Rate (lb. a.i./A**	**Rate (product/A)**	**PHI**
Boscalid + pyraclostrobin	Pristine	7 & 11	0.55	23 fl. oz.	0
Cymoxanil + famoxadone	Tanos	27 & 11	0.31	10 oz.	0
Cyprodinil + fludioxonil	Switch	9 & 12	0.55	14 oz.	0
Iprodione	Rovral	2	1.0	32 fl. oz.	0
Isofetamid	Kenja	7	0.4	15.5 fl. oz.	7
Pydiflumetofen	???	?	0.134	10.3 fl. oz.	0
Pyriofenone	Prolivo 300 SC	U8	0.098	5 fl. oz.	0

2017 - 2018 Caneberry Fungicide Decline Study
Azoxystrobin (Abound)



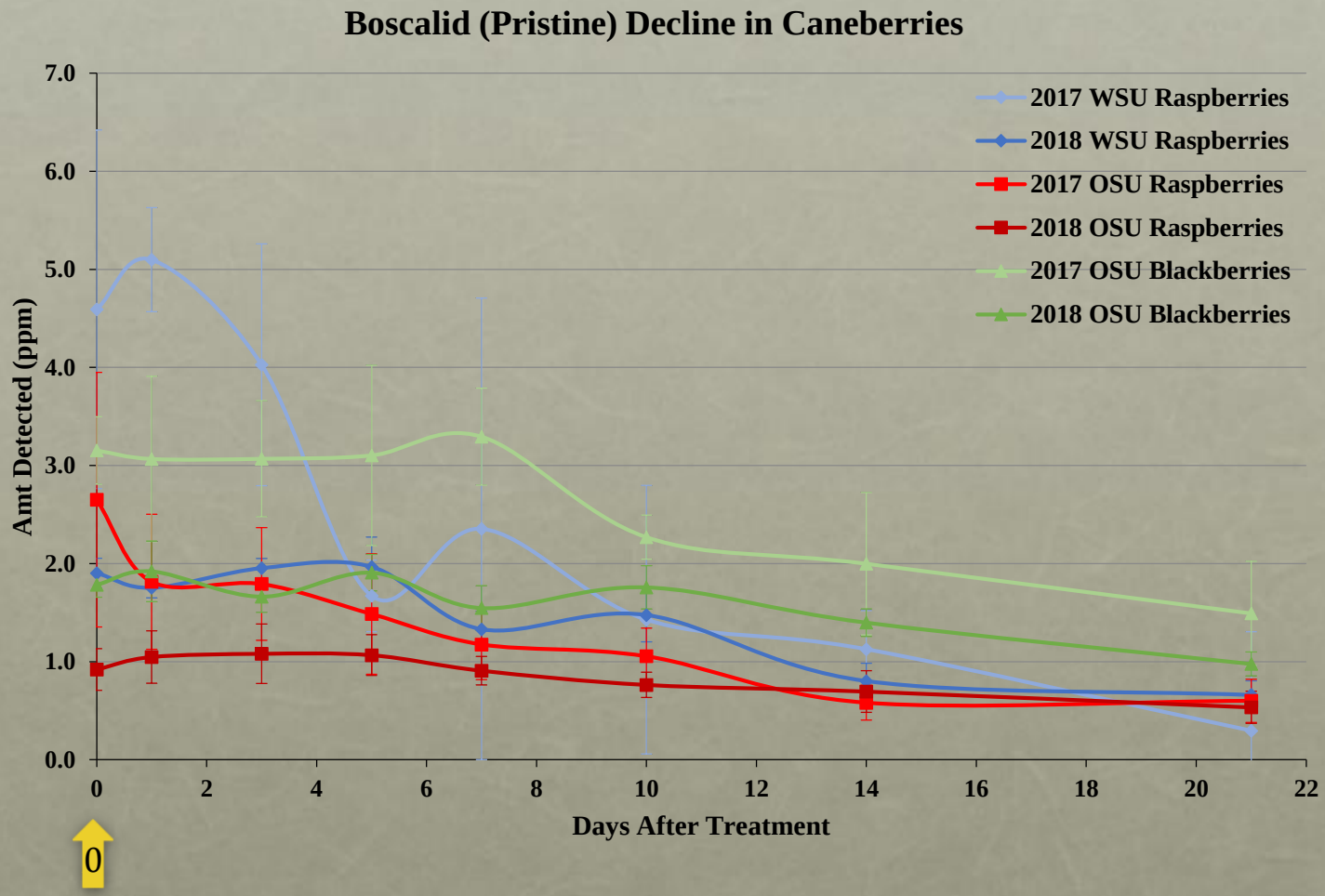
	RR	BB
US	5	5
AU	5	5
CA	5	5
CH	NT	NT
EU	5	5
HK	5	5
JA	5	5
KO	3	3
TA	5	2

0 PHI US 5ppm

KO < 1 at 7 – 10 DATs

TA < 2 DAT BB

2017 - 2018 Caneberry Fungicide Decline Study
Boscalid (Pristine)

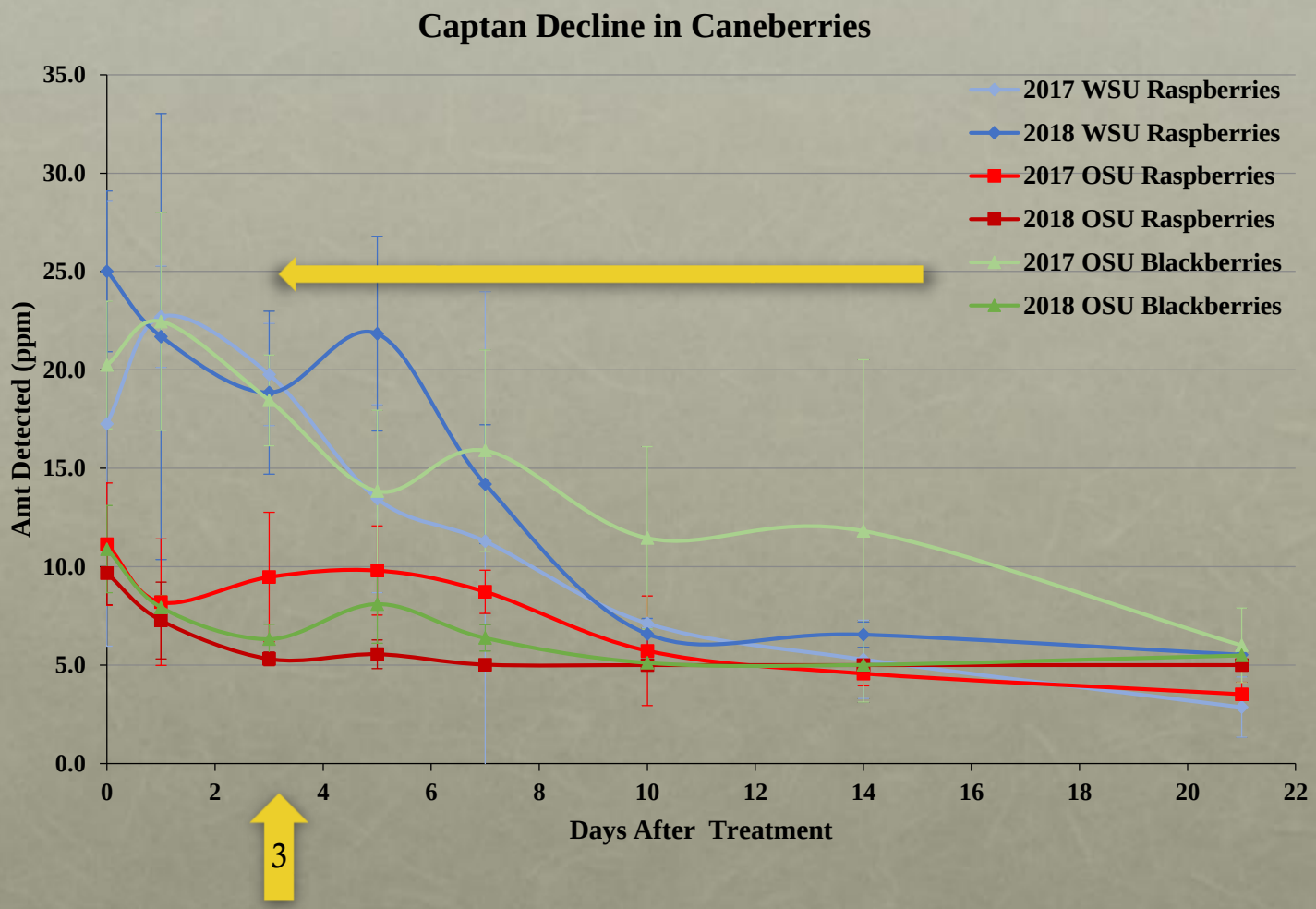


	RR	BB
US	10	10
AU	10	10
CA	6	6
CH	NT	NT
EU	10	10
HK	10	10
JA	10	10
KO	9	9
TA	6	6

0 PHI US 10ppm

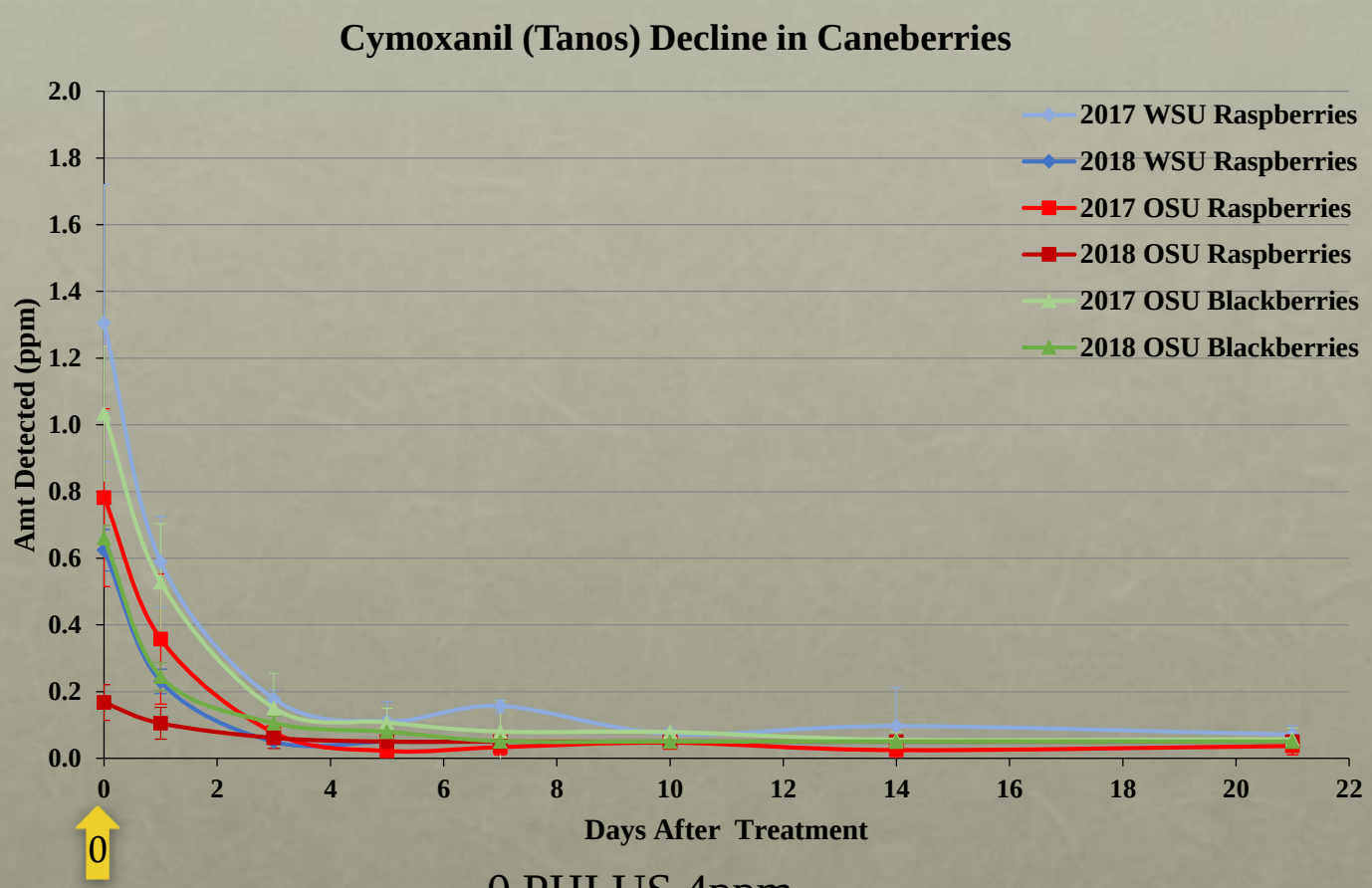
All residues < 5 ppm at 3 DAT except CH (NT)

2017 - 2018 Caneberry Fungicide Decline Study
Captan (captan)



	RR	BB
US	25	25
AU	30	30
CA	5	NT
CH	NT	NT
EU	20	20
HK	20	0
JA	20	20
KO	5	5
TA	20	20

2017 - 2018 Caneberry Fungicide Decline Study
Cymoxanil (Tanos)



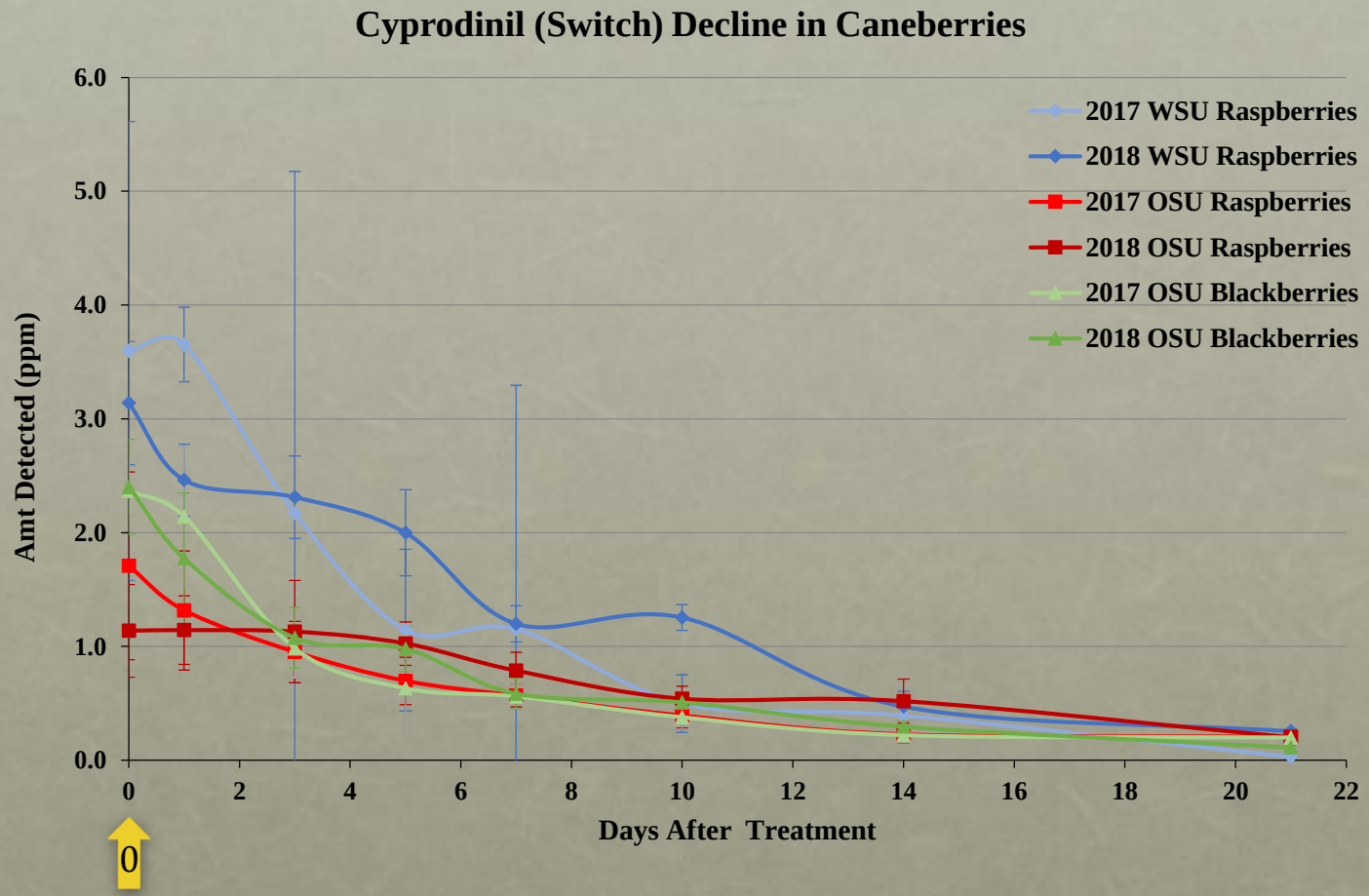
	RR	BB
US	4	4
AU	NT	NT
CA	4	4
CH	NT	NT
EU	0.01	0.01
HK	NT	NT
JA	4	4
KO	0.5	0.5
TA	1	1

0 PHI US 4ppm

TA < 1 at 1 DAT; KO < 0.5 2 DAT

AU, CH, EU& HK > 21 DATs

2017 - 2018 Caneberry Fungicide Decline Study
Cyprodinil (Switch)



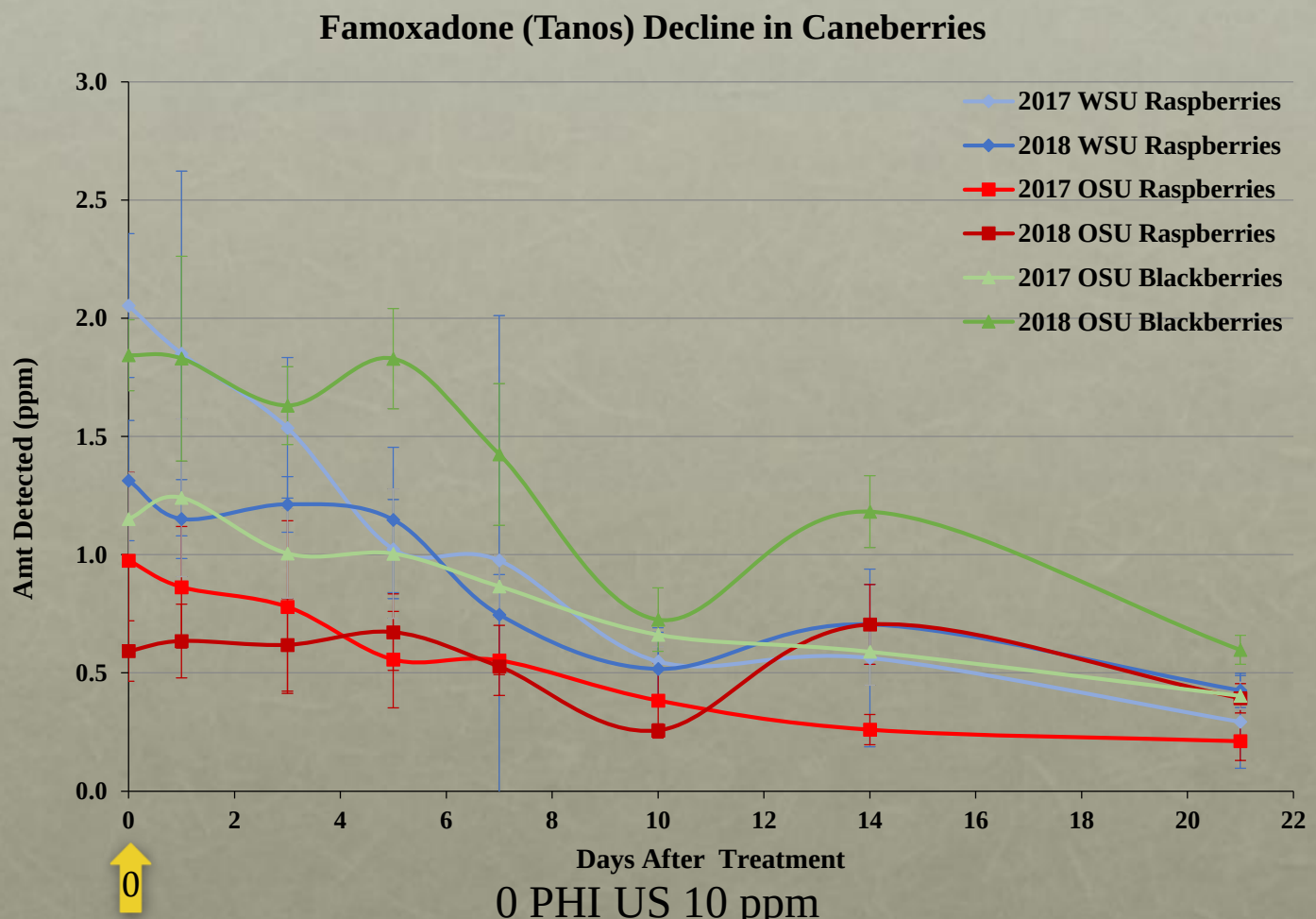
	RR	BB
US	10	10
AU	10	10
CA	10	10
CH	NT	NT
EU	3	3
HK	10	NT
JA	10	10
KO	1	1
TA	3	3

0 PHI US 10pm

EU, KO & TA need more data for RR, between 1 – 3 days

CH & HK = NT for Both RR & BB

2017 - 2018 Caneberry Fungicide Decline Study
Famoxadone (Tanos)

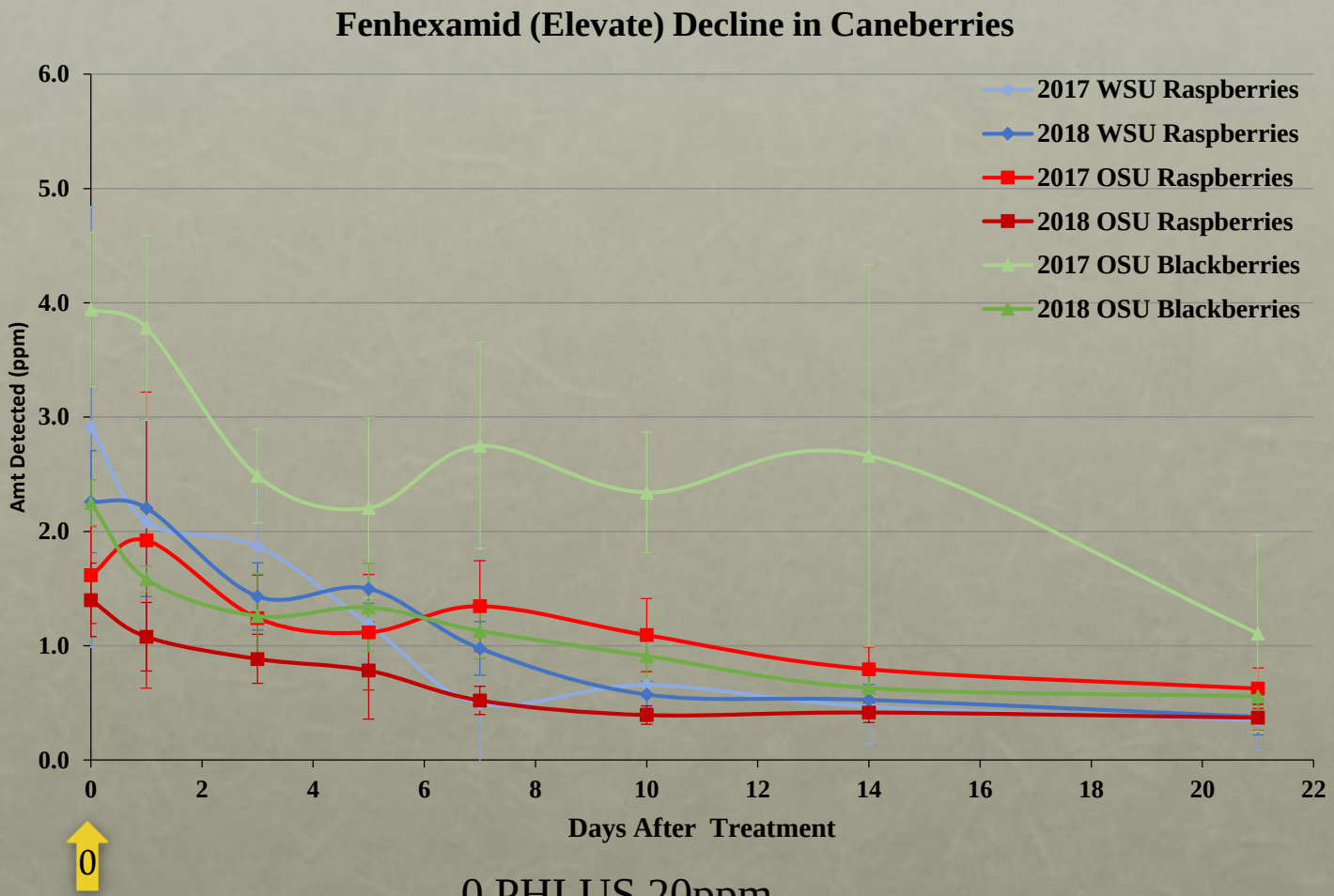


	RR	BB
US	10	10
AU	NT	NT
CA	10	10
CH	NT	NT
EU	0.01	0.01
HK	NT	NT
JA	10	10
KO	2	2
TA	0.01	0.01

0 PHI US 10 ppm

AU, CH, EU, HK, KO, & TA> 21 days

2017 - 2018 Caneberry Fungicide Decline Study
Fenhexamid (Elevate)

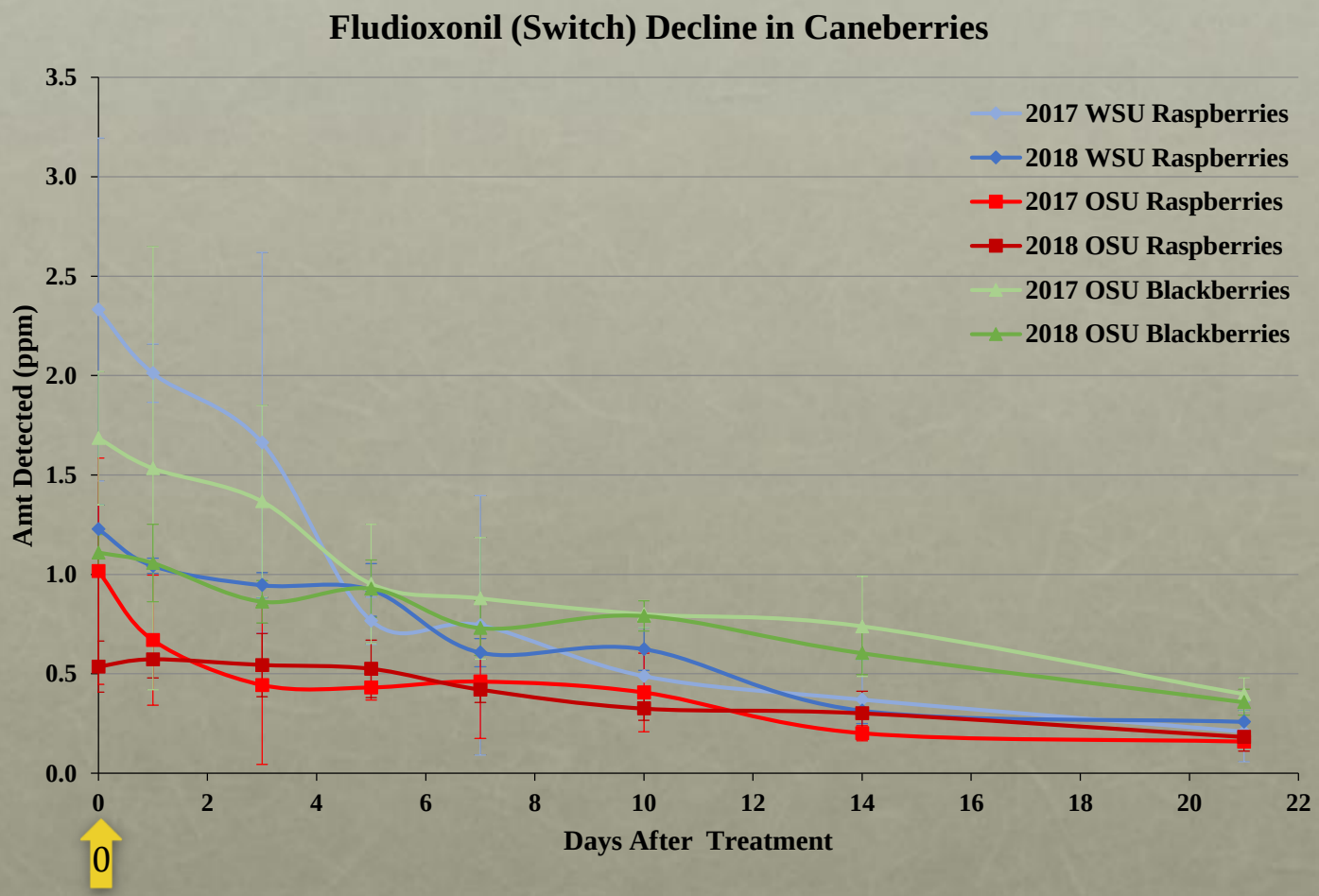


	RR	BB
US	20	20
AU	20	20
CA	20	20
CH	5	15
EU	15	15
HK	15	15
JA	15	15
KO	15	15
TA	0.01	0.01

0 PHI US 20ppm

TA > 21 DAT RR & BB

2017 - 2018 Caneberry Fungicide Decline Study
Fludioxonil (Switch)

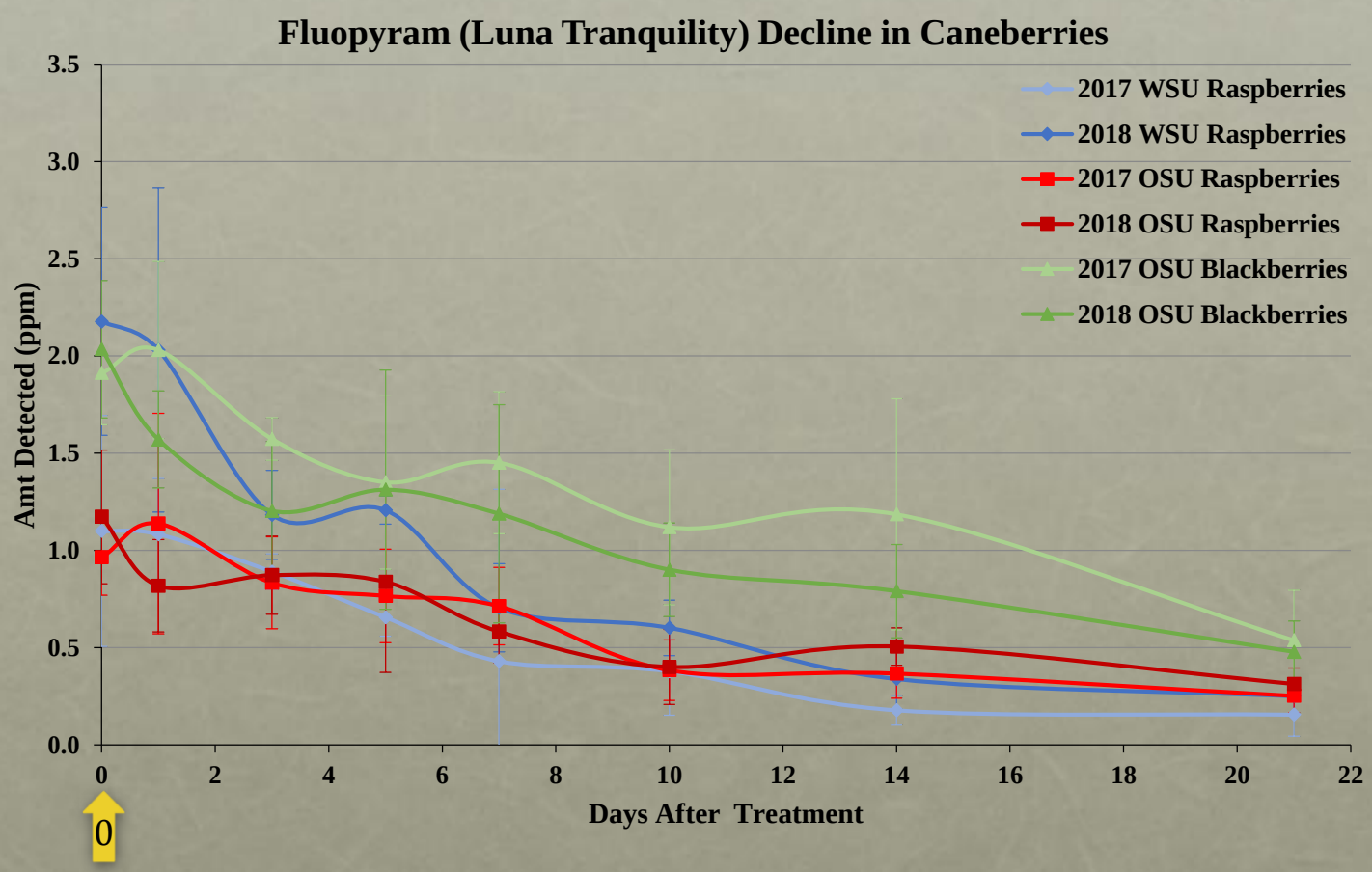


	RR	BB
US	5	5
AU	5	5
CA	7	7
CH	NT	NT
EU	5	5
HK	5	5
JA	5	5
KO	5	5
TA	5	5

0 PHI US 5ppm

CH = NT

2017 – 2018 Caneberry Fungicide Decline Study
Fluopyram (Luna Tranquility)

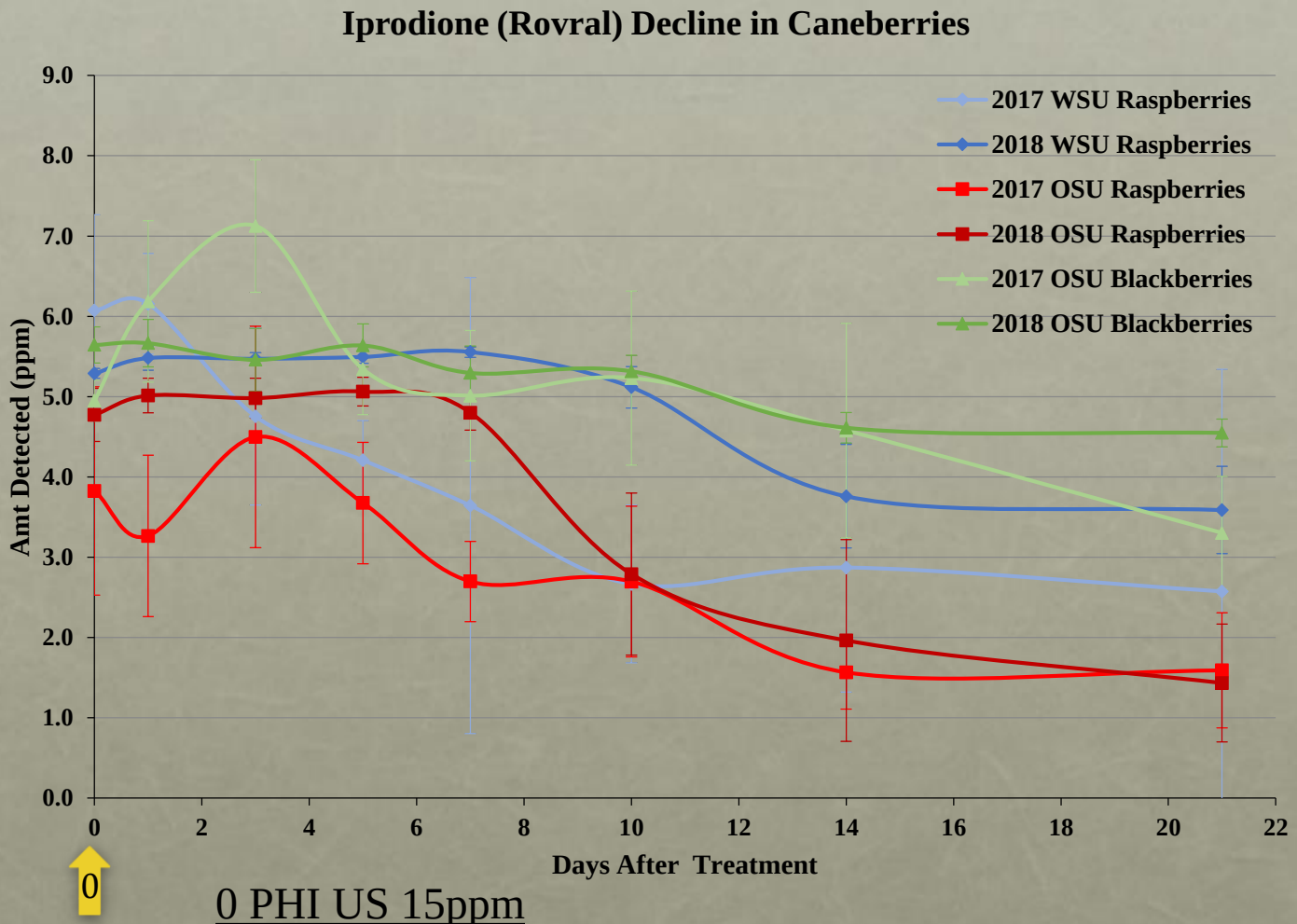


	RR	BB
US	5	5
AU	3	0.1
CA	5	5
CH	NT	NT
EU	3	3
HK	NT	NT
JA	5	5
KO	3	3
TA	0.01	0.01

0 PHI US 5ppm

AU, CH, HK and TA NT

2017 - 2018 Caneberry Fungicide Decline Study
Iprodione (Rovral)



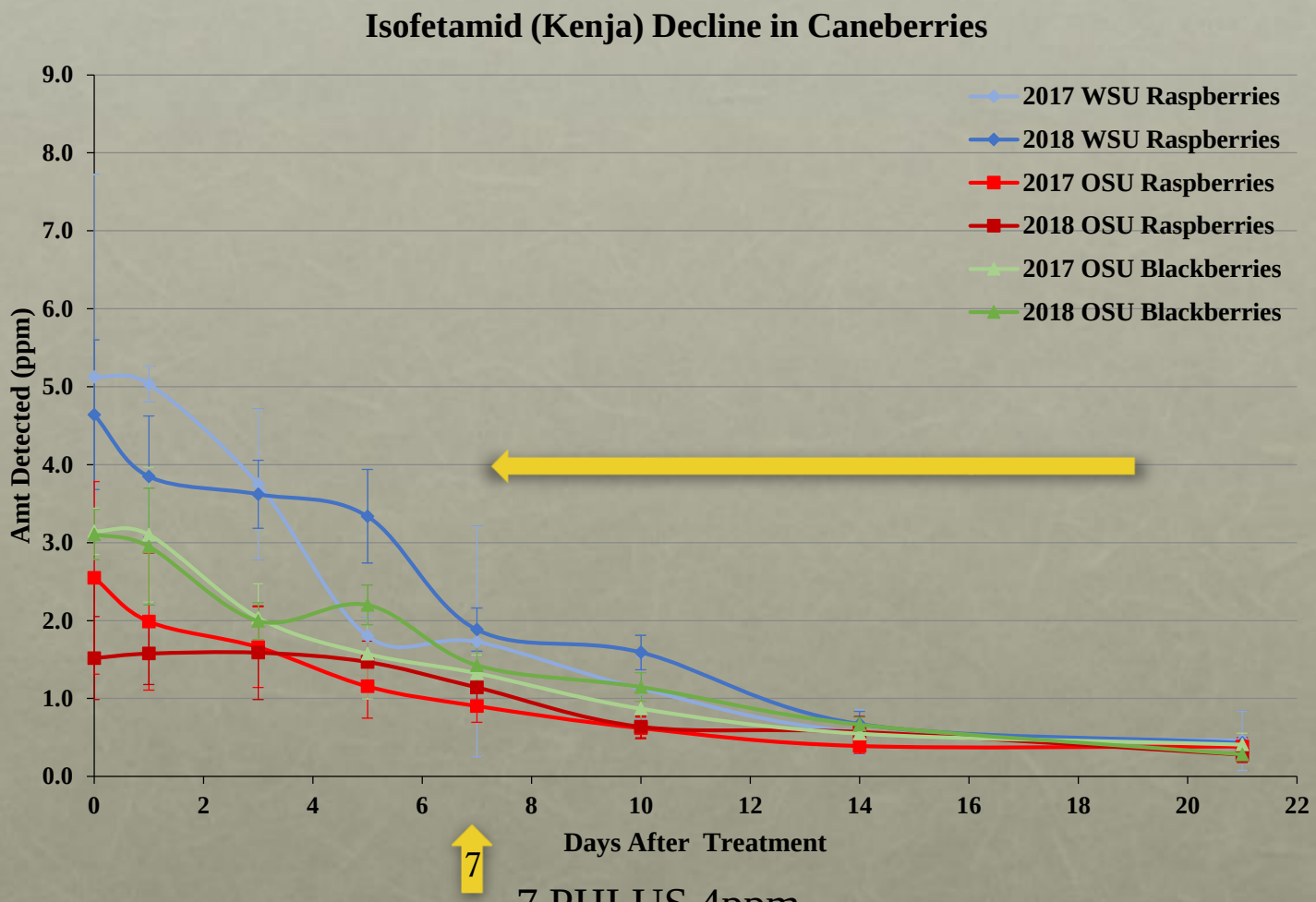
	RR	BB
US	15	15
AU	12	12
CA	25	25
CH	NT	NT
EU	30	30
HK	30	30
JA	5	12
KO	30	30
TA	5	5

0 PHI US 15ppm

JA and TA > 3 DAT for RR; TA > 7 DAT BB

CH NT Both

2017 - 2018 Caneberry Fungicide Decline Study
Isofetamid (Kenja)

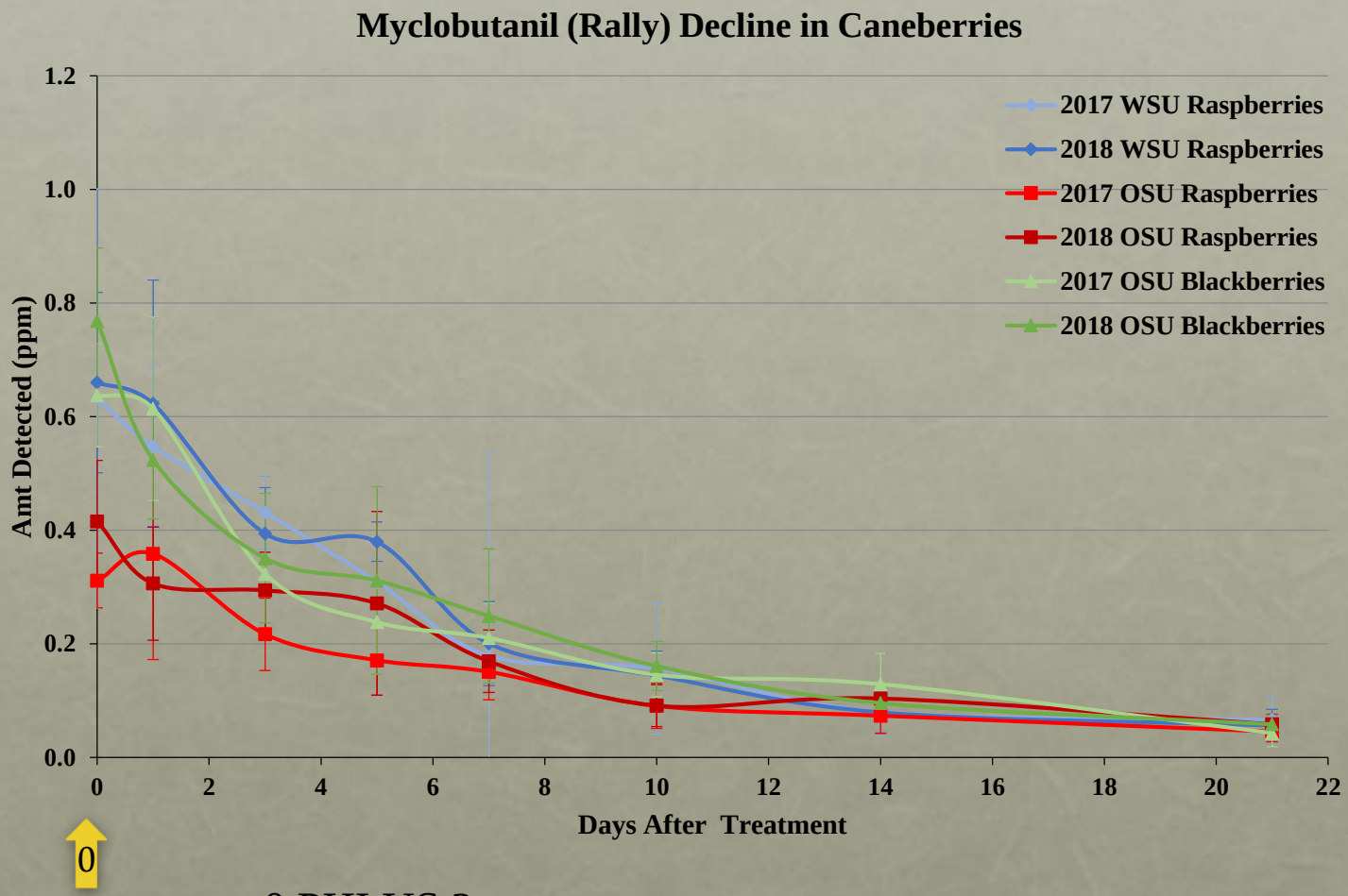


	RR	BB
US	4	4
AU	NT	NT
CA	4	4
CH	NT	NT
EU	0.01	0.01
HK	NT	NT
JA	NT	NT
KO	3	3
TA	NT	NT

7 PHI US 4ppm

AU, CH, EU, HK, JA, & TA all > 21 DATs

2017 - 2018 Caneberry Fungicide Decline Study
Myclobutanil (Rally)



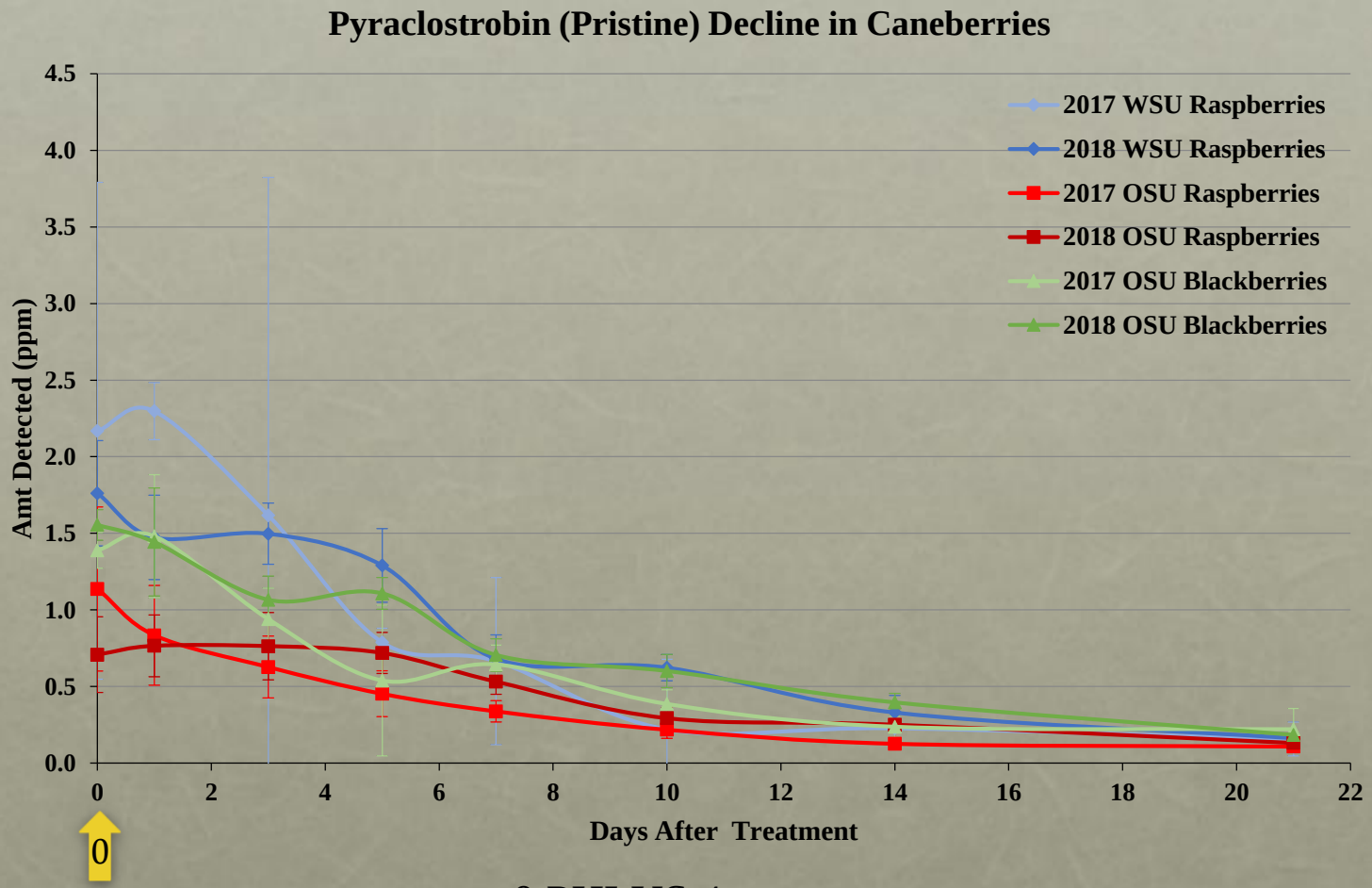
	RR	BB
US	2	2
AU	2	2
CA	2	2
CH	NT	NT
EU	1	1
HK	NT	NT
JA	1	1
KO	1	1
TA	0.5	0.5

0 PHI US 2 ppm

TA = 1 DAT RR and 3 DAT for BB

CH & TA = NT

2017 - 2018 Caneberry Fungicide Decline Study
Pyraclostrobin (Pristine)

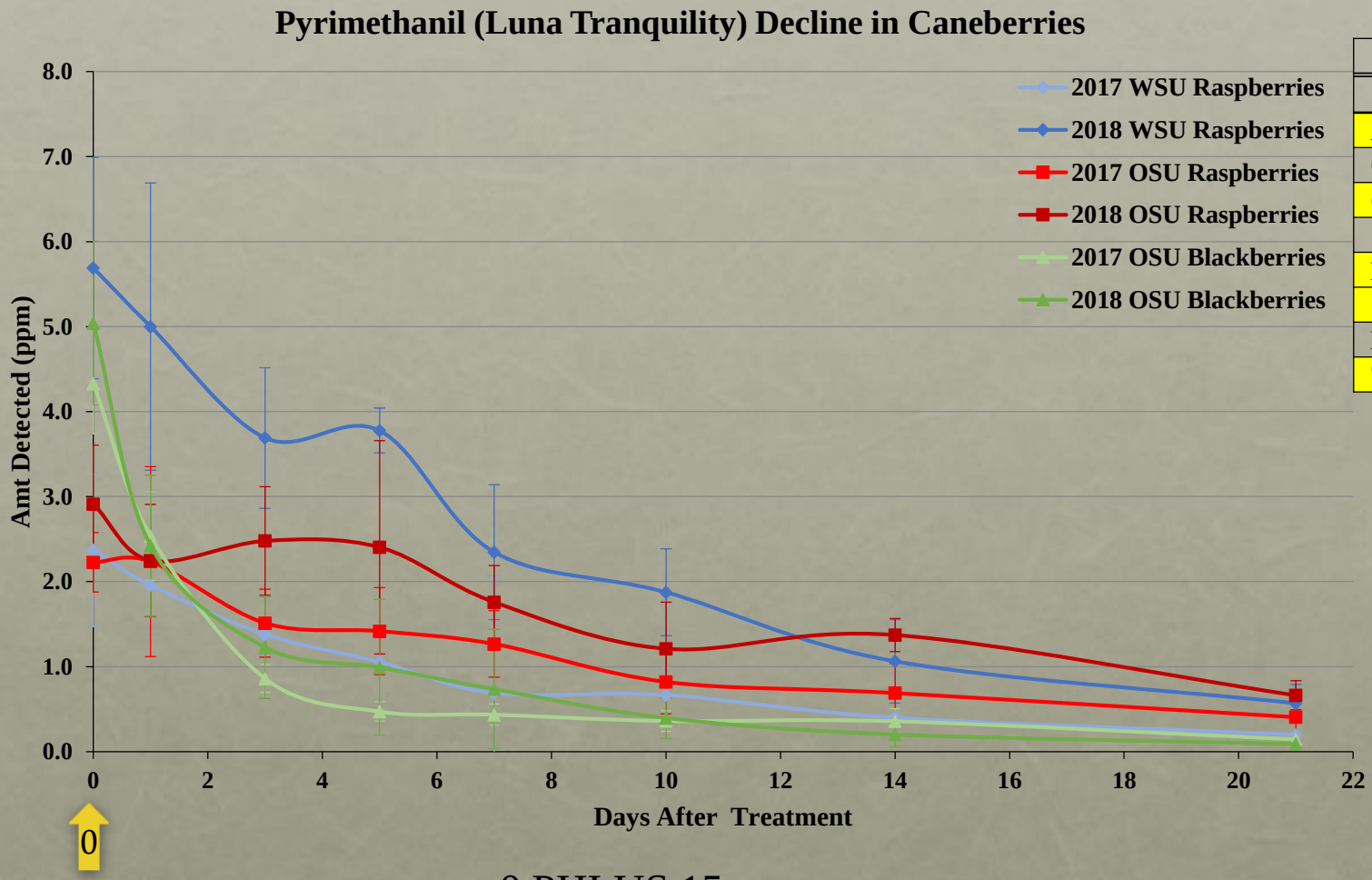


	RR	BB
US	4	4
AU	4	4
CA	3.5	3.5
CH	NT	NT
EU	3	3
HK	2	NT
JA	3	3
KO	3	3
TA	3	3

0 PHI US 4 ppm

HK & Ch are NT

2017 - 2018 Caneberry Fungicide Decline Study
Pyrimethanil (Luna Tranquility)

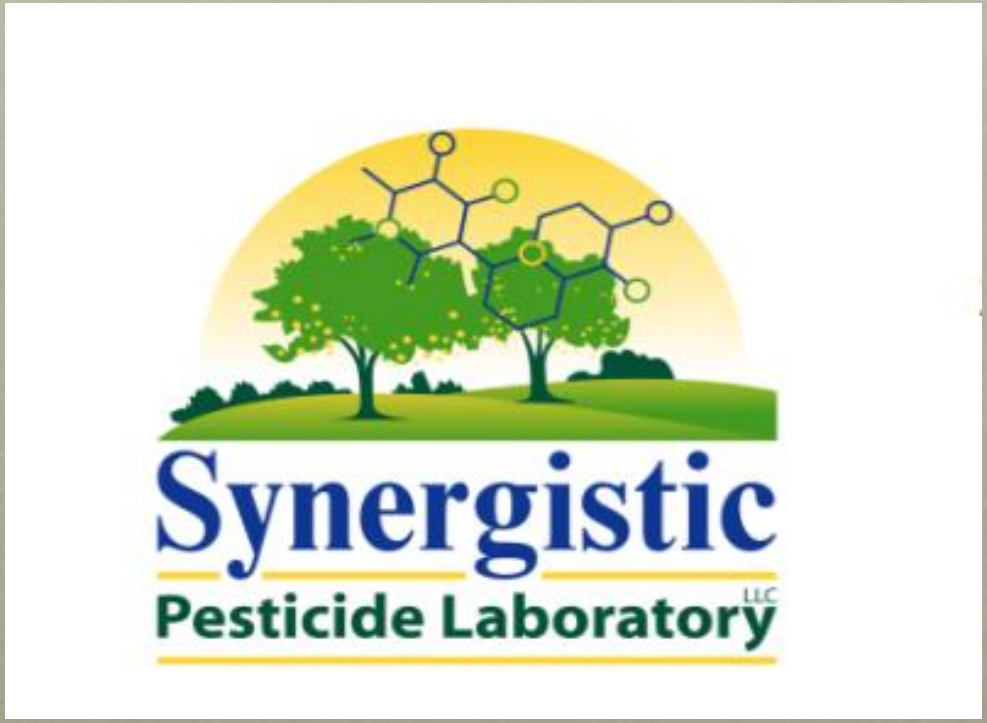


	RR	BB
US	15	15
AU	5	5
CA	15	15
CH	NT	NT
EU	15	15
HK	NT	NT
JA	10	10
KO	15	15
TA	0.02	0.02

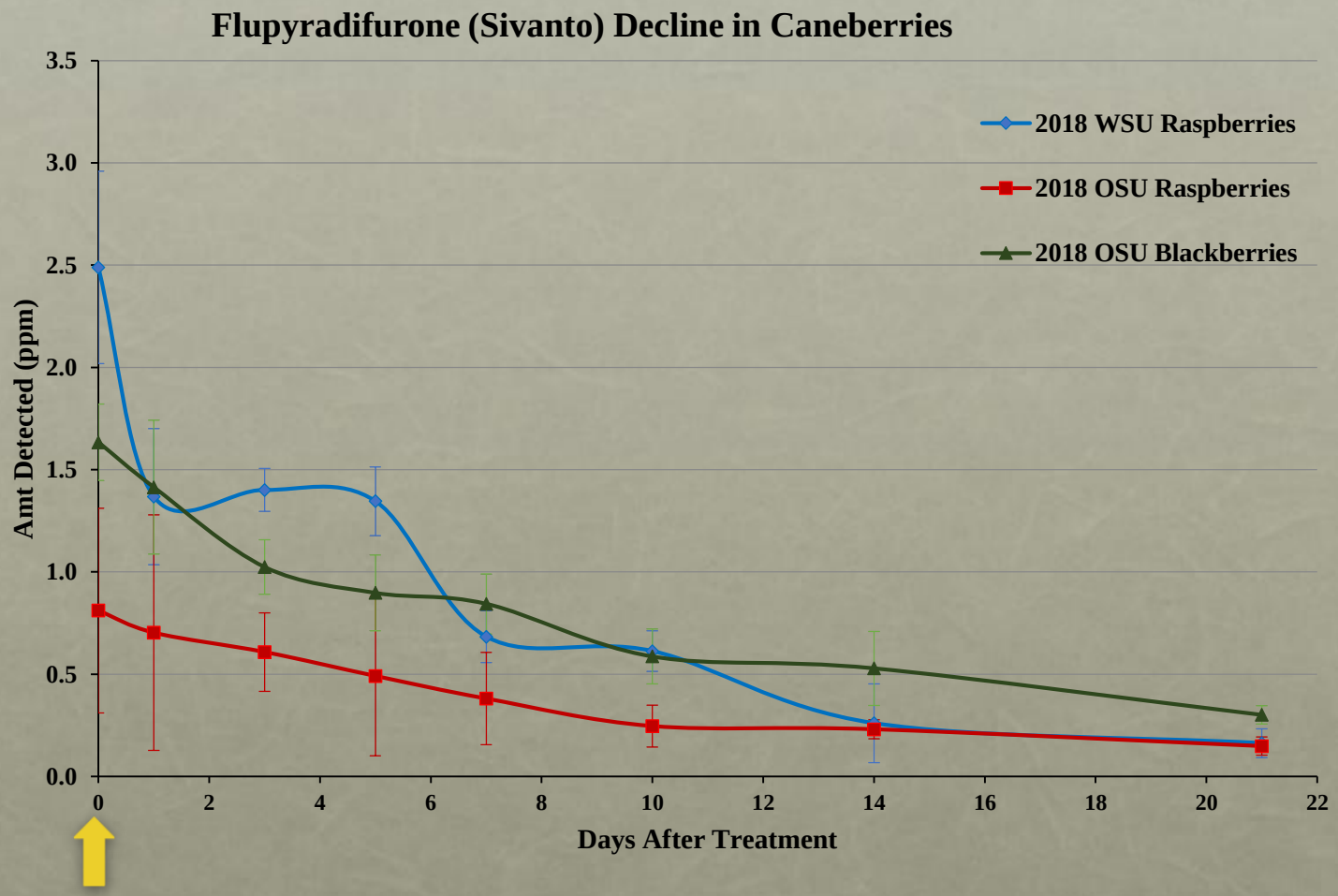
0 PHI US 15ppm

TA > 21 DAT and NT for CH & HK

Remember: PHI's; Gallons/A; Rates/A and the weather can all effect what you choose to do and where & when you want your product to go to market.

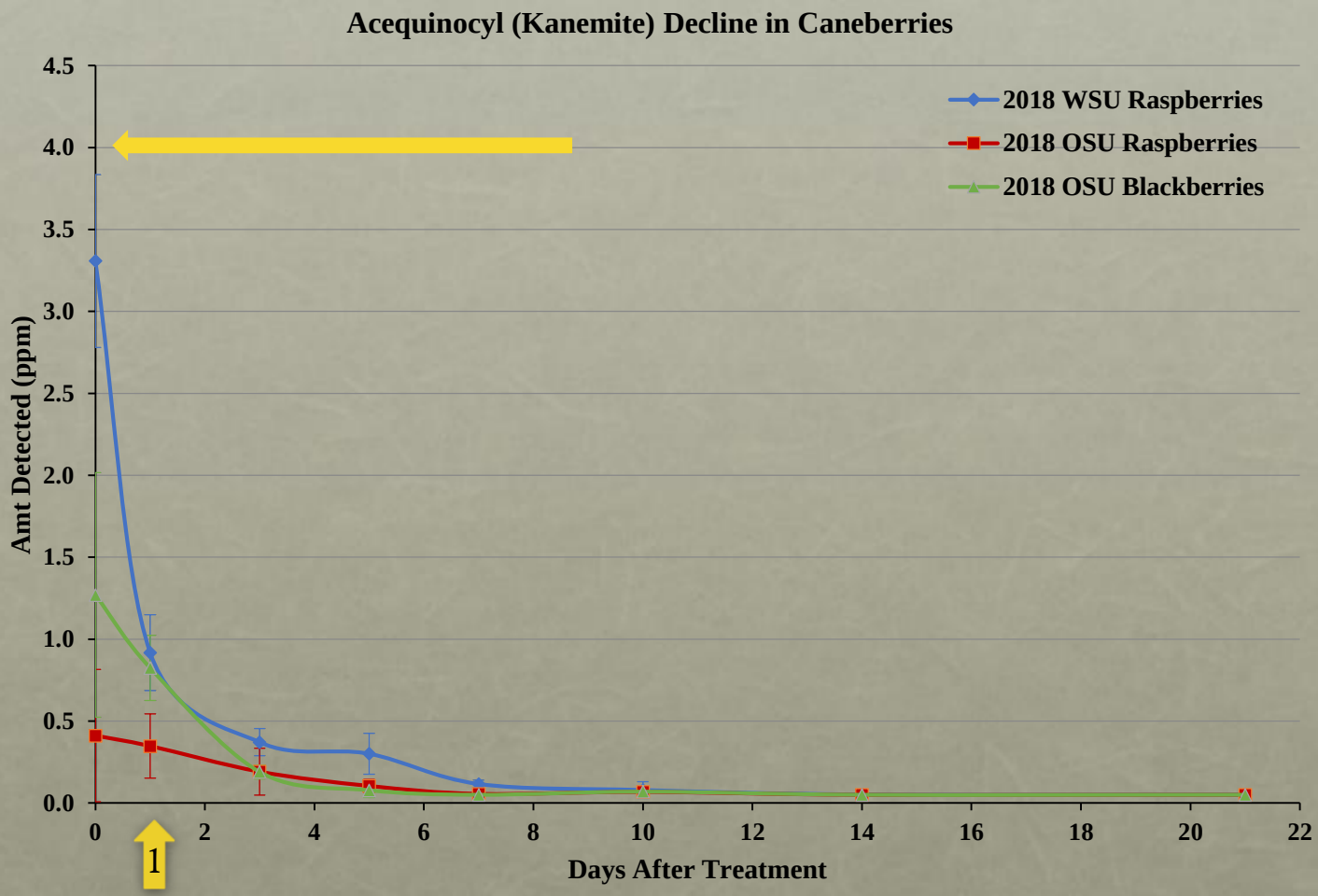

Synergistic
Pesticide Laboratory
LLC

2017 – 2018 Caneberry Insecticide/Miticide Decline Study
Flupyradifurone (Sivanto Prime)



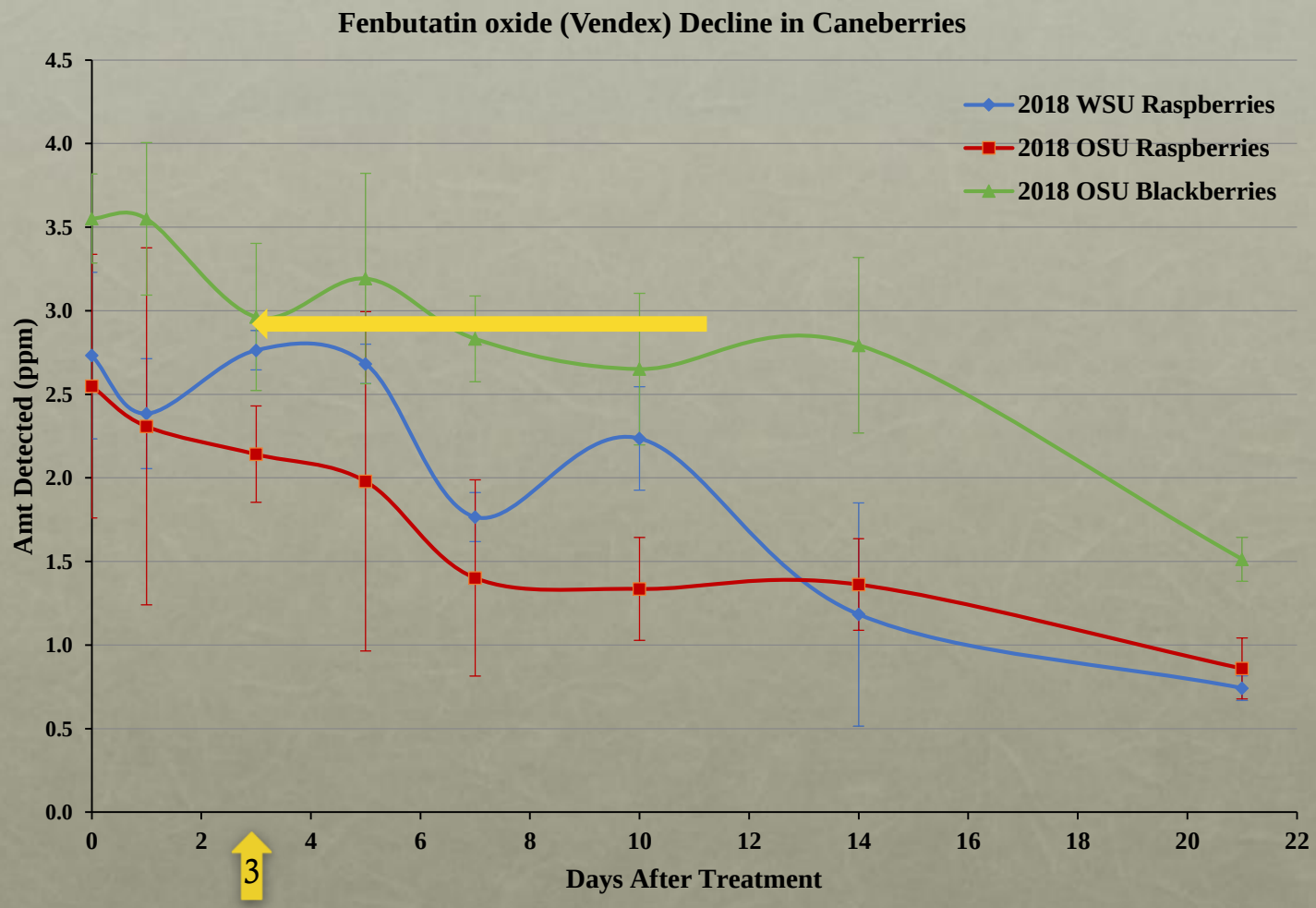
	RR	BB
US	5	5
AU	NT	NT
CA	5	5
CH	NT	NT
EU	1.5	1.5
HK	NT	NT
JA	0.01	0.01
KO	1.5	1.5
TA	0.01	0.01

2017 - 2018Caneberry Insecticide/Miticide Decline Study
Acequinocyl (Kanemite15 SC)



	RR	BB
US	4	4
AU	NT	NT
CA	4	4
CH	NT	NT
EU	0.01	0.01
HK	NT	NT
JA	NT	NT
KO	0.5	0.5
TA	0.01	0.01

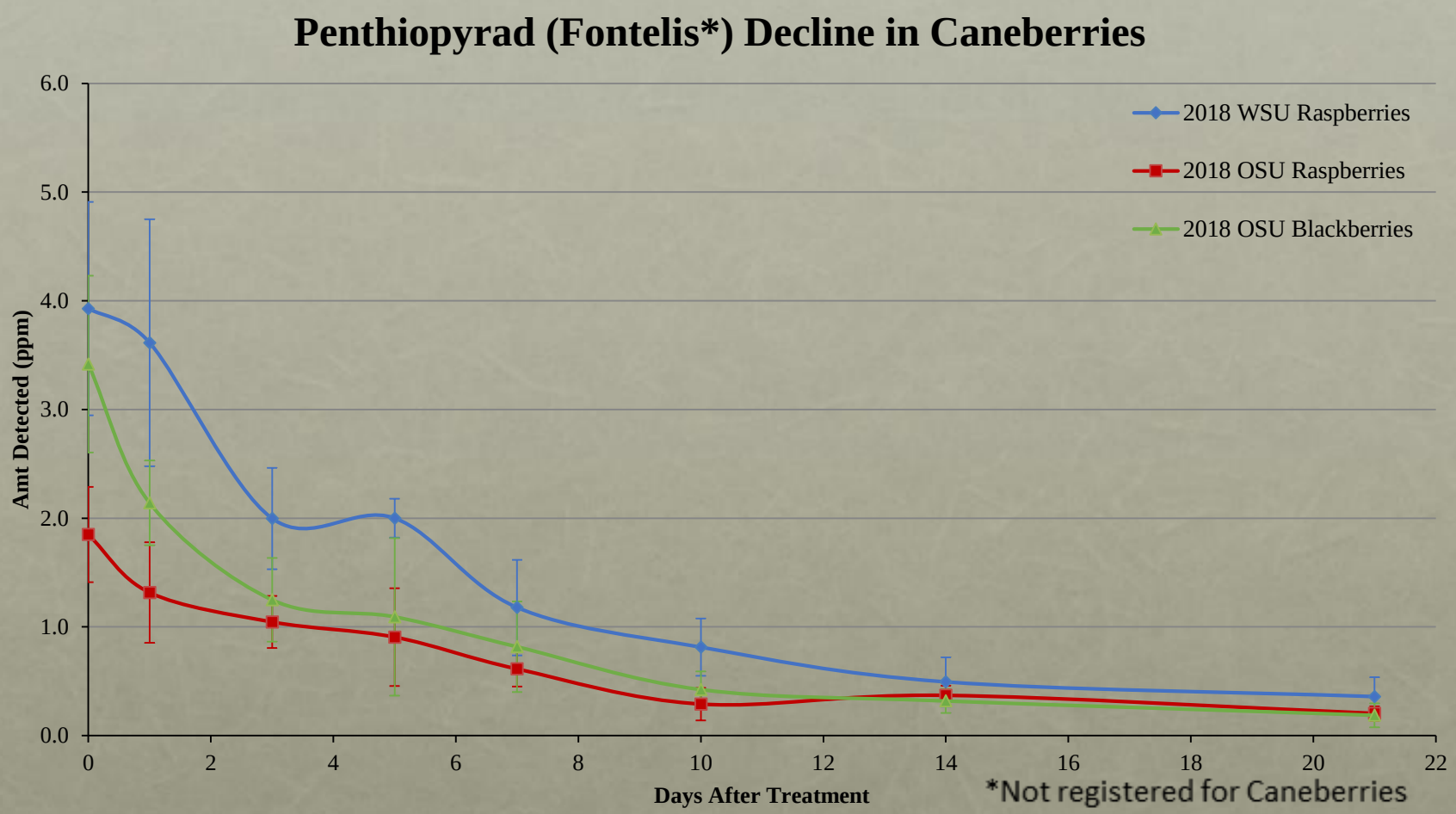
2017 - 2018Caneberry Insecticide/Miticide Decline Study
Fenbutatin Oxide (Vendex 50W)*



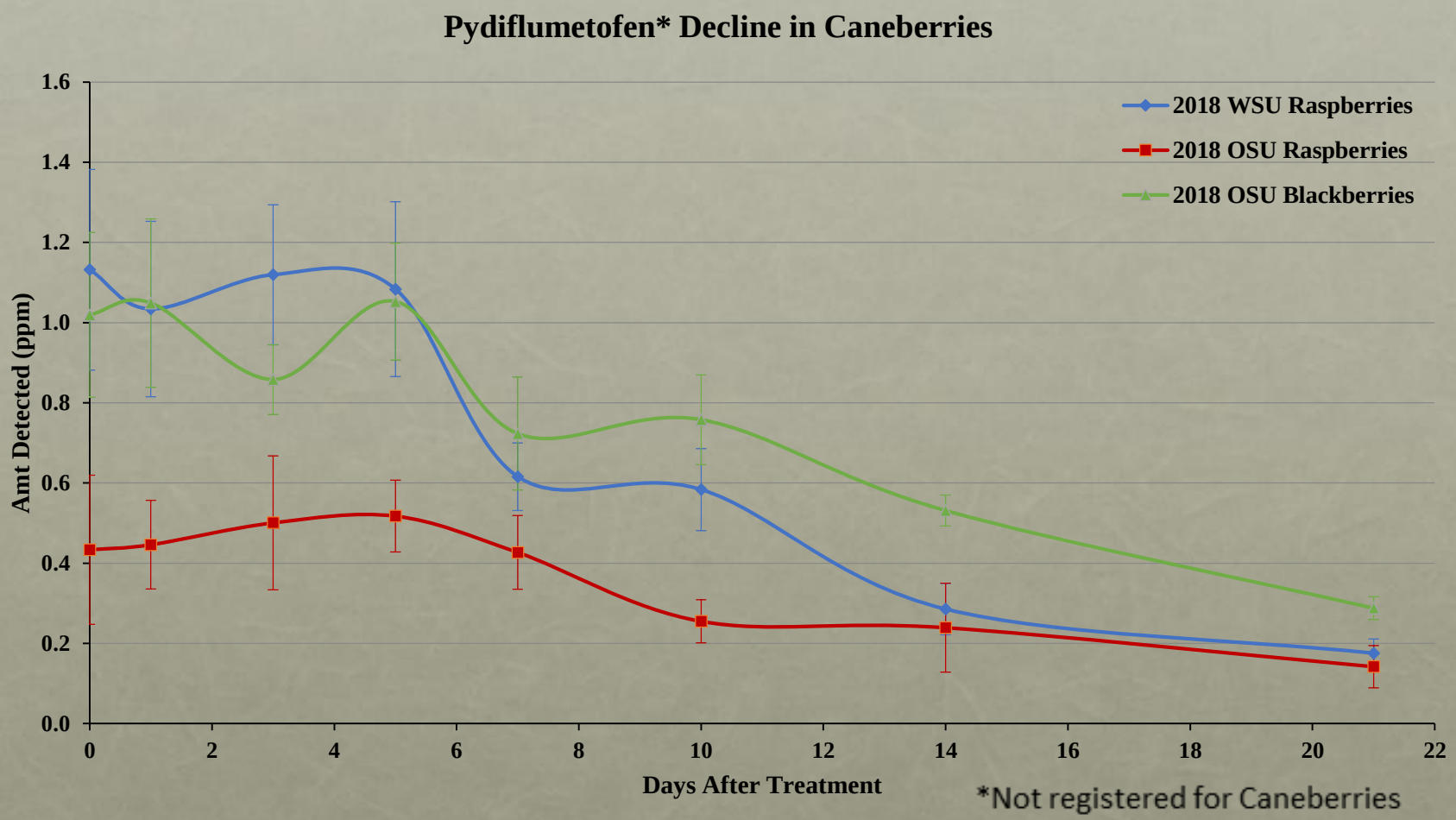
	RR	BB
US	10	NT
AU	1	NT
CA	NT	NT
CH	NT	NT
EU	5	NT
HK	10	NT
JA	10	NT
KO	3	NT
TA	0.01	NT

* Not Registered for Blackberry

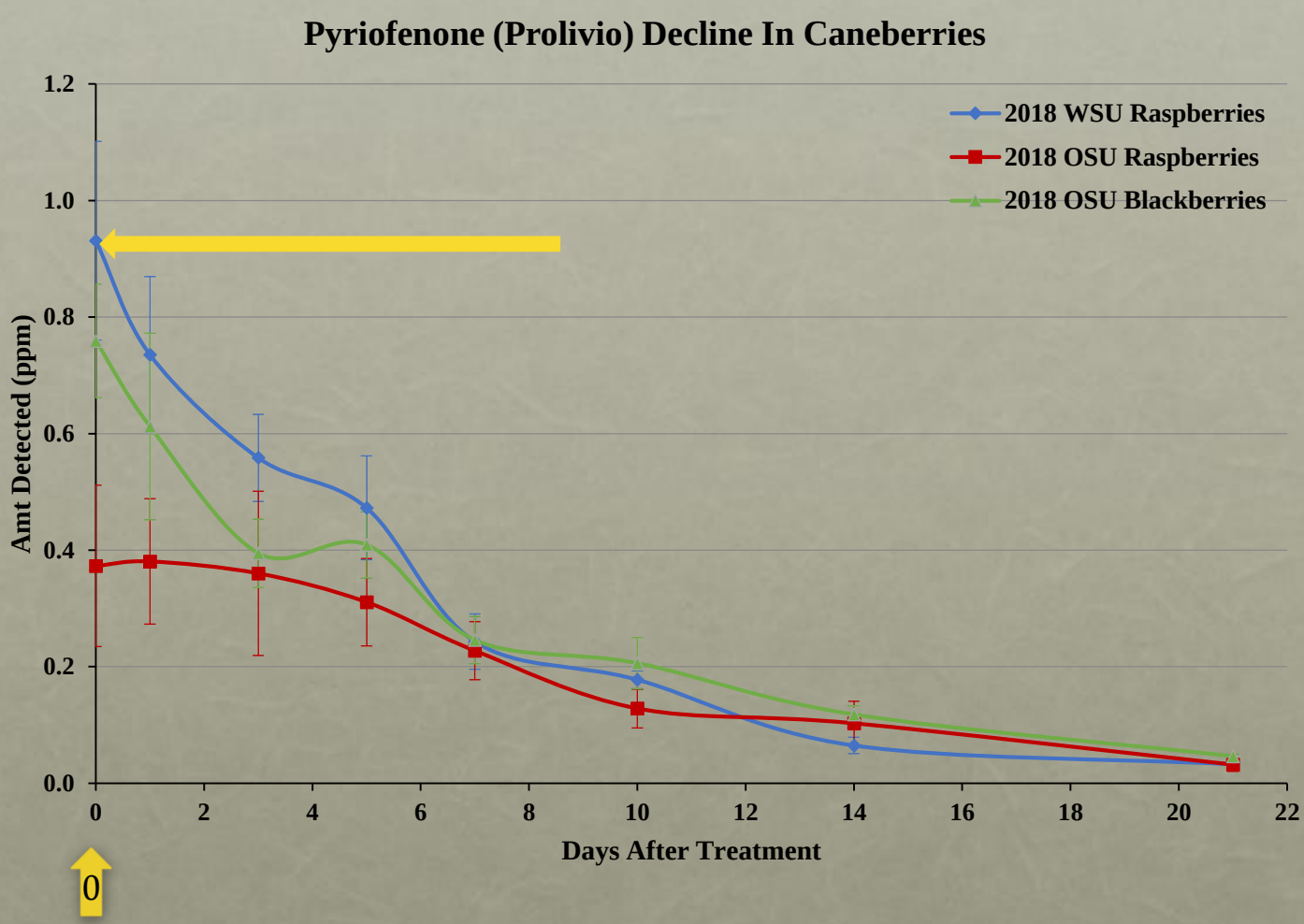
2018 Caneberry Fungicide Decline Study
Penthiopyrad (Fontelis*)



2018 Caneberry Fungicide Decline Study
Pydiflumetofen *



2018 Caneberry Fungicide Decline Study
Pyriofenone (Prolivio)



	RR	BB
US	0.9	0.9
AU	0.05	0.05
CA	0.9	0.9
CH	NT	NT
EU	0.01	0.01
HK	NT	NT
JA	0.01	0.01
KO	2	2
TA	NT	NT

Polyoxcin-D ?

THANK YOU

- Washington Red Raspberry Commission
- Oregon Raspberry and Blackberry Commission
- Randy Honcoop
- Camille Holladay – Synergistic Pesticide Lab

Some of the pesticides discussed in this presentation were tested under an experimental use permit granted by WSDA. Application of a pesticide to a crop or site that is not on the label is a violation of pesticide law and may subject the applicator to civil penalties up to $7,500. In addition, such an application may also result in illegal residues that could subject the crop to seizure or embargo action by WSDA and/or the U.S. Food and Drug Administration. It is your responsibility to check the label before using the product to ensure lawful use and obtain all necessary permits in advance.