Efficacy Ratings[1] – New Chemistries vs. Other Products – Apple

by L. A. Hull

Product	CM	OFM	TABM	OBLR	PC
Altacor	E	E	E	E	P
Belt	G-E	G-E	E	E	P
Delegate	E	E	E	E	F
Voliam flexi	E	E	E	E	G-E
Guthion	F-E	G-E	G	F	E
Assail	G	G	—	—	E
Calypso	G	G	—	—	G
Intrepid	F-G	F-G	E	E	—
Rimon	G-E	G-E	E	E	—
Warrior	F	E	E	G-E	F

1 Ratings may differ from PSU-TFPG — this is more of a comparison between compounds

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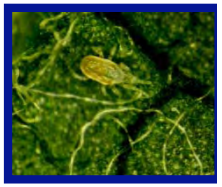
Phytoseiid Mite Predator Field Study - 2006 (Large Plot) - PA

Treatment	Amt/A	Phytoseiid mite predators / leaf 10 Jul	24 Jul	2 Aug	(% TP, NF)
Delegate 25WG	3.0 oz	0.8 d	1.8 ab	2.0 bc	(87, 13)
Delegate 25WG	4.5 oz	0.8 d	0.5 c	1.8 c	(100, 0)
Altacor 35WG	2.0 oz	1.2 a-d	2.4 ab	4.0 a	(97, 3)
Altacor 35WG	3.0 oz	1.0 a-d	1.8 ab	2.9 ab	(96, 4)
Belt 480SC	3.0 oz	1.0 bcd	2.1 ab	2.9 ab	(92, 8)
Belt 480SC	4.0 oz	0.8 cd	1.7 ab	4.0 a	(97, 3)
Belt 480SC	5.0 oz	1.3 a-d	1.6 b	2.8 abc	(96, 4)
Intrepid 2F	16.0 fl oz				
Rimon 0.83EC	20.0 fl oz	1.4 a-d	1.3 bc	3.1 ab	(100, 0)
Rimon 0.83EC	20.0 fl oz				
Intrepid 2F	16.0 fl oz	1.4 abc	1.4 bc	3.3 ab	(97, 3)
Rimon 0.83EC	30.0 fl oz	1.6 ab	3.4 a	3.8 a	(97, 3)
Avaunt 30WDG	6.0 oz				
SpinTor 2F	5.0 fl oz				
Intrepid 2F	16.0 fl oz				
Calypso 480SC	6.0 oz	1.8 a	1.6 b	3.3 ab	(87, 13)
Untreated Check	. .	1.8 ab	2.7 ab	3.0 ab	(100, 0)



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2 applic - 14 and 28 Jun -- 100 GPA

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Comparison of Natural Enemy Toxicity Under Field Conditions – L. Hull (Penn State)

Natural Enemy	AZM	Pyrethroid	Assail	Rimon	Delegate	Altacor
T. pyri/ N. fallacis	1	3	1	0	1-2	0
Zetzellia mali	1	2	1	0	1	0
Stethorus punctum Adults	1	3	2	2	1	1
Larvae	1	3	2	3	1	1
Aphidoletes	1	2	1	1	0	0
Coccinellids - aphids	1	3	2	2	1	1
Campylomma	1	2	2	0	1	0

0 = no toxicity, 1 = slight toxicity, 2 = moderate toxicity, 3 = high toxicity

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PSU recommendations for new tools

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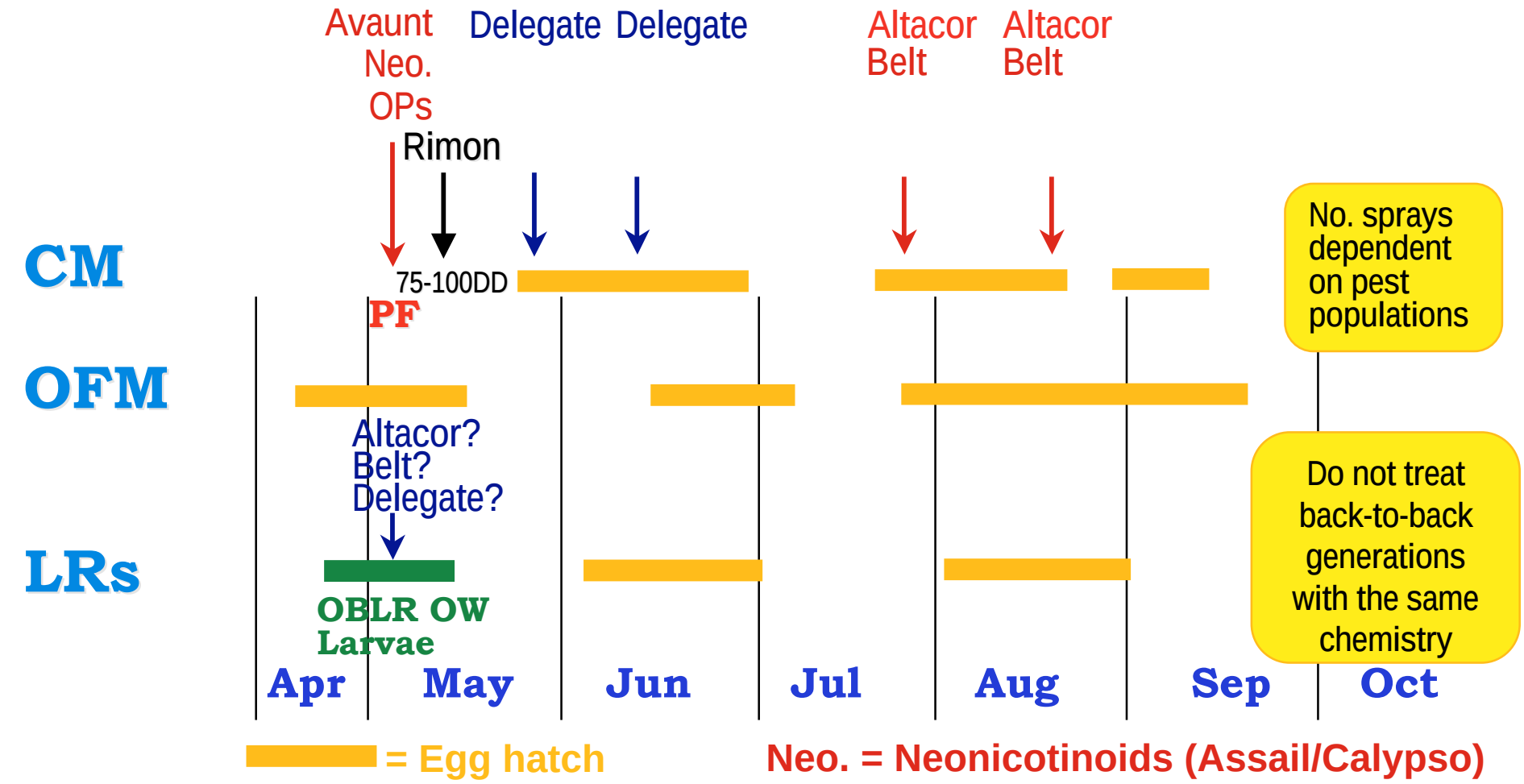
New Product Timing Options - #1 - 2009
Pennsylvania



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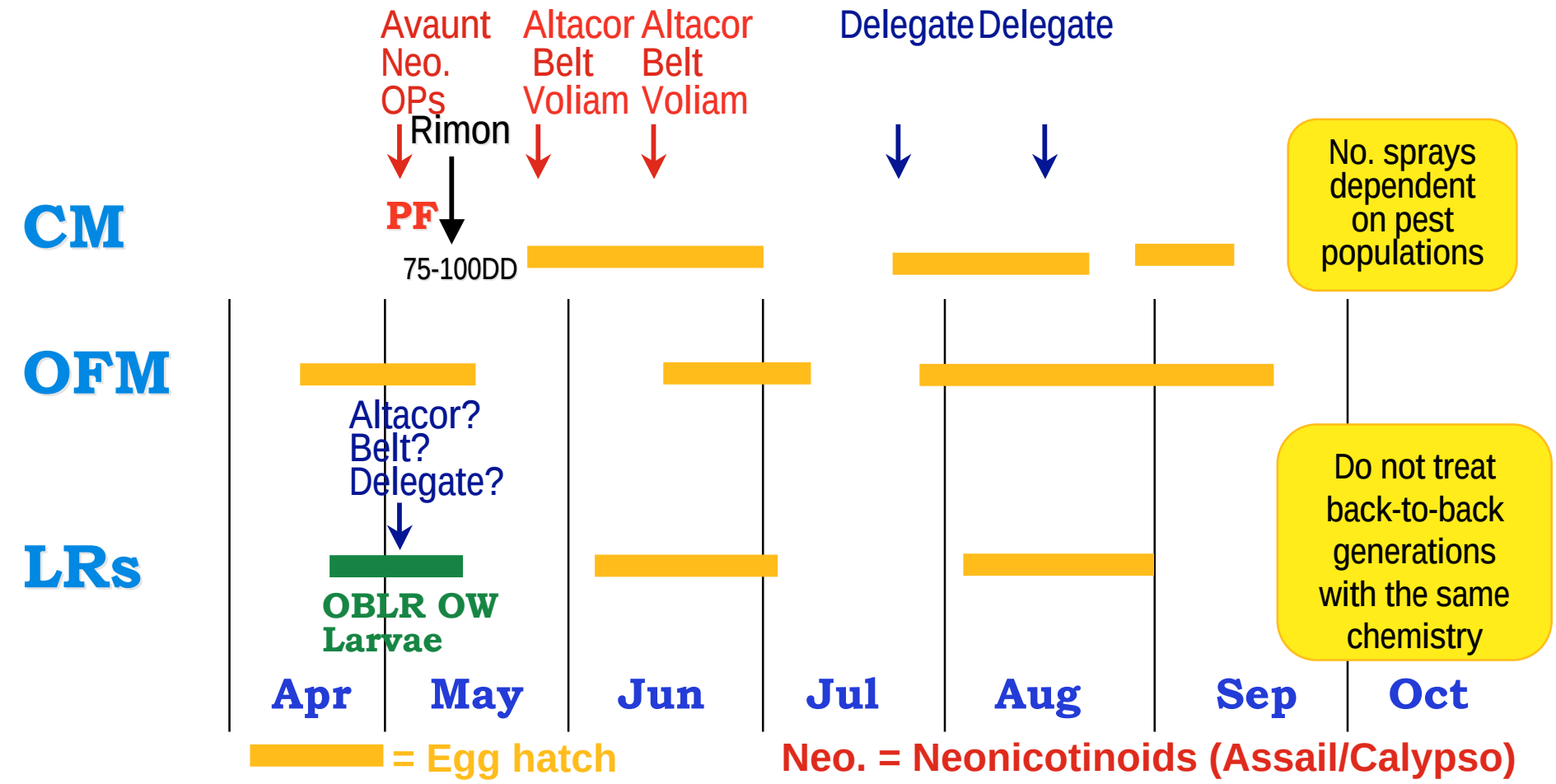
New Product Timing Options - #2 - 2009
Pennsylvania



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New Product Timing/MD Options - #3 - 2009
Pennsylvania

High CM Populations

Avaunt
Neo.
OPs
Rimon

Altacor
Belt
Delegate
Voliam

Altacor
Belt
Delegate
Voliam

Altacor
Belt
Delegate

PLUS

CM-MD Options

All sprays may not be necessary if MD used

CM

OFM

LRs

PF

Altacor?
Belt?
Delegate?

OBLR OW Larvae

Do not treat back-to-back generations with the same chemistry

Apr **May** **Jun** **Jul** **Aug** **Sep** **Oct**

= Egg hatch

Neo. = Neonicotinoids (Assail/Calypso)

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Final comments: Altacor, Belt, Delegate

- These new products are EXCELLENT against CM/OFM and leafrollers, but they are not the proverbial "silver bullet" and will not control all the pests in the orchard (i.e., plum curculio, stink bug, mites, borers).

- Lack of GOOD AND THOROUGH coverage or LONG intervals between applications will limit the efficacy of these compounds, especially under high pressure - WATCH ARM SPRAYS!

- If your current insecticide program works well, there may not be a need to change to new chemistries, although it may be very beneficial from the resistance management perspective to gradually incorporate Altacor/Belt and Delegate into the program.

- If using Altacor/Belt/Delegate, use only one group for 1st gen CM/OFM/LR control (Delegate), then switch to other group for 2nd gen control (Altacor/Belt - not both).

- Under high CM/OFM pressure, the combination of new products and mating disruption is the best approach.

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Lorsban

Proclaim

Calypso

Mating Disruption

SpinTor

Avaunt

Pyrethroids - 7+

Surround

Beleaf

Bts

Rimon

Assail

Actara

Esteem

Lannate

Provado

Clutch

The insecticide tool box is getting very different and far from empty!

Imidan

Virus

Intrepid

Delegate

Altacor

Belt

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Best wishes for a PEST "FREE" Crop in 2009

Thank you!

Any Questions!