Review of the 2014 Pest Management Season in ENY



2015 Hudson Valley Commercial Fruit Growers' School

Best Western Plus Kingston, NY February 11th, 2015

Peter Jentsch Senior Extension Associate – Entomology



Cornell University College of Agriculture and Life Sciences

Communication to NY Growers

Jentsch Lab Site: Developed 2014



Insect Alerts & Recommendations (E-mail Subscription)





ANGARA, DERRIK SWEHLA, ZACARY COTE. TIM LAMPASONA: KELLYN WILL CARSENTL

Albany and New York Gty.

from insect pests is an integral component of our work and the primary purpose of this website. We hope to convey to the articultural and consumer community that plant protection is a dynamic and an ever changing process, especially as resistance diminishes the effectiveness of pest management tools and newly invasive pests overwhelm the integrity of the regions agricultural commodities. Our efforts in applied entomology are formulated to benefit agricultural producers in sustaining the highest quality yield, maintaining cosmonic competitive advantage and promoting national food security, while ultimately, serving the world-wide community of consumers by reducing the negative impact of food production on our environment. At the Hudson Valley Laboratory we strive to provide access of time sensitive information to the agricultural community. This site is one of many on-demand sources of plant protection information available from Cornell University.

To search for specific topics and project, begin by selecting a commodity tab above.

THE JENTSCH LAB

Edit



Biology Updates for Management: Insect Complex Pest Thresholds



Timely Pest Management Updates

- Information to growers 'today'
 - Insect pest updates in tree fruit, veg, grape and small fruit
 - BMSB Biology
 - Trapping summary & Trends
 - Management Recommendation
 - Insecticide Efficacy Charts
 - Mapping



Cornell University



Management Threshold: BMSB Communication

Brown Marmorated Stink Bug: August 15th Update

by PJJS@CORNELL.EDU posted on AUGUST 16, 2014

Brown Marmorated Stink Bug (BMSB) numbers last week show continued increase of late instar nymph movement to pheromone baited Tedders traps. The late start to the season may have pushed forward the emergence of the

BMSB Update: August 20. Confirmed Late Season Feeding to Apple, Peach and Pepper

by PJJ5@CORNELL.EDU posted on AUGUST 20, 2014

Extensive damage from BMSB Observed On Peach in Highland, NY: August 25th

by PJJ5@CORNELL.EDU posted on AUGUST 25, 2014







Cornell University

BMSB Management Threshold: Communication



Partnered with EEDMaps to extend outreach

- Early Detection & Distribution Mapping of Invasive Insects
- Provide regional and nation invasive species tracking
- Provide customized data outputs for threshold development
- **By County:** Weekly update Trap data per county Presence in degrees of risk Threshold levels



Cornell University

Website: http://blogs.cornell.edu/jentsch/

THE JENTSCH LAB	ODITIES	RESULTS OF 2014 INSECTICIDE AND ACARICIDE STUDIES IN EASTERN NEW YORK
WELCOME ENTOMOLOGY PROGRAM BROWN MARMORATED STINK BUG SPOTTED WING DROSOPHILA OR	GANIC AG RESEARCH TREE FRUIT	P. J. Jentsch Senior Extension Associate Entomologist Cornell University's Hudson Valley Laboratory P.O. Box 727 Highland NY 12528 Tel: 845-691-6516 FAX: 845-691-2719 Mobile: 845-417-7465 e-mail: pij5@cornell.edu
INSECTICIDE AND ACARICIDE STUDIES	ARCHIVES • February 2015 • January 2015 • December 2014	Support Technician Tim Lampasona Seasonal Support Technician Hank Grimsland Summer Research Assistant Michelle Robinson Summer Research Assistant Derek Swehla Summer Research Assistant (Volunteer) Zachary Coto Summer Research Assistant (Volunteer) Kellyn Will Summer Research Assistant (Volunteer) Pawan Angara
Hudson Valley Laboratory, Highland, NY Insecticide screening is a critical component of pest management research. Results from these screens provide information to producers on how effective specific management programs work on key insect pests. It also provides options for timing and rates of newly developed modes of action on these insects, while demonstrating the negative impact these programs may have on important biological control agents such as predatory arthropods	 November 2014 September 2014 August 2014 July 2014 June 2014 May 2014 April 2014 META 	Farm Manager Albert Woelfersheim Administrative Assistant
and a phytophagous mite response to both old and new formulations in these comparative studies. Past Reports 2014 2013 2012 2011 2010	 Log in 2014 BLOG PAGES Sata Villani, candidate for the Plant Pathologist position at the HVRL, presenting on February 12th at 3:30 PM. Focus on Fireblight Management in 2015: Maryblyt 7.1 is now available for Windows. 	NOT FOR PUBLICATION OR DISTRIBUTION OUTSIDE RESEARCH OR DEVELOPMENT GROUPS



Cornell University

Website: http://blogs.cornell.edu/jentsch/

Jentsch Lab Site: Developed 2014



SUBSCRIBE BY EMAIL

Completely spam free, opt out any time.

ex: someone@mydomain.com

Subscribe

http://blogs.cornell.edu/jentsch/



Cornell University

BAYER

Sivanto 200SL

- EPA Reg. No. 246-1141
- Active Ingredient: Flupyradifurone 17.1% A.I.
- Butenolide class of insecticides (IRAC Group 4D)
- Targets insect **nicotinic acetylcholine receptors** (nAChR)
- Derrived from the Asian medicinal plant Stemona japonica
- Not yet available in NY

Cornell University College of Agriculture and Life Sciences

Hudson Valley Research Laboratory



直立百部 Stemona reselifolia(Miq.)Mic.(橋韓昌答ba.com.cn

1. 数度防装 医死性



Bayer CropScience

Sivanto 200SL



• Pome Fruit

Pests Controlled	Product Rate (fl oz/A)
Aphids (except Woolly apple aphid) Leafhoppers	7.0 – 10.5
Oystershell scale Pear psylla San Jose Scale	10.5 - 14.0

Foliar Application Restrictions:

Pre-Harvest Interval (PHI): **14 day** Minimum interval between applications: **10 days** Minimum application volumes: **25 gallons/Acre** (Ground); **10 gallons/Acre** (Aerial) Maximum SIVANTO 200 SL allowed per year: **28.0 fluid ounces/Acre** (0.365 lb Al/Acre). Foliar Application Notes:

Combine SIVANTO 200 SL with a horticultural oil for early-season applications targeting San Jose scale and pear psylla.



Evaluations Of Insecticide Schedules For Controlling San Jose Scale On Apple. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. 2014

Trmt.	Rate / Tim	ing	R. Delicious (6/24)	McIntosh (8/27)
Actara Movente	5.5 oz./A	PF-1C	9.1 a	18.8 abc
Ινιονεπιο	9.0 02./A	IC		
Actara Sivanto	5.5 oz./A 14.0 oz./A	PF-1C Bloom	4.8 a	11.4 ab
Actara Lorsban 4E	5.5 oz./A 64.0 oz./A	PF-1C DD	2.7 a	0.5 a
Actara Centaur	5.5 oz./A 46.0 oz./A	PF-1C DD	2.0 a	1.3 a
Actara	5.5 oz./A	PF-1C	30.1 a	39.0 bc
UTC			14.3 a	10.0 ab







- EPA Reg No. 352-859
- Active Ingredient: Cyazypyr (Cyantraniliprole) 10.2%
- IRAC Group 28
- Diamide group; same group as Altacor; Rynaxypyr[®]



Exirel®				IND
	DUPONT™ EXI	REL™ RATE		
Target Pest	Lb. ai per acre	fluid ounces product per acre	PHI (pre-harvest interval) (days)	REI (re-entry interval) (hours)
Codling moth [†] European apple sawfly Green fruitworm Obliquebanded leafroller ^{††} Redbanded leafroller Spotted teniform leafminer Tufted apple budmoth Variegated leafroller White apple leafhopper	East of the Rockies: 0.055 - 0.11 West of the Rockies: 0.065 - 0.11	East of the Rockies: 8.5 - 17 West of the Rockies: 10 - 17	3	12
Oriental fruit moth	0.065 - 0.11	10 - 17		
Apple maggot* § Pear psylla* Plum curculio* Rosy apple aphid*††† Thrips* §	0.088 - 0.133	13.5 - 20.5		



Cornell University College of Agriculture and Life Sciences

Exirel[®]



- Minimum application interval: 7d
- Max. 0.4 lb ai/A per season
- Max. of 3 apps of Group 28 insecticides / generation
- <u>Codling moth</u> 1st application at first hatch @ 10-14d
- <u>Summer OBLR</u> 1st application at first hatch
- <u>Overwintering OBLR</u> at pink to petal fall
- <u>RAA</u> beginning at GT to pink



Evaluations Of Insecticide Schedules For Controlling Codling Moth On Apple. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. 2014 (24 June)

Trmt.	Rate / Timing	Gi	nger Gold	Red Delicious
Actara	5.5 oz./A	PF-1C	0.0 a	0.0 a
Delegate WC	6.0 oz./A	1 st gCM		
Actara	5.5 oz./A	PF-1C	0.0 a	0.0 a
Exirel	13.5.0 oz./A	1 st gCM		
Actara	5.5 oz./A	PF-1C	0.0 a	0.0 a
Belt	5.0 fl.oz./A	1 st gCM		
Actara	5.5 oz./A	PF-1C	2.6 c	3.0 b
Lorsban 4E	64.0 oz./A	DD		
Actara	5.5 oz./A	PF-1C	5.2 d	2.5 b
Centaur	46.0 oz./A	DD		
UTC			6.0 a	4.0 ab



Exirel[®]



Spotted Wing Drosophila Management in Blueberry Dr. John Wise, Michigan State 2013



Product	Application interval (in days)	SWD larvae/lb fruit
Exirel [™] 13.5 fl. oz./A+ NIS	7	3.8 d
Exirel [™] 16.9 fl. oz./A+ NIS	7	6.2 d
Exirel [™] 16.9 fl. oz./A+ NIS	14	11.9 bcd
Delegate 25 WG 6 oz./A+ NIS	14	24.9 ab
Untreated	N/A	31.9 a









- EPA Reg No. 62719-623
- Active Ingredient: sulfoxaflor 21.8%
- IRAC Group 4C Insecticide
- Targets insect nicotinic acetylcholine receptors (nAChR)
- Not yet available in NY





 Control or suppression of aphids (wooly apple aphid), fleahoppers, plant bugs, stink bugs, whiteflies and certain psyllids, scales, and thrips.









Dow AgroSciences

Pome Fruits (Crop Group 11)¹

¹Pome fruits (crop group 11) including apples, crabapple, loquat, mayhaw, pears, quince

Pests and Application Rates:

Pests	Closer SC (fl oz/acre)
Aphids (except woolly apple aphid) white apple leafhopper	1.5 – 2.75 (0.023 – 0.043 lb ai/acre)
plant bugs	2.75 – 5.75
woolly apple aphid	(0.043 – 0.09 lb ai/acre)
pear psylla (suppression only)	5.75
San Jose scale (suppression only)	(0.09 lb ai/acre)







Dow AgroSciences

RESTRICTIONS

Pome Fruit

- Preharvest Interval: 7 days
- Minimum Treatment Interval: 7 days
- A maximum of four applications allowed per crop season
- No more than two consecutive applications per crop
- Up to 7 fl oz (0.266 lb a.i. of sulfoxaflor) of Closer allowed per acre per year
- Do not apply this product at any time between 3 days prior to bloom and until after petal fall



Ressig & Combs, NYSAES, Geneva 2010

CONTROL OF WOLLY APPLE APHID





Efficacy of New Chemistries for Fruit Production: BMSB







Efficacy of New Chemistries for Fruit Production: BMSB







Efficacy of New Chemistries for Fruit Production: BMSB

BMSB Fruit Severity Damage Rating on Apple. HVRL, Highland, NY - 2014





- 1st generation codling moth (CM) adult flight occurred on 18 May Larval emergence predicted for 4 June using 220 DD₅₀ from the biofix.
- The 2nd generation CM management adult emergence using 10 July Biofix predicted 250DD to occur on 20 July with treatments made for this insect on 18 July.

Codling Moth Pheremont Trap Captures HVL, Highland, NY 2014







Evaluation 24 June, 2014 representing 1st generation CM injury

Tre	eatment /_			Incidence (%) Of Codling Moth Damaged Cluster Fruit ^a		
Fo	rmulation	Rate	Timing	Ginger Gold	Red Delicious	
1	Actara Movento + LI-700 Belt Delegate WG Leverage 360 Assail	5.5 oz./A 9.0 fl.oz./A 0.5% 5.0 fl.oz./A 6.0 oz./A 2.8 fl.oz./A 8.0 oz./A	PF-1C 1C 1C 1 st Gen CM + 14d 2 nd Gen CM + 14d BMSB AM	0.0 a	0.0 a	
10.	Calypso Calypso Altacor Danitol Thionex 50WP Bifenthrin EC	4.0 fl.oz./A 6.0 fl.oz./A 4.5 oz./A 21.3 fl.oz./A 4.0 lb./A 12.8 fl.oz./A	P PF-2C 1 st Gen CM @ 14d BMSB, AM BMSB BMSB, AM	0.5 ab	0.0 a	
11.	UNTREATED			6.0 d	4.0 b	

^aEvaluation was made on 24 June assessing 100 fruit in each of 4-tree plot per replicates of two varieties. Percent data were transformed using $\log_{10}(x+1)$ using Fishers Protected LSD (P ≤ 0.05). Treatment means followed by the same letter are not significantly different. Arithmetic means reported.





- Overwintering adults as blackcaps
- 2-3 generations of crawler / year

Management

- Pre-bloom
 - Esteem
 - Centaur
 - Oil
- Pre-emergence of nymphs
 - Movento
- Emergence
 - Imidan, Pyrethroids, Neo-nic's







- San Jose scale (SJS) crawler emergence was predicted to occur on 2 June using the 1 March 500 DD₅₀ model.
- However, first crawler was observed to occur 16th of June, more than two weeks after the predicted calendar date.
- Overwintering adults as blackcaps
- 2-3 generations of crawler / year

Management

- Pre-bloom
 - Esteem
 - Centaur
 - Oil
- Pre-emergence of nymphs
 - Movento
- Emergence
 - Imidan, Pyrethroids, Neo-nic's





Cornell University



Evaluation 24 June, 2013 representing 1st generation SJS injury

			%	Damage Rating	of SJS Infested Clu	ster Fruit (0-2)
Treatment / Formulation Rate			Timing	0	1	2
4	Centaur WDG + Oil Imidan 70WP Calypso Belt	46 oz/A 1% 5.5 lbs/A 6.0 oz/A 5.0 oz/A	DD DD PF-1C, 5-6C 2C 3-4C	100.0	0.0	0.0
5	Lorsban 4E + Oil Imidan 70 WP Actara	64 oz/A 1% 5.5 lbs/A 5.0 oz./A	DD DD PF-6C 2C	91.7	4.2	4.2
6	Esteem + Oil Imidan 70 WP	10.0 oz/A 1% 5.5 lbs/A	DD DD PF-6C	95.5	2.3	2.3
10	Untreated			26.8	39.8	33.5

^a Evaluation made on July 2 on of 100 McIntosh fruit per treatment using a SJS rating in which 0 = clean,

1 = ≤ 3 San Jose scale blackcaps; 2 = > 3 SJS blackcap San Jose scale.

Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.





Summary

- Early management for Wooly Apple Aphid (WAA) is essential.
- Low levels of San Jose Scale





Thank You



Technical staff and assistants Support: NYS Ag & Mkts, ARDP, NEIPM, EDDMaps, HATCH, Bayer, Dow, Nichino, Syngenta, Gowan



Cornell University