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Update on Pest Management and Crop Development

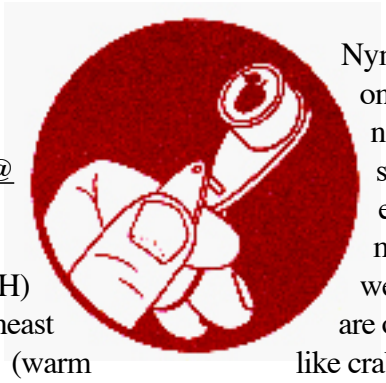
F R U I T J O U R N A L

June 12, 2017 VOLUME 26, No. 12 Geneva, NY

INSECTS

TATER TOTS

NEWS FROM THE FRONT (Art Agnello, Entomology, Geneva; ama4@cornell.edu)



❖❖ Potato leafhopper (PLH) does not overwinter in the northeast but instead migrates on thermals (warm air masses) from the south. It is generally a more serious problem in the Hudson Valley than in western N.Y. or the Champlain Valley; however, weather fronts such as those resulting from the recent storms and warmups occurring in the middle states as well as in our region provide ample opportunity for most of the region to share the wealth, so it doesn't hurt to tour observantly through a few orchards now. Because PLH comes in constantly during the season, there are no distinct broods or generations and the pest may be present continuously in orchards from June through harvest.

PLH feeds on tender young terminal leaves. Initially, injured leaves turn yellow around the edges, then become chlorotic and deformed (cupping upward) and later turn brown or scorched. Damage is caused by a toxin injected by PLH while feeding. PLH also occasionally causes symptoms similar to the effects of growth regulators, such as excessive branching preceding or beyond the point of extensive feeding. PLH damage is often mistaken for injury caused by herbicides, nutrient deficiency, or over-fertilization. PLH injury may not be serious on mature trees but can severely stunt the growth of young trees.

Nymphs and adults should be assessed on 50–100 randomly selected terminal leaves in an orchard. Older trees should be inspected approximately every three weeks during the summer. Young trees should be sampled weekly through July. PLH nymphs are often described as moving sideways like crabs, whereas WALH generally move forward and back. No formal studies have been conducted in N.Y. to determine the economic injury level for PLH on apples, so we suggest a tentative threshold of an average of one PLH (nymph or adult) per leaf. Little is known about the natural enemies of PLH, but it is assumed that they cannot effectively prevent damage by this pest in commercial New York orchards.

Damage by this migratory pest is usually worse when it shows up early. PLH can cause significant damage to newly planted trees that are not yet established. When PLH, white apple leafhopper (WALH), rose leafhopper (RLH) and aphids are present, control measures are often warranted.

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IN THIS ISSUE…

Field trials conducted some years ago in the Hudson Valley evaluated reduced rates of Provado against all three species of leafhoppers. Provado was applied in combinations at a full rate (2 oz/100 gal) and a quarter rate (0.5 oz/100 gal), at varying intervals (3rd–5th cover). Nymphs of PLH, WALH, and RLH were sampled and leaf damage by PLH was monitored.

Because of Provado's translaminar activity, all rates and schedules produced excellent control of WALH/RLH nymphs (however, reduced rates will not control leafminer). Against PLH nymphs, the number of applications was shown to be more important than rate; i.e., better protection of new foliage. Considering the percentage of leaves with PLH damage, the number of applications again appeared to be more important than application rate.

Admire Pro, the current imidacloprid product from Bayer, is also an excellent aphicide, and the same principle would hold as for PLH — maintaining coverage of new growth is more important than the rate. Moreover, reduced rates are likely to increase the survival of cecidomyiid and syrphid predators that are common and effective biological control agents. Other management options for these leaf feeding hoppers can be found in the "Additional Summer Sprays" section starting on p. 146 in the Recommends. Check Table 7.1.2 (p. 66) for impacts of any of these products on beneficials. ❖❖

BULLET POINTS

ANOTHER FOUR-LETTER WORD
(Art Agnello, Entomology, Geneva; ama4@cornell.edu)

❖❖ We've already started catching BMSB (Brown Marmorated Stink Bug) adults as they move from their overwintering sites into planted fields and orchards, and although we haven't actually seen any in the trees or causing damage, numbers are higher than we've normally seen by this point in this season, especially in western NY. Egg laying should be taking place by now, with feeding damage by the newly hatched nymphs following shortly. If and when actual fruit injury is found or anticipated, we would advise at least spot (i.e., border row) treatments of an effective insecticide; options include Endigo, Voliam

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Xpress/Besiege, Lannate, or a pyrethroid such as Asana, Baythroid, Danitol, Warrior, etc. We are in the process of applying for another Section 18 registration for bifenthrin products (Brigade, Bifenture), which will include WNY this year for the first time; we'll keep you informed of the progress of that application.

In the meantime, you can refer to the publication on principles of managing BMSB in orchard crops, which is available on the StopBMSB.org website. This 4-page document, "Integrated Pest Management for Brown Marmorated Stink Bug in Orchard Crops", authored by the BMSB SCRI Orchard Crop Commodity Team, provides a synopsis of what researchers have learned so far and management recommendations using an integrated approach. Topics, supplemented by over a dozen photos, include:

- Basic Biology and Life Cycle of BMSB
- Orchard Crops at Risk / Crops Not at Risk
- Orchard Crop Injury Diagnostics
- Period of Risk/Susceptibility
- Provisional Monitoring and Scouting Recommendations
- Provisional Management Strategies
- Biological Control
- Effective Insecticides for Controlling BMSB in Orchard Crops
- Problems That May Arise from Multiple Post-Bloom Applications of Broad-Spectrum Insecticides in Orchard Crops

This publication is available as a PDF at: http://www.stopbmsb.org/stopBMSB/assets/File/BMSB-in-Orchard-Crops.pdf

MODEL BUILDING
Insect model predictions for Highland[H]/ Geneva[G]
[Source: NEWA Apple Insect Models, http://newa.cornell.edu/index.php?page=apple-insects]

Plum Curculio emergence complete at 308 DD50 from McIntosh petal fall (currently @ 390[H] / 301[G]).

Codling Moth spray window for ovicides at 150 DD50 and for larvicides at 250-360 DD50 after biofix (currently at @ 372[H] / 276[G]).

Obliquebanded Leafroller larval emergence @ 350 DD43 from biofix (currently @ 107[H] / 0[G]).

San Jose Scale crawler emergence @ 400 DD50 after 1st flight (currently @ 363[H]) or ~500 DD from March 1 (currently @ 626[H] / 517[G]).

ORCHARD RADAR DIGEST
[H = Highland; G = Geneva]:

Roundheaded Appletree Borer
RAB peak egglaying period roughly: June 20-July 4 (H)/June 25-July 9. First RAB eggs hatch roughly: June 15 (H)/June 24 (G).

Dogwood Borer
First DWB egg hatch roughly: June 17 (H)/June 23 (G).

Codling Moth
Codling moth development as of June 12:
1st generation adult emergence at 77% (H)/63% (G) and 1st generation egg hatch at 25% (H)/9% (G).

continued...

1st generation 20% CM egg hatch (= target date where one spray needed to control 1st generation CM): June 11 (H)/June 16 (G)

Obliquebanded Leafroller
Where OBLR will be managed with insecticide against young larvae: Early egg hatch and optimum date for initial application of effective insecticide:
June 18 (H)/June 23 (G).

Oriental Fruit Moth
2nd generation OFM flight begins around: June 21 (H)/June 28 (G).

Redbanded Leafroller
2nd RBLR flight begins around: June 22 (H)/June 28 (G).

San Jose Scale
1st generation SJS crawlers appear: June 12 (H)/ June 18 (G).

Spotted Tentiform Leafminer
2nd STLM flight begins around: June 11 (H)/June 16 (G).

GENERAL INFO

EVENT ANNOUNCEMENTS

FIELD DAYS
What's New in Insect Pest Management for Organic Apples – hosted by NOFA-NY

Presenters: Cornell researchers Arthur Agnello, Elson Shields, Peter Jentsch, Dept. of Entomology. Participants will learn about established and newly-developed organic orchard management tools and techniques for plum curculio (PC), codling moth (CM) and oriental fruit moth (OFM). Trials utilizing entomopathogenic nematodes for biological control of PC show promise. Participants will learn how the nematodes can be reared on the farm, applied, and their effectiveness evaluated. Mating disruption has been available for CM and OFM control for a number of years; presenters will review some of the most promising methods of implementing this tactic, such as hand-applied dispensers and automated misting devices. Finally, this farm is using pest-specific insect viruses against these moth pests, so a review of the principles and preliminary results of pest-specific viruses in a pest control program will be included. This event is produced by NOFA-NY with support from the following: The New York Farm Viability Institute, NYS Specialty Crops Block Grant Program, and Toward Sustainability Foundation.

• June 13, 1:00 pm-4:00 pm, Bittner-Singer Orchards at Marjim Manor, 7171 East Lake Road (Route 18), Appleton, NY 14008
• June 15, 1:00-4:00 pm, Clarke's Prospect Farm, 4 Deyo Dr., Gardiner, NY 12548

Pre-registration online is strongly encouraged, but walk-ins are welcome; cost is $15/individual, $25/ two or more people from same farm. To register, visit http://bit.ly/2qkSwsJ or call the NOFA-NY office at (585) 271-1979, x512. ❖❖

PEST FOCUS

Geneva:
Dogwood Borer 1st trap catch 6/8.
Obliquebanded Leafroller 1st trap catch today, 6/12.

Highland:
Spotted Tentiform Leafminer 2nd flight started today, 6/12.

INSECT TRAP CATCHES
(Number/Trap)

Geneva, NY

	6/5	6/8	6/12
Redbanded leafroller	0.0	0.0	0.0
Spotted tentiform leafminer	0.5	0.0	0.5
Oriental fruit moth	3.5	3.0	3.0
Codling moth	6.5	4.5	14.0
San Jose scale	0.0	0.0	0.0
Lesser peachtree borer	0.0	3.0	9.0
Peachtree borer	0.0	1.0	12.0
Dogwood borer	0.0	1.5*	1.0
Obliquebanded leafroller	0.0	0.0	25.0*

Highland, NY

	5/30	6/5	6/12
Redbanded leafroller	1.5	0.0	0.0
Spotted tentiform leafminer	0.0	1.0	40.5*
Oriental fruit moth	3.5	3.0	3.5
Lesser appleworm	2.0	11.5	11.2
Obliquebanded leafroller	0.5*	4.5	13.0
Codling moth	48.5	13.0	27.0
San Jose scale	0.0	1.0	0.0
Sparganothis fruitworm	0.0	1.0*	2.0
Variegated leafroller	0.0	4.0*	6.0
Tufted Apple Bud Moth	0.0	3.5*	12.0

* first catch

UPCOMING PEST EVENTS

		43°F	50°F
Current DD*	(Geneva 1/1–6/12/17):	937.4	519.1
accumulations	(Geneva 1/1–6/12/16):	944.3	549.4
	(Geneva "Normal"):	977.2	587.6
	(Geneva 1/1-6/19, predicted):	1138.4	671.1
	(Highland 1/1–6/12/17):	1197.1	687.3

Coming Events: Ranges (Normal ±StDev):		
Dogwood borer 1st catch	754-1243	438-755
Lesser appleworm 1st flight subsides	1002-1538	613-989
Obliquebanded leafroller 1st flight peak	840-1221	490-766
Obliquebanded leafroller summer larvae hatch	1038-1460	625-957
Pandemis leafroller flight peak	889-1188	512-736
Peachtree borer 1st catch	801-1326	463-819
Pear psylla 2nd brood hatch	967-1185	584-750
Redbanded leafroller 1st flight subsiding	601-892	338-556
San Jose scale 1st flight subsiding	864-1238	515-769
San Jose scale 1st gen crawlers present	1033-1215	619-757
Spotted tentiform leafminer 2nd flight starts	988-1160	588-725

*all DDs Baskerville-Emin, B.E.

NOTE: Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide.

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