

# scaffolds

Update on Pest Management  
and Crop Development

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

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Geneva, NY

## MOTH- EATEN

### AS THE WORM TURNS

(Art Agnello,  
Entomology,

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❖❖ We're entering the prime window for control of our most serious fruit-feeding lepidopteran pests – oriental fruit moth, codling moth, and obliquebanded leafroller. Oriental fruit moth adults are finishing up the first flight of the season, and the first flush of OFM larvae, which aren't a major threat to newly set apples and would have been best handled during the petal fall period, are mostly on their way to pupating. In contrast, codling moth adults have been flying for 1-2 weeks around the state, and the eggs they have laid will soon be in the early stages of hatching, which makes this week a very opportune time to prepare for the first control sprays against the early-instar larvae. Fortunately, we have a good selection of effective materials to use against them.

The best products for controlling both CM and OFM are those in IRAC Group 28 (containing a diamide; i.e., Altacor, Belt, Exirel, Voliam Flexi or Voliam Xpress/Besiege) or IRAC Group 5 (mainly spinetoram, Delegate; spinosad, formulated as Entrust, is an organically approved option). Two applications from either of these groups on a 10–14-day interval would be recommended starting at 220 DD50 from biofix; we're already approaching this point in Highland. Products with insect growth regulator activity, such as Rimon, Intrepid or Esteem, would be suitable options this week.

Other products with activity against internal leps include the neonic Assail and, in orchards where resistance has not developed to the newer pyrethroids, also Baythroid, Danitol, Endigo, and Leverage. Most older broad-spectrum materials like Imidan, Lannate, and the older pyrethroids, which were formerly more effective, are generally not good choices because of insecticide resistance issues.

Now would also be an appropriate time for an application of a granulosis virus product such as Cyd-X, Madex or Carpovirusine, in addition to the larvicides discussed above. These are biological insecticides, which must be ingested to initiate the infection, after which the virus replicates inside the larva until it is killed; this releases more virus particles into the orchard. This is a very useful approach for long-term population reduction, particularly when used in at least 2 applications per generation. Madex contains an isolate that is also effective against OFM.

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OBLR larval emergence is still on the order of 15 days away in Geneva, but should be starting in 10-14 days in the Hudson Valley. Anytime from first hatch until about 25% hatch (360-450 DD43 after biofix) would be an appropriate time for a larvicidal material, and the IRAC Group 5 and 28 products recommended against CM and OFM will also be very effective against OBLR. Others with slightly less efficacy, but useful in lower pressure situations, include B.t. products (Agree, Biobit, Deliver, Dipel, Javelin, etc.), Proclaim, and possibly Intrepid. In orchards where OBLR pressure is unpredictable, we recommend waiting until approximately 600 DD43 and sampling for infested terminals using a 3% threshold (see p. 72 in the Recommends).

More details on the nuts and bolts theory and practice of CM and OFM management can be found in the fact sheet by Breth, Agnello and Tee at: [http://www.fruit.cornell.edu/lof/ipm/pdfs/codling\\_moth.pdf](http://www.fruit.cornell.edu/lof/ipm/pdfs/codling_moth.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 @ 228[H] / 138[G]).

**Oriental fruit moth** spray window (55% hatch) in apples at 350-375 DD45 after biofix (currently @ 634[H] / 470[G] / 344[Sodus] / 372[Albion]).

**Codling moth** spray window for ovicides at 150 DD50 and for larvicides at 250-360 DD50 after biofix (currently at @ 210[H] / 113[G]).

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

**San Jose scale** crawler emergence @ 310 DD50 after 1st flight (currently @ 80[H]) or ~500 DD from March 1 (currently @ 498[H] / 404[G]).

#### ORCHARD RADAR DIGEST

[H = Highland; G = Geneva]:

#### Roundheaded Appletree Borer

RAB egg laying begins: May 31 (H)/June 7 (G). Peak egg laying period roughly: June 21-July 5 (H)/June 27-July 11. First RAB eggs hatch roughly: June 15 (H)/June 22 (G).

#### Dogwood Borer

First DWB egg hatch roughly: June 16 (H)/June 24 (G).

#### Codling Moth

Codling moth development as of May 30:

1st generation adult emergence at 40% (H)/19% (G) and 1st generation egg hatch at 0%.

1st generation 3% egg hatch expected: June 2 (H)/June 10 (G).

#### Obliquebanded Leafroller

1st generation OBLR flight, first trap catch expected: June 1 (H)/June 9 (G).

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#### scaffolds

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DISEASES

**San Jose Scale**

1st generation SJS crawlers appear: June 12 (H)/ June 19 (G).

**Spotted Tentiform Leafminer**

2nd STLM flight begins around: June 10 (H)/June 17 (G).

**BIG BOX BLIGHT**

**HUMAN-AIDED DISSEMINATION OF FIRE BLIGHT**

(Dave Rosenberger, Plant Pathology, Highland; [dar22@cornell.edu](mailto:dar22@cornell.edu))

❖❖ While most plant pathogens have evolved natural mechanisms for dissemination, human activities sometimes contribute to unnatural long-distance spread of certain pathogens. In 2009, a late blight pandemic on tomatoes in eastern United States was traced, at least in part, to dissemination of infected transplants through large chains of retail garden stores that are often known as big box stores (Fry et al. 2012).

This year, several observers have found potted ornamental pear and crab apple trees with fire blight being held for sale at big-box garden stores in both North Carolina and New York. Affected trees show typical blossom blight and terminal shoot dieback symptoms associated with fire blight (see accompanying Figures). It is not clear whether all of the infected trees are originating from the same supplier or even if all of the infections originated in the nursery that produced the trees. Some trees may have become infected in local retail stores if a few trees that were shipped to each location had carry-over blight cankers that produced inoculum for dissemination to other trees that may have blossomed after they were shipped. Nursery stock held for sale at these garden centers are located outdoors, where rain and insects could have contributed to disease spread within the retail centers.



It is extremely unlikely that the small amounts of fire blight noted on trees in retail outlets will have any significant impact on commercial apple and pear orchards because, unlike late blight of tomatoes, which continues to spread throughout summer, the period of peak susceptibility to fire blight is limited to the relatively short period when trees are in bloom in spring. Nevertheless, the observation that fire blight is being transported via human transport systems to unwitting homeowners across broad geographic areas should serve as a reminder that fire blight inoculum can sometimes turn up rather unexpectedly in regions that

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may not have experienced fire blight in the recent past. Pinpointing sources of inoculum can be very difficult in regions where orchards are intermingled with residential areas containing many small trees that can harbor fire blight. ❖❖

#### Literature Cited

Fry, W. E., McGrath, M. T., Seaman, A., Zitter, T. A., McLeod, A., Danies, G., Small, I., Myers, K., Everts, K., Gevens, A., Gugino, B. K., Johnson, S., Judelson, H., Ristaino, J., Roberts, P., Secor, G., Seebold, K., Snover-Clift, K., Wyenandt, A., Grunwald, N. J., and Smart, C. D. 2012. The 2009 late blight pandemic in eastern USA. APS Features. doi:10.1094/APS-Feature-2012-08.

### PEST FOCUS

#### Geneva:

Peachtree Borer 1st trap catch 5/26.

#### Highland:

Obliquebanded Leafroller 1st trap catch today, 5/30.

## 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.

INSECT TRAP CATCHES (Number/Trap)								
Geneva, NY				Highland, NY				
	<u>5/22</u>	<u>5/26</u>	<u>5/30</u>		<u>5/15</u>	<u>5/22</u>	<u>5/30</u>	
Redbanded leafroller	4.0	4.0	2.5	Redbanded leafroller	30.5	22.0	1.5	
Spotted tentiform leafminer	5.5	4.5	1.0	Spotted tentiform leafminer	10.0	2.5	0.0	
Oriental fruit moth	8.0	14.5	5.5	Oriental fruit moth	9.5	9.0	3.5	
Codling moth	10.5	26.0	15.5	Lesser appleworm	29.0	5.5	2.0	
San Jose scale	0.0	0.0	0.0	Obliquebanded leafroller	0.0	0.0	0.5*	
Lesser peachtree borer	0.5	4.5	7.0	Codling moth	4.0*	49.5	48.5	
Peachtree borer	–	0.5*	0.5	San Jose scale	0.0	30.5*	0.0	
			* first catch					

UPCOMING PEST EVENTS			
		<u>43°F</u>	<u>50°F</u>
Current DD*	(Geneva 1/1–5/30/17):	692.4	360.9
accumulations	(Geneva 1/1–5/30/16):	675.3	369.2
	(Geneva "Normal"):	699.2	397.2
	(Geneva 1/1-6/5, predicted):	803.9	430.6
	(Highland 1/1–5/30/17):	943.6	524.5
<u>Coming Events: Ranges (Normal ±StDev):</u>			
American plum borer 1st flight peak		601-967	329-585
Black cherry fruit fly 1st catch		702-934	380-576
Codling moth 1st flight peak		558-971	306-574
Lesser appleworm 1st flight peak		364-775	183-444
Obliquebanded leafroller pupae present		601-821	328-482
Peachtree borer 1st catch		801-1326	463-819
Redbanded leafroller 1st flight subsiding		601-892	338-556
San Jose scale 1st flight peak		557-737	297-414
Spotted tentiform LM 1st flight subsiding		676-947	376-575
White apple LH 1st brood adults present		679-1041	380-694
*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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