

COMING EVENTS

	43°F	50°F
Current DD* accumulations		
(Geneva 1/1-6/6):	841.3	486.3
(Geneva 1/1-6/6/2015):	815.9	510.8
(Geneva "Normal"):	837.0	489.7
(Geneva 1/1-6/13, predicted):	964.3	561.5
(Highland 1/1-6/6):	1139.6	659.9

Upcoming Pest Events – Ranges (Normal +/- Std Dev):

American plum borer

1st flight peak.....594-966 323-585

Cherry fruit fly 1st catch755-1289 424-806

Codling moth 1st flight peak.....557-977 306-578

European red mite

summer eggs hatch737-923 424-572

Lesser appleworm

1st flight subsides.....989-1515 604-974

Obliquebanded leafroller

1st catch805-981 470-590

Obliquebanded leafroller

1st flight peak.....	833-1219	486-766
Oriental fruit moth		
1st flight subsides.....	829-1111	488-688
Pandemis leafroller flight peak...	891-1195	514-742
Peachtree borer 1st catch.....	799-1331	462-824
Pear psylla 2nd brood hatch	967-1185	584-750
San Jose scale		
1st flight subsiding	864-1238	515-769
Spotted tentiform leafminer		
2nd flight start.....	993-1163	592-726
White apple leafhopper		
1st gen adults present.....	679-1041	380-694
*[all DDs Baskerville-Emin, B.E.]		

Pest Focus

Geneva: 1st trap captures of Pandemis Leafroller and Dogwood Borer, 6/3.

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 (currently @ 414[H] / 308[G]).

Codling moth larval emergence @ 220 DD50 (currently @ 290[H] / 277[G]).

Obliquebanded Leafroller larval emergence @ 360 DD43 (currently @ 388[H] / 147[G]).

San Jose Scale crawler emergence @ 310 DD50 after 1st flight (currently @ 355[H] / 221[G]).

TRAP CATCHES

Geneva (Number/trap)

	5/26	5/31	6/3	6/6
Redbanded Leafroller	21.5	10.0	0.0	0.0
Spotted Tentiform Leafminer	15.0	3.0	1.0	1.5
Oriental Fruit Moth	29.5	29.5	5.0	4.5
Lesser Apple Worm	0.0	4.5	2.5	3.0
San Jose Scale	3.0*	3.0	0.5	0.0
Codling Moth	11.5	15.5	5.0	2.5
American Plum Borer	1.0*	0.0	0.0	0.0
Lesser Peachtree Borer	-12.5*	13.0	18.5	8.0
Obliquebanded Leafroller	-	3.0*	1.5	1.0

Pandemis Leafroller	-	0.0	1.0*	5.5
Dogwood Borer	-	-	2.5*	2.0
Highland (Peter Jentsch)				
	5/16	5/23	5/31	6/6
Redbanded Leafroller	19.0	3.0	1.0	0.0
Spotted Tentiform Leafminer	25.5	17.5	1.5	60.0
Oriental Fruit Moth	24.5	4.5	0.5	1.0
Lesser Appleworm	17.5	2.0	5.0	4.0
San Jose Scale	513.5*	2.0	32.0	0.0
Codling Moth	-	35.0*	71.0	44.5
Obliquebanded Leafroller	-	0.5*	4.5	21.0
Dogwood Borer	-	0.0	1.0*	2.0
		* 1st catch		

ORCHARD RADAR DIGEST

[Box Text: UNDER JUNE SKIES]

Geneva Predictions:

Roundheaded Appletree Borer

RAB egg laying begins: June 2. Peak egg laying period roughly: June 24 to July 8. First RAB eggs hatch roughly: June 17.

Dogwood Borer

First DWB egg hatch roughly: June 22.

Codling Moth

Codling moth development as of June 6: 1st generation adult emergence at 63% and 1st generation egg hatch at 9%.

1st generation 3% egg hatch expected: June 4 (= target date for first spray where multiple sprays needed to control 1st generation CM).

1st generation 20% CM egg hatch: June 13 (= target date where one spray needed to control 1st generation CM).

Obliquebanded Leafroller

Early egg hatch and optimum date for initial application of insecticide effective against OBLR (with follow-up applications as needed): June 24.

Oriental Fruit Moth

2nd generation OFM flight begins around: June 28.

Redbanded Leafroller

2nd RBLR flight begins around June 28.

San Jose Scale

1st generation SJS crawlers appear: June 18.

Spotted Tentiform Leafminer

2nd STLM flight begins around: June 16.

[Section: INSECTS]

END OF THE TUNNEL

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

[Box text: DE-WORM]

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 at least a couple of weeks around the state, and the eggs they have laid are in the early stages of hatching, which makes this week a very opportune time to apply 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) 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 slightly past this point in Geneva and Highland, but most of WNY and the Champlain Valley is probably just entering the zone. Products with insect growth regulator activity, such as Rimon or Intrepid, would have been better advised last 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.

OBLR larval emergence is still on the order of 7-10 days away in Geneva, but should just be starting 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 (Biobit, Dipel, Javelin, MVP, 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. 71 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

FINGER ON THE SCALES

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

[Box text: UNDER COVER AGENTS]

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. The SJS has become a primary fruit pest in many orchards across the region over the past 10 years, as older chemistries such as Penncap-M and Lorsban, which once held this insect in check, have been removed from the pest management toolbox. With little in the way of residual insecticide in the orchard after the threat of plum curculio has passed, there is little to keep this insect from gaining 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 310-400 DD (base 50°F). This year, the first adults were observed in traps on May 16 in Highland, and May 26 in Geneva; we've accumulated 355 and 221 DD, respectively, to date. Therefore, the onset of crawler emergence is imminent.

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 materials such as Lorsban and Supracide for this generation 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 Class 16), acts to inhibit the synthesis of chitin. Esteem 35WP, also an IGR (Class 7), functions as a juvenile hormone mimic, inhibiting metamorphosis from one stage to another. Movento 240SC (lipid biosynthesis inhibitor; IRAC Class 23) is also effective when applied preventively, as its systemic activity requires some time for it to become established in the woody tissues. All these insecticides are most effective when directed against the first appearance of crawlers, yet have no contact toxicity and tend to act very slowly. Assail and Admire Pro (Class 4) are both broad-spectrum neonicotinoids that can be effective when directed against emerging crawlers. 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 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.2, March 28, 2016). 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 about 535 DD in Geneva; 596 is predicted for June 11, so the window for application against this pest should coincide very well with a San Jose scale timing.

[Section: GENERAL INFO]

EVENT ANNOUNCEMENTS

[Box text: FIELD TESTED]

The Cornell Fruit Field Day will be held in Geneva on Wednesday, July 20. This event, being organized by Cornell University, the NYS Agricultural Experiment Station, CALS Fruit Program Work Team and Cornell Cooperative Extension, will feature ongoing research in berries, hops, grapes, and tree fruit. All interested persons are invited to learn about the fruit research under way at Cornell University. Attendees will be able to select from tours of different fruit commodities. It will be based at the NYSAES Fruit and Vegetable Research Farm South, 1097 County Road No. 4, 1 mile west of Pre-emption Rd. in Geneva, NY. Admission is \$50/person (\$40 for additional attendees from the same farm or business). Pre-registration is required; walk-in registration may be available for a \$10 surcharge on the day of the event. Please use the registration link below to register via credit card:

<http://events.cals.cornell.edu/ffd2016>

CORNELL AND CCE EMPLOYEES get free admission, but please pre-register using the same link; there's a **Cornell Staff** tab at the top of the home page, which will take you to a page to pre-register and select your lunch option. To participate as a sponsor, see the website page or contact Shelly Cowles (315-787-2274; mw69@cornell.edu).

NOTE: This year's IFTA (International Fruit Tree Association) Summer Study Tour is taking place in western NY and will focus on the Cornell Fruit Field Day, with complementary tours on the day before and after (July 19, Orleans Co. and July 21, Wayne Co.) For more information on this tour, see their website: <http://www.ifruittree.org>

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