

SCAFFOLDS Fruit Journal, Geneva, NY

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Update on Pest Management and Crop Development

June 11, 2018

COMING EVENTS

	43°F	50°F
Current DD* accumulations		
(Geneva 1/1-6/11):	928.5	572.4
(Geneva 1/1-6/11/2017):	904.4	493.1
(Geneva "Normal"):	955.0	569.4
(Geneva 1/1-6/18, predicted):	1098.0	706.9
(Highland 1/1-6/11):	1137.7	710.0
Upcoming Pest Events – Ranges (Normal +/- Std Dev):		
Black stem borer		
1st flight subsides	807-1248	444-781
Cherry fruit fly 1st catch	755-1289	424-806
Lesser appleworm		
1st flight subsides	1002-1538	613-989
Lesser peachtree borer		
flight peak	853-1767	513-1165
Obliquebanded leafroller		
1st flight peak	843-1218	491-763
Obliquebanded leafroller		

summer larvae hatch	1038-1460	652-957
Oriental fruit moth		
1st flight subsides	829-1103	484-681
Pandemis leafroller flight peak...	889-1188	512-736
Pear psylla 2nd brood hatch.....	967-1185	584-750
San Jose scale		
1st gen. crawlers present	1033-1215	619-757
Spotted tentiform leafminer		
2nd flight start	983-1158	582-724
*[all DDs Baskerville-Emin, B.E.]		

PEST FOCUS

Geneva: Dogwood Borer 1st catch today, 6/11.
Peachtree Borer 1st catch today, 6/11.

Highland: European Apple Sawfly fruit damage noted today, 6/11.

MODEL BUILDING

Insect model predictions for Highland[H]/Geneva[G]

[Source: NEWA Apple Insect Models,

<http://newa.cornell.edu/index.php?page=apple-insects>]

Codling moth spray window for ovicides at 150 DD50 and for larvicides at 250-360 DD50 after biofix (currently at @ 449[H] / 338[G] / 166[Wmson] /

180[Sodus] / 263[Albion] / 142[Appleton] /
233[Medina]).

Obliquebanded Leafroller larval emergence @ 350
DD43 from biofix (currently @ 125[G] / 141[H]).

San Jose Scale crawler emergence @ 310 DD50 after
1st flight (currently @ 295[H] / 194[G]).

TRAP CATCHES (Number/trap)

Geneva

	6/1	6/4	6/7	6/11
Redbanded Leafroller	14.0	1.5	0.0	0.5
Spotted Tentiform LM	2.5	0.0	0.0	0.0
Oriental Fruit Moth	21.0	7.0	0.0	0.5
Codling Moth	48.0	22.0	5.5	27.0
Lesser Peachtree Borer	7.5	2.0	2.0	9.0
San Jose Scale	15.8	0.5	0.0	0.0
Obliquebanded Leafroller -	-	1.0*	0.5	1.5
Dogwood Borer	-	-	-	1.0*
Peachtree Borer	-	-	0.0	1.5*

Highland (Peter Jentsch)

	5/21	5/29	6/4	6/11
Redbanded Leafroller	40.5	20.0	3.0	0.0
Spotted Tentiform LM	10.5	7.5	1.5	4.0

Lesser Appleworm	0.0	7.0*	3.3	3.0
Oriental Fruit Moth	129.0	73.5	13.5	23.5
Codling Moth	7.7	65.0	58.5	26.5
San Jose Scale	31.0	5,693!	17.0	0.0
Obliquebanded Leafroller-	-	-	8.0*	21.5
Dogwood Borer	-	-	1.5*	1.5

* 1st catch

ORCHARD RADAR DIGEST

[H = Highland; G = Geneva]:

Roundheaded Appletree Borer

Peak RAB egg laying period roughly: June 19-July 5
(H)/June 26-July 12.

First RAB eggs hatch roughly: June 14 (H)/June 19 (G).

Dogwood Borer

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

Codling Moth

Codling moth development as of June 11:

1st generation adult emergence at 80% (H)/67% (G)
and 1st generation egg hatch at 30% (H)/12% (G).

1st generation 20% egg hatch (= target date where a
only one spray needed to control 1st generation CM):
June 8 (H)/June 13 (G) = target date for first spray
where multiple sprays needed to control 1st

generation

CM.

Obliquebanded Leafroller

Early egg hatch and optimum date for initial application

of B.t., Delegate, Proclaim, Intrepid, Rimon, Altacor, Belt, pyrethroid or other insecticide effective against OBLR (with follow-up applications as needed): June 17 (H)/June 25 (G).

Oriental Fruit Moth

2nd generation OFM flight begins around: June 22 (H)/June 30 (G).

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).

[Section: DISEASES]

Weekly Apple Scab Update for NY (6/11 to 6/16/18)

(Kerik Cox & Katrin Ayer, PP&PMB, Geneva)

Below are apple scab predictions for NY apple regions based on the NEWA disease forecast system

(<http://newa.cornell.edu/index.php?page=apple-diseases>). Information is kept concise. Alerts will also be

posted to Twitter @FruitPathology with updates occurring throughout the week, which would allow notifications to send to mobile device. The various outputs are explained below the table.

APPLE SCAB

Week of	Hudson	Wayne	Niagara	Champlain	Finger
6/11/18*	Valley			Valley	Lakes
Infection	6/13	6/13	6/13	6/13	6/13
Predicted					
Leaf	29 hrs	21 hrs	21 hrs	21 hrs	21 hrs
Wetness					

Spray Recommendation (All): If your last application was more than 7 days ago, you may consider applying a cover spray before the infection event.

* predictions are regional, the model works best under local conditions. Always check weather and crop stage before making a management decision.

Infection predicted:

"Date": An infection event is predicted for the date listed.

Leaf Wetness: Cumulative hours of leaf wetness predicted during infection event.

[Section: INSECTS]

WORLD OF WORMS

(Art Agnello, Entomology, Geneva; ama4@cornell.edu)

[Box text: COUNTING THE DAYS]

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 in apples and stone fruits are those in IRAC Group 28 (containing a diamide; i.e., Altacor, Exirel, Minecto Pro, 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 beyond this point in Highland and Geneva, but sites in WNY range from 142–263 DD50, depending on proximity to the lake (refer to "Model Building" numbers in this issue). Products with insect growth regulator activity, such as Rimon, Intrepid or Esteem, would also be suitable options this week in apple sites at the lower end of these values. Other products with activity against internal leps include the neonic Assail, the biological Grandevo (also organically approved) 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 as good choices because of insecticide resistance issues.

Now would also be an appropriate time for an application of a granulosis virus product in pome and stone fruits such as Cyd-X, Madex or Carpovirusine (apples and pears only), 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.

OBLR larval emergence is still on the order of 14 days away in Geneva, but should be starting in less than a week 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, Grandevo, Venerate (stone fruits only) 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. 73 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

SMALL SCALE, MAGNIFIED

(Peter Jentsch & Art Agnello, Entomology, Highland & Geneva; pjj5@cornell.edu & ama4@cornell.edu)

[Box text: UNDER ARMOR]

We should soon be seeing the emergence of crawlers of San Jose scale (SJS), *Quadraspidiotus perniciosus* (Comstock) from under the overwintered adult female scale covers on apple trees. SJS has become a primary fruit pest in many orchards across the region over the past 10–15 years, as older chemistries such as Penncap-M and Lorsban, which once held this insect in check, have been removed or restricted as pest management tools. With little in the way of residual insecticide in the orchard after the threat of plum curculio has passed, it is easier for this insect to gain a foothold in tree fruit blocks, which invariably leads to severe economic injury if left unmanaged. Many producers find this insect very difficult to eradicate. Multiple applications targeting all (up to three) generations using products with different modes of action appear to work best. The pheromone-based model we now use

focuses on the adult flight as a biofix, predicting SJS crawler emergence at 260–360 DD (base 50°F). This year, the first adults were observed in traps on May 21 in Highland and May 29 in Geneva; to date we've accumulated 295 DD towards this threshold in Highland and 194 DD in Geneva (see the Model Building section in this issue). Therefore, the onset of crawler emergence is not far off.

We are quite fortunate to have a number of effective insecticides to assist us in managing this insect during key timing windows of the growing season. The window of opportunity for using a material such as Lorsban for this generation, which would have needed to be applied pre-bloom, has passed. Our options now include contact insecticides or insect growth regulators that will target the emerging crawlers.

Centaur 0.7WDG, an insect growth regulator (IGR; IRAC Group 16), acts to inhibit the synthesis of chitin. Esteem 35WP, also an IGR (Group 7), functions as a juvenile hormone mimic, inhibiting metamorphosis from one stage to another. Movento 240SC (lipid biosynthesis inhibitor; IRAC Group 23) is also effective when applied preventively, as its systemic activity requires some time for it to become established in the

woody tissues. Sivanto Prime 1.67SL (nicotinic acetylcholine receptor agonist; IRAC Group 4D) is also systemic in the xylem, and acts by causing feeding cessation; Venerate (microbial, no IRAC group) causes enzymatic degradation of skeletal structures and interference with the molting process. All these insecticides are most effective when directed against the first appearance of crawlers. Assail and Admire Pro (Group 4A) are both broad-spectrum neonicotinoids that can be effective when directed against emerging crawlers; Beleaf (. The efficacy of some of these materials (e.g., Movento, Assail, Centaur) is improved by the addition of an adjuvant with penetrating properties; however, Esteem, Sivanto Prime, Venerate and Admire Pro can be used effectively without the use of a penetrant. Remember, rotating classes of insecticides for each generation will delay the onset of resistance. Making multiple applications of the same class or same insecticide at a 14-day interval for the same generation is recommended.

Also bear in mind that we have been seeing another scale species, white Prunicola scale (*Pseudaulacaspis pentagona*), which affects stone fruits as well as apples, and appears as an infestation of numerous white scales that cluster on the trunk and scaffolds, giving them a

whitewashed appearance (see Scaffolds No.3, April 10, 2017:

<http://www.scaffolds.entomology.cornell.edu/2017/SCAFFOLDS-4-10-17.pdf>). Feeding reduces tree vigor, and

foliage of affected trees may become sparse and yellow; heavy infestations can cause death of twigs, branches and entire trees if left unattended. This species overwinters as an adult female and deposits eggs in the spring. The same insecticides as for SJS can be used against crawlers in mid-June through early July (about 700–1150 DD base 50°F from March 1). We are currently at 608 DD in Geneva and 692 in Highland, which means that the window for application against this pest should coincide very well with a San Jose scale timing.

[Section: GENERAL INFO]

EVENT ANNOUNCEMENTS

Plant Growth Regulator (PGR) Orchard Tour

"Understanding the Timely Use and Applications of Plant Growth Regulators"

Friday, June 29, 8:30 am - 5:00 pm.

Meet at NYS Agric. Expt. Station, Geneva (park at Jordan Hall, follow signs for Cornell Fruit Event location)

There will be a tour of several research plots at NYSAES and a few fruit farms in the region plus presentations by distinguished researchers Poliana Francescato (Postdoctoral Research Associate, Horticulture Section, NYSAES) and Duane Greene (Professor, Stockbridge School of Agriculture, Univ. of Massachusetts, Amherst). The focus will be on PGR research and its practical applications in modern fruit production practices. Lunch will be provided; registration required at CCE LOF website starting June 13 at: [<https://lof.cce.cornell.edu/>].

Tentative Schedule

8:00 am-8:30 am: Park at Hedrick lot and/or Barton lot, NYSAES, Geneva (follow Cornell signs for meeting room location).

8:30 am-10:00 am: Several PGR talks by Poliana Francescato

10:00 am-10:15 am: Drive to PGR research plots, NYSAES, Geneva

10:15 am-12:30 pm: Visit PGR research plots with Poliana Francescato and Duane Greene

12:30 pm-1:30 pm: Lunch at the Pavillion, NYSAES, Geneva.

2:00 pm-5:00 pm: Drive and visit on-farm Cornell PGR research sites with Poliana Francescatto and Duane Greene. Potential on-farm research sites to be hosted by Cherry Lawn Farm, Zingler Fruit Farm, and Orchard Dale Fruit Farm (exact times and locations to be identified later).

5:00 pm: Official adjourn of CCE LOF PGR orchard tour.

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