

# scaffolds

Update on Pest Management  
and Crop Development

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

May 27, 2014

VOLUME 23, No. 10

Geneva,

**HOT 'N'  
HEAVY**

ORCHARD RADAR  
DIGEST



## **Oriental Fruit Moth**

1st generation 55% egg hatch and first treatment date, if needed: May 24 (H)/May 30 (G).

## **Plum curculio**

Increased risk of PC damage as McIntosh and similar cultivars increase fruit size: May 22 (H)/May 27

(G)

Earliest safe date for last PC insecticide spray: May 28 (H)/June 1 (G)

[H = Highland; G = Geneva]:

## **Roundheaded Appletree Borer**

RAB egg laying begins: June 5 (H)/June 9 (G); Peak egg laying period roughly: June 24 to July 8 (H)/June 29 to July 13 (G).

## **Dogwood Borer**

First DWB egg hatch roughly: June 23 (H)/June 29 (G).

## **Codling Moth**

1st generation, first sustained trap catch biofix date: May 18 (H)/May 25 (G). Codling moth development as of May 27: 1st generation adult emergence at 15%(H)/ 4% (G) and 1st generation egg hatch at 0%.

## **Lesser Appleworm**

1st generation LAW peak trap catch: May 22 (H)/May 28 (G).

## **Mullein Plant Bug**

Expected 50% egg hatch date: May 16 (H)/May 22 (G), which is 5 days before rough estimate of Red Delicious petal fall date.

Most accurate time for limb tapping counts, or treatment if needed, but possibly after some MPB damage has occurred, is 90% egg hatch date: May 21 (H)/May 27 (G).

## **Obliquebanded Leafroller**

1st generation OBLR flight, first trap catch expected: June 7 (H)/June 12 (G).

## **San Jose Scale**

First adult SJS caught on trap: May 21 (H)/May 27 (G).

1st generation SJS crawlers appear: June 17 (H)/June 22 (G).

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### PEST FOCUS

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### UPCOMING PEST EVENTS

### Spotted Tentiform Leafminer

1st generation sapfeeding mines start showing: May 22 (H)/May 29 (G). Optimum sample date is around May 23 (H)/May 30 (G), when a larger portion of the mines are visible.

### White Apple Leafhopper

1st generation WALH found on apple foliage: May 15 (H)/May 16 (G).



AND,  
THEY'RE  
OFF!

OUT OF THE GATE  
(Art Agnello, Entomology,  
Geneva; [ama4@cornell.edu](mailto:ama4@cornell.edu))

❖❖ Most regular biological events like insect development respond positively to warmer conditions, so assuming that this week's forecast of 80-plus degree weather will help get us there, pest management decisions will tend to need addressing on a fairly predictable schedule. Although this week's temperatures probably won't translate into a lot of management decisions having to be made all at once, the following is a long-view update of some of the traditional crop protection scenarios during this period. Dates in parentheses, where present, are the mean date of occurrence in Geneva, according to our recent records.

### Plum Curculio (May 25 - scars present)

Curcs have only so much egg-laying activity programmed into their behavior, and it's directly related to the temperature. The cooler the post-petal fall period is, the slower they finish, so the long-term forecast will be instrumental in determining how many cover sprays might be needed after petal fall to adequately protect the region's orchards until the ovipositing is finished. Most orchards probably will

have received their petal fall spray this week. We should just begin to notice a few instances of injury from this pest in western NY, and the Apple IPM Insect Models Website ([http://newa.nrcc.cornell.edu/newaModel/apple\\_pest](http://newa.nrcc.cornell.edu/newaModel/apple_pest)) puts curculios just barely into their egg-laying activity. For apples, if you additionally have Rosy Apple Aphid colonies active in your trees, consider using Actara or Calypso now, both of which have good activity against both species.

### European Apple Sawfly

Traditionally confined to the eastern half of the state, but steadily making westward progress in recent years, the adults start laying eggs on or near newly set fruitlets at petal fall, so the plum curculio applications will do double duty against this pest as well.

### Obliquebanded Leafroller (June 9)

We have yet to catch the first obliquebanded leafroller adult in western N.Y., but populations in the Hudson Valley should be at least a week ahead of us, so don't be surprised to begin seeing them in the near future. Depending on the location, larvae should be able to be found now in various stages of develop-

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### scaffolds

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ment. Next week would therefore be an advisable time to be sure a pheromone trap is hung in problem apple blocks, to fix the date of first emergence in your specific area. Recall that we recommend sampling at 600 DD (base 43°F) after the first adult catch, to determine the need and timing for treatment. For problem orchards with a reliable OBLR history where sampling is generally not needed, egg hatch (which equates to the first occurrence of susceptible larvae) occurs more or less 350 DD after the 1st adult catch. It pays to keep an eye on the daily highs and lows for your area if you are doing your own trapping, as it's likely that our "normal" first sampling date of July 5 won't turn out to be necessarily appropriate this year; once again, the Apple IPM Insect Models Website can help you zero in on these events in your specific area. In orchards not too removed from petal fall and containing large larvae, an application of Altacor, Belt, Delegate, Intrepid, Proclaim, Rimon, or a B.t. product (e.g., Agree, Dipel, Deliver) at this time will help diminish the population for better management during the summer.

### Stone Fruit Aphids

Although green peach aphids are not always a serious pest every year, colonies of these greenish, smooth-looking aphids are likely to occur in peach blocks during this period, along with their damage. They cause curled leaves that may turn yellow or red in severe cases, and more importantly, they are vectors of Plum Pox Virus, which continues to be a threat in the western part of the state. The young aphids begin to hatch about the time of peach bloom and remain on the trees for 2–3 generations, until early summer, when they seek other hosts (mainly vegetable truck crops). Green peach aphids suck the sap from the new fruits and twigs, and are also found on plum, apricot, cherry, and many ornamental shrubs. These insects are difficult to control; the recommended options, where needed, include Actara, Admire, Assail, Beleaf, and Movento. Lannate is an alternative, but possibly less effective choice. Applications are recommended before excessive leaf curling occurs, in order to maximize the spray's effectiveness. Also, keep an eye out for black cherry

aphid in your cherry trees after shuck fall. If colonies are building up on the foliage, recommended materials include Admire, Assail, Beleaf, Lorsban, Movento, Sevin, and pyrethroids such as Asana, and Baythroid. Pre-mixes labeled for this use include Endigo, Leverage, Voliam Flexi and Voliam Xpress.

### Cherry Fruit Flies (June 16)

It's too early for catches of adults on sticky board traps, but because of the zero tolerance in cherries for insect damage or presence, it's prudent to begin sprays in your cherries soon after shuck split (for this pest as well as for curculio). Imidan (tart cherries only), Sevin, Diazinon, Assail, Actara, Delegate or the pyrethroids are all effective treatments. Sevin will also control black cherry aphid.

### Lesser Peachtree Borer (May 24)

The first adults were caught in Geneva today (5/27). Remember to get your trunk and scaffold sprays on peaches and cherries during the next couple of weeks if borers are a problem in your blocks. An effective alternative is Isomate-PTB Dual for pheromone disruption. Now is a good time to think about hanging the ties (150–250/acre will disrupt both species -- Peachtree Borer appears about mid-month in our region; use the higher rate where pressure is more severe). This pest increases the severity of *Cytospora* canker infections in peaches and is often found within the canker; by feeding in the callous tissues, it interferes with the tree's natural defenses against the disease. Infestations can be determined by the presence of the insect's frass, which resembles sawdust, in the gum exuded from the wound. In peaches, you can use Ambush, Asana, Baythroid, Lorsban (all formulations), Pounce, Voliam Xpress or Warrior for this application (or pre-mixes such as Endigo, Gladiator, Leverage, or Voliam Xpress). In cherries, use Ambush, Asana, Baythroid, [Lorsban (tarts only), as a trunk spray ONLY; do not spray the fruit], Pounce, Warrior, Endigo, Gladiator or Voliam Xpress, and observe the proper PHIs for these respective materials. Check

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the labels of all products for the recommended target area, where applicable (trunk vs. foliar).

### European Red Mite

Mite populations are slowly starting to build this season, and adults should be present soon, which means that they'll be laying summer eggs that will hatch into potential problems before long. We once again had at least some favorable pre-bloom weather for early season oil or miticide applications this year; however, if you failed to take advantage of these opportunities before bloom, it's not too late to use one of the preventive materials such as Savey/Onager, Apollo, Agri-Mek, Portal, or Zeal in problem blocks or where you may have noted ERM eggs.

In situations where European red mite pressure or the crop's sensitivity to them haven't necessarily justified an early season treatment with any of the above options, this is the time of year when a summer oil program also might be considered as an alternate preventive approach, particularly considering this species' slow start during the spring. Our field research trials have shown the effectiveness of using a highly refined oil in a seasonal program to control mites throughout the summer. Some examples of these products are PureSpray Spray Oil 10E, BioCover UL, or PureSpray Green (all from Petro Canada), Stylet-Oil (JMS Flower Farms), and Omni (an ExxonMobil product formulated using Orchem 796 and distributed by Helena); others are available, such as Damoil (Drexel), Saf-T-Side (Brandt Consolidated) and Mite-E-Oil (Helena), although we haven't tested all brands.

Our approach is to make three applications, on a preventive schedule, immediately after the petal fall period, before mite populations have a chance to build. The first application can be any time from petal fall to 1–2 weeks later, followed by two additional sprays at 10–14-day intervals. The oil is not concentrated in the tank, but rather mixed on the basis of a rate per 100 gallons of finish spray solution; in most cases, we recommend 100 gal per acre. A rate of 1–2 gal/100 should maintain control of most moderate populations. Don't apply without leaving

at least a 10–14-day interval before or after a captan spray.

### San Jose Scale (June 19 - 1st crawlers)

Minute SJS adult males emerge in the spring from beneath scale covers on the trees, usually during bloom, and mate; 1st catch in Geneva occurred today, 5/27. The females produce live crawlers within 4–6 weeks of mating; these make their way to new sites and insert their mouthparts into the tree, secreting a white waxy covering that eventually darkens to black. SJS infestations on the bark contribute to an overall decline in tree vigor, growth, and productivity. Fruit feeding causes distinct red-purple spots that decrease the cosmetic appeal of the fruit. Insecticidal sprays are most effective when directed against the first generation crawlers, specifically timed for the first and peak crawler activity, which are usually 7–10 days apart.

In the Geneva area, first crawler emergence has tended to occur sometime around mid-June. If and when a treatment against this stage is needed, Esteem 35WP is one option. It should be applied at 4-5 oz/acre at first crawler emergence; a low rate (0.25% or 1 qt/100) of a highly refined summer oil (see above) has been shown to improve penetration and, therefore, control. Additional products showing control efficacy include Assail, Centaur (except Nassau and Suffolk Counties) and Movento (which must be mixed with an organosilicone or nonionic spray adjuvant). Other options include Imidan, Admire, or pre-mixes such as Endigo, Leverage, or Voliam Xpress.

### Oriental Fruit Moth (May 2)

We're generally calling biofix May 8–9 in western NY this year. In problem blocks (i.e., those with a history of more than 1–2% fruit infestation over the past 10 years), the first spray against the first larval brood in apples is recommended at 350–375 DD (base 45°F) from biofix, which corresponds with 55–60% hatch. The records as of today show the DD accumulation in Geneva to be 325, and 424 DD

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for the Highland Lab (April 28 biofix). Therefore, it's still a bit of time until the window for a timely treatment in apples. If you're more than 7–10 days past your PF sprays and will need something specific against OFM, Altacor, Assail, Avaunt, Belt, Calypso, Delegate, Intrepid, and Rimon are recommended options in apples, and Altacor, Assail, Belt, Delegate, Asana, Danitol or Warrior in peaches.

### Pear Psylla

These insects have also been making steady progress, and the gradually warming temperatures will eventually result in the production of summer nymphs. Particularly if you weren't able to get an oil spray on before bloom, populations of 1–2 per leaf would be an indication of the need for a prudent application of Agri-Mek at this time; alternatively, Actara, Asana, Assail, Calypso, Centaur, Danitol, Delegate, Esteem, Movento, Nexter, Portal, Proclaim, Provado, and Warrior also have varying degrees of effectiveness against this pest, usually negatively correlated with frequency of past use. ❖❖

### STINK BUG SURVEY CLOSING SOON

❖❖ Got stink bugs? We need your help! We're surveying growers to assess the impact of BMSB on crops and gather information that will help us defeat this pest. Receive a free Guide to Stink Bugs\* if you complete the 10-minute BMSB survey ([https://cornell.qualtrics.com/SE/?SID=SV\\_5ssnjXLNhvp6v1H](https://cornell.qualtrics.com/SE/?SID=SV_5ssnjXLNhvp6v1H)). Your participation will help us to help you Stop BMSB! The survey will be available until June 30th.

—The Outreach Team for "StopBMSB," a project focused on the biology, ecology, and management of the brown marmorated stink bug.

For more info: [StopBMSB.org](http://StopBMSB.org)

[\* see it at <https://pubs.ext.vt.edu/444/444-356/444-356.pdf.pdf>]

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COMING  
TO THE  
VALLEY

DEGREE DAY MODELLING  
FOR INSECT  
MANAGEMENT: HUDSON  
VALLEY UPDATE  
Peter Jentsch ([pj5@cornell.edu](mailto:pj5@cornell.edu)),  
Entomology, Highland

❖❖ Plum Curculio (PC) adults have been late to arrive in Highland with only early scarring to fruit observed by May 23. Up to this point in time night temperatures have been below 50°F. PC activity is highly dependent upon temperature, particularly at night when adults are most active. PC typically do not feed or oviposit when nighttime temperatures are below 50 °F. In cooler seasons such as this, PC may continue to delay with extended oviposition for 4–6 weeks. As the adults begin to move in cooler weather, they often crawl instead of fly, or fly only short distances, damaging fruit along the edge first, moving among trees into the orchard center from the edge in commercial orchards. We presently have accumulated 65 degree days (base 50°F) from petal fall (May 19th) through May 24. Control measures are only needed until 308 degree days have accumulated since petal fall. Insecticide residue will need to be present until PC have completed emergence. Based on limited and unreliable weather patterns, the forecast date for the 308DD is approximately June 14th. NEWA Model for PC at the Highland Station can be accessed here: [http://newa.cornell.edu/index.php?page=weather-station-details&WeatherStation=hig&WSDetail=http://newa.nrcc.cornell.edu/newaModel/apple\\_pest/apple-pc/hig](http://newa.cornell.edu/index.php?page=weather-station-details&WeatherStation=hig&WSDetail=http://newa.nrcc.cornell.edu/newaModel/apple_pest/apple-pc/hig)

Applications using effective insecticides against plum curculio should control the pest for about 10–14 days based on materials and weathering.

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Frequent short interval rains will remove surface contact insecticide residues. Incidence of observed PC damage is highly variable among different orchards. PC damage often occurs in the same locations in orchards year after year, regardless of treatment levels with the potential for damage in any particular orchard fairly predictable from past observations.

This season, given the delay in emergence due to cool temperatures, a post-petal fall spray for control of PC is necessary, even in low-pressure orchards. In high-pressure orchards, additional sprays along the perimeter of the orchards should be applied until the oviposition model predicts that control is no longer necessary.

Insecticides effective against PC include Avaunt 30WDG (indoxacarb), the neonicotinoids; Actara 25WDG (thiamethoxam), Calypso 4F (thiacloprid), the OP Imidan 70WP, WSP (Phosmet), carbamate; Sevin (carbaryl), and pyrethroids Danitol 2.4EC (fenpropathrin), Asana XL (esfenvalerate), Baythroid XL 1E, 2EC (beta-cyfluthrin), Lambda-Cy 1CS (lambda-cyhalothrin), Warrior 1CS (lambda-cyhalothrin), Proaxis 0.5CS, and pre-mix formulations Endigo ZC (lambda-cyhalothrin / thiamethoxam), Leverage 360 (imidacloprid / beta-cyfluthrin), Gladiator (zeta-cypermethrin / avermectin), Voliam Express (lambda-cyhalothrin / thiamethoxam), Voliam Flexi (chlorantraniliprol / thiamethoxam). This will be the last year for use of Calypso 4F, one of the better OP replacement materials for PC management.

The pyrethroids and phosmet have broad spectrum activity to include PC, EAS, lepidopteran larva (OFM, CM, lesser appleworm (LAW) and obliquebanded leafroller (OBLR). They have no activity against rosy apple aphid (RAA) in curled foliage.

Calypso 4F has activity against PC, EAS, RAA, leafhopper and leafminer, and internal lepidoptera (OFM, LAW and CM), but only moderate to low activity against OBLR.

The pre-mix ingredients:

Avermectin must be used with a penetrant to effectively manage mites.

Chlorantraniliprol, the active ingredient in Altacor, is excellent against the range of lepidopteran larvae, but with a limited spectrum.

Thiomethoxam, with a similar spectrum to Calypso, however, has no efficacy against internal lepidopteran larvae. Using exclusively at 1C will put you at risk against CM larvae. Carbaryl will provide a measure of control of PC during applications used for thinning.

**Oriental fruit moths** are still flying and usually about 50–60% of OFM eggs from the first generation have hatched by now. A second spray should be applied at about 10–14 days after petal fall. This second spray against the first generation of OFM is particularly important in high-pressure orchards (past history of OFM fruit damage or pheromone traps catches >10/ trap/ week) to control the remainder of hatching larvae. If this spray is applied at the normal time of a first cover spray (10–14 days after petal fall), it will also control early hatching CM larvae from the first flight of adults. Plum curculio is still active after PF in this cool, rainy season.

**Codling moth** eggs are being laid this week. This begins at about 50 DD and we are at 54 DD in Highland, NY. The first eggs hatch after about 220 DD, which is predicted to occur on May 31. Insecticides such as Rimon, that need to be present before egg laying at about 50–75 DD, should be applied at the first available application window. Apply insecticides that target the early egg laying period at 100–200 DD, over the next week using the May 31 as the target date. ❖❖

## PHENOLOGIES

Geneva:

Apple (McIntosh, Red Delicious , Empire): fruit set

Sweet cherry (late): fruit set, shucks off

Peach: shuck split



## PEST FOCUS

Geneva: **Codling moth** 1st catch 5/22.  
**Lesser appleworm, San Jose scale,** and  
**lesser peachtree borer** 1st catch today,  
5/27.

<b>INSECT TRAP CATCHES</b>						
<b>(Number/Trap/Day)</b>						
<b>Geneva, NY</b>				<b>Highland, NY</b>		
	<u>5/19</u>	<u>5/22</u>	<u>5/27</u>		<u>5/19</u>	
Green fruitworm	0.0	0.0	0.0	Green fruitworm	0.0	
Redbanded leafroller	5.1	9.2	4.7	Redbanded leafroller	5.6	
Spotted tentiform leafminer	23.6	35.8	7.4	Spotted tentiform leafminer	10.2	
Oriental fruit moth	4.1	10.8	6.0	Oriental fruit moth	3.9	
Codling moth	0.0	0.7*	2.3	Codling moth	1.0*	
Lesser appleworm	–	0.0	0.1*	Lesser appleworm	0.8	
San Jose scale	–	0.0	1.1*	Variegated leafroller	0.2*	
American plum borer	–	0.0	0.0			
Lesser peachtree borer	–	0.0	0.9*			
* first catch						

<b>UPCOMING PEST EVENTS</b>		
	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1–5/27/14):	580	331
(Geneva 1/1–5/27/2013):	587	341
(Geneva "Normal"):	645	331
(Geneva 1/1–6/2/14, predicted):	710	418
<u>Coming Events:</u>	<u>Ranges (Normal ±StDev):</u>	
Oriental fruit moth 1st flight peak	338–544	170–290
American plum borer 1st catch	392–494	195–265
American plum borer 1st flight peak	590–970	321–589
Codling moth 1st flight peak	561–991	306–586
Lesser appleworm 1st flight peak	349–761	170–432
Mullein plant bug 90% hatch	472–610	247–323
Mullein plant bug hatch complete	508–656	264–358
Plum curculio oviposition scars present	485–589	256–310
Pear psylla hardshell present	493–643	271–361
San Jose scale 1st flight peak	554–742	294–416
Obliquebanded leafroller pupae present	601–821	328–482
Plum curculio oviposition scars present	485–589	256–310
Redbanded leafroller 1st flight subsides	592–898	332–560

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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