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Update on Pest Management
and Crop Development

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

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UMBRELLA POLICY

GLOVE UP
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Plum Curculio

Adults move into orchards from overwintering sites in hedgerows or the edges of woods and adults are active when temperatures exceed 60°F, something that has occurred recently and will recur later this week.

Adult females oviposit in fruit during both day and night but feed mostly at night. Depending on temperature, overwintering adults remain active for 2–6 weeks after petal fall.

Because adults are not highly mobile, orchards near overwintering sites, woodlands, and hedgerows are most susceptible to attack. Fruit damage is usually most common in border rows next to sites where adults overwinter. Although initial post-bloom sprays for plum curculio control should begin at petal fall, growers are often unsure how many additional sprays will be necessary to maintain protective chemical residues to prevent subsequent damage throughout the PC oviposition cycle, which varies according to temperatures and weather patterns after petal fall.

Following from the fact that PC activity and oviposition are largely determined by temperature, we

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[Editor's note: This article is nearly identical to what we printed last year, even though this season doesn't appear to be at all similar to 2016 -- which goes to show how an extreme changeover in last year's summer weather patterns can affect the short-term memory. Or, alternatively, don't be surprised if the current weather trends evaporate once we reach June - AMA]

❖❖ Few things in life are well synchronized, least of all tree development during the spring in New York, and this year's yo-yo temperature trend has intensified the normal disparity shown among the state's different growing regions. The result is that we have trees ranging from just entering bloom (or maybe thinking about it) to setting fruits. This period is always tough to nail for timeliness of advice, so we'll be conservative and assume that everyone who isn't actually scheduling their petal fall sprays will at least want to give them some advance planning, since the one thing we can rely on is that the "old faithful" insect pests we always look out for at petal fall will continue their progress towards the newly formed fruits. To that end, this overview will help take your mind off the current fluxes in the weather and make preparations for when things heat up again.

IN THIS ISSUE...

INSECTS

- ❖ Petal fall apple insect pest management

ORCHARD RADAR DIGEST

PHENOLOGIES

PEST FOCUS

TRAP CATCHES

UPCOMING PEST EVENTS

use an oviposition model to estimate when control sprays after petal fall are no longer necessary to protect fruit from PC damage. This model is based on the assumption that residues from sprays applied after petal fall need to be maintained on fruit and foliage only until PC adults stop immigrating into orchards, which happens to correspond to the time when about 40% of the oviposition cycle is complete. This is predicted by the model to occur at 308 DD (base 50°F) after petal fall of McIntosh. Most probably, this strategy works because, after 40% of PC oviposition is complete, adults usually do not move into the orchard from outside sources, or within orchards from tree to tree. Therefore, by this time, adults residing in treated trees have already been killed by insecticide residues and are unable to complete the remainder of their normal oviposition cycle.



In order to use this strategy: (1) Treat the entire orchard at petal fall with a broad spectrum insecticide. (2) Start calculating the accumulation of DD after petal fall of Macs (base 50°F); this is easily done from the NEWA Apple Insect Models page (<http://newa.cornell.edu/index.php?page=apple-insects>) by entering the petal fall date for your area. (3) No additional sprays are necessary whenever the date of accumulation of 308 DD falls within 10–14 days after a previous spray. We'll attempt to give local updates for the major fruit areas as the post-PF period progresses. In cherries and other stone fruits that are already at shuck fall, sprays should start (or should have started, as appropriate) at the first opportunity. Recall that, in addition to the industry standard broad-spectrum

materials such as Imidan, some additional options may be considered: Lorsban 75WG can still be used at petal fall in tart cherries, but obviously is no longer labeled for this use in apples; also, Avaunt and Actara are effective for plum curculio in apples and pears, and Avaunt is also labeled in stone fruit as another PC option. Delegate and Altacor both have some activity on PC, but should not be considered as the first choices in high-pressure blocks. Another option would be Exirel, a 2nd-generation diamide with better efficacy against this pest.

European Apple Sawfly

This primitive bee and wasp relative shows a preference for early or long-blooming varieties with a heavy set of fruit. This insect is generally more of a pest in eastern N.Y., although it has been gradually making its presence known in the more western sites, and now frequently reaches as far as Wayne Co. (and beyond). The adult sawfly emerges about the time apple trees come into bloom and lays eggs in the apple blossoms, which means they can be found now, in between temperature dives into the 30s. Young larvae begin feeding just below the skin of the fruits, creating a spiral path usually around the calyx end. This early larval feeding will persist as a scar that is very visible at harvest, and which some find to be almost decorative,

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although fruit marketability is obviously affected. Following this feeding behavior, the larva usually begins tunneling toward the seed cavity of the fruit or an adjacent fruit, which usually causes it to abort. As the larva feeds internally, it enlarges its exit hole, which is made highly conspicuous by a mass of wet, reddish-brown frass. The frass may drip onto adjacent fruits and leaves, giving them an unsightly appearance. The secondary feeding activity of a single sawfly larva can injure all the fruit in a cluster, causing stress on that fruit to abort during the traditional "June drop" period.



Certain insecticides that control this pest also adversely affect bees, which can pose a problem at petal fall because certain apple varieties lose their petals before others. In blocks of trees where petal fall has occurred on one variety but not the others, the variety that has lost its petals is likely to sustain some curculio or sawfly injury until an insecticide is applied. Some insecticides with activity against both plum curculio and sawfly -- like Avaunt and Actara -- may have a slight advantage over the conventional OP Imidan in this case. Assail represents another option for controlling sawfly; it's not very active against plum curculio, but will do a good job against rosy apple aphid and spotted tentiform leafminer, as well as sawfly, at this timing. Altacor and Exirel are both rated high in their

control efficacy against sawfly. To minimize the hazard to honey bees, make sure any pesticide is applied only when no bees are actively foraging on blooming weeds (evening is better than early morning).

Obliquebanded Leafroller

Larvae overwintering as 1st- or 2nd-stage caterpillars may have had the ability to grow to a noticeable size, although we haven't actually seen any up to this point, so most are likely still relatively small. While you're assessing bud viability, it would be prudent to have a quick look for later-stage larvae in problem blocks to determine whether a treatment against the overwintered brood should be included in your petal fall plans. Scout the blossom clusters or foliar terminals for larvae feeding within both the flowers and rolled leaves; a 3% infestation rate could justify an application to minimize overwintered fruit damage and help reduce summer populations.



Among the selective insecticides available, Intrepid and Rimon have been successful at this timing, and B.t. products, which can be used while blossoms are still present, include Agree, Biobit, Deliver, Dipel, and Javelin. More recently, Proclaim has been shown to be very effective at the petal fall timing, and also provides activity against

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early season mite populations. Delegate, Altacor, Exirel and Belt all offer very good efficacy against not only OBLR, but also the internal leps. Pyrethroids such as Asana, Baythroid, Danitol, Warrior, Proaxis or Leverage may also be effective, depending on past use history, but be aware of their broad-spectrum effects, which can work both for and against you, according to your approach towards conserving beneficial mites and insects.

Oriental Fruit Moth

Biofix is spread out across NY again this year, ranging from April 17 in the Hudson Valley to April 24 in Geneva and May 3 in Wayne Co.; the cooler temperatures over the past week will likely continue the indistinct pattern of emergence in most sites. Use the NEWA Apple Insect Models page to chart current degree day (base 45°F) progress towards the recommended totals of 170 (in peaches) and 350 (in apples) as the timing at which to apply a protective spray. To maximize the efficacy of 1st brood control, peach growers should use one of the suggested options from the Recommends starting at petal fall, backed up 10–



14 days later. In apples, in addition to Delegate, Altacor, Exirel and Belt, a number of the petal fall selection of insecticides will do an acceptable job of controlling this generation, including Imidan, the pyrethroids, Intrepid, Assail, and Avaunt.

European Red Mite

We haven't actually received any reports of problematic red mite numbers showing up just yet. However, because the prebloom conditions were so unfavorable for applications of oil or even ovicides, it would be prudent to have a look at your rapidly expanding terminal shoots for evidence of hungry motile mites, and consider an early "summer" application of a suitable material to head off problems before they get out ahead of you; it's suitable to use the regular June 2.5/leaf threshold (p. 74 in the Recommends), even though we're over 2 weeks away from June 1. There are numerous choices of products available at this time, including the traditionally considered ovicides such as Apollo, Savey and Onager (if not already used this season), as well as Agri-Mek, which can still easily get into the tender leaf tissue to do its work, plus a host of moderate- and quicker-acting maintenance/rescue materials such as Zeal, Kanemite, Nexter, Portal, Acramite, Envidor, and Nealta. Additionally, if you're planning to apply Proclaim for OBLR, you'll get some miticidal activity too. Be aware of seasonal use limits and IRAC rotational considerations with anything you use now.



ORCHARD RADAR DIGEST

[H = Highland; G = Geneva]:

Roundheaded Appletree Borer

RAB egg laying begins: June 4 (H)/June 8 (G).
Peak egg laying period roughly: June 24-July 7 (H)/June 28-July 12. First RAB eggs hatch roughly: June 19 (H)/June 23 (G).

Dogwood Borer

First DWB egg hatch roughly: June 18 (H)/June 23 (G).

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Codling Moth

1st generation, first sustained trap catch biofix date: May 9 (H).

Codling moth development as of May 8:

1st generation adult emergence at 0% and 1st generation egg hatch at 0%

1st generation 3% egg hatch expected: June 5 (H)/June 9 (G).

Lesser Appleworm

1st LAW trap catch: May 2 (H)/May 11 (G); peak trap catch: May 16 (H)/May 22.

Mullein Plant Bug

Expected 50% egg hatch date: May 5 (H)/May 14 (G), which is 9 days before rough estimate of Red Delicious petal fall date

Obliquebanded Leafroller

1st generation OBLR flight, first trap catch expected: June 4 (H)/June 9 (G).

Oriental Fruit Moth

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

San Jose Scale

First adult SJS caught on trap: May 13 (H)/May 20 (G).

1st generation SJS crawlers appear: June 14 (H)/June 19 (G).

Spotted Tentiform Leafminer

1st generation sapfeeding mines start showing: May 11 (H)/May 21 (G)/

Optimum sample date is around May 16 (H)/May 22 (G), when a larger portion of the mines are visible.

White Apple Leafhopper

1st generation WALH found on apple foliage: May 3 (H)/May 12 (G).

PHENOLOGIES		
Geneva:	Current	5/15, Predicted
Apple (McIntosh):	50% petal fall	petal fall
Apple (Empire):	bloom	petal fall
Apple (Red Delicious):	bloom	bloom
Apple (Idared):	bloom	
Pear (Bartlett):	80% petal fall	petal fall
Pear (Bosc):	80% petal fall	petal fall
Tart Cherry:	50% petal fall	fruit set
Sweet Cherry:	petal fall	fruit set
Peach:	petal fall	petal fall/shuck split
Plum:	petal fall	fruit set
Highland:		
Apple (McIntosh, Empire, Ginger Gold, Spur Red Delicious):	petal fall/fruit set	
Pear (all):	petal fall/fruit set	
Peaches, Cherries, Plums:	petal fall	

PEST FOCUS

Geneva:

BMSB 1st catch (Webster/Monroe Co.), May 3.
Black stem borer 1st catch (Wayne Co.), May 3.

Highland:

Foliar damage noted from
Rosy Apple Aphid (curled leaves);
Obliquebanded Leafroller (feeding damage);
Gypsy Moth (feeding damage).

INSECT TRAP CATCHES (Number/Trap)

Geneva, NY

Highland, NY

	<u>5/1</u>	<u>5/4</u>	<u>5/8</u>		<u>4/24</u>	<u>5/1</u>	<u>5/8</u>
Green fruitworm	5.0	0.5	0.0	Green fruitworm	0.0	0.0	0.0
Redbanded leafroller	105.5	9.0	5.0	Redbanded leafroller	103.5	109.5	54.0
Spotted tentiform leafminer	89.5	10.0	2.5	Spotted tentiform leafminer	75.5*	154.5	16.0
Oriental fruit moth	30.5	66.0	0.0	Oriental fruit moth	0.5	47.0	9.5
Lesser Appleworm	-	0.0	0.0	Lesser appleworm	8.5	93.5	64.5
Codling Moth	-	0.0	0.0	Obliquebanded leafroller	0.0	0.0	0.0

* first catch

UPCOMING PEST EVENTS

		43°F	50°F
Current DD*	(Geneva 1/1–5/8/17):	389.3	184.1
accumulations	(Geneva 1/1–5/8/16):	317.0	132.1
	(Geneva "Normal"):	350.4	175.5
	(Geneva 1/1-5/15, predicted):	449.7	211.6
	(Highland 1/1–5/8/17):	592.7	306.9

Coming Events: Ranges (Normal ±StDev):

American plum borer 1st catch	392-521	196-285
Codling moth 1st catch	396-566	200-307
European red mite egg hatch complete	368-470	182-280
Green fruitworm flight subsides	267-465	124-249
Lesser appleworm 1st catch	276-564	129-305
Lesser appleworm 1st flight peak	364-775	183-444
Mullein plant bugs 1st hatch	331-443	163-229
Oriental fruit moth 1st flight peak	329-534	165-285
Redbanded leafroller 1st flight peak	228-378	104-198
San Jose scale 1st catch	438-614	220-339
Spotted tentiform LM sapfeeding mines present	343-601	165-317
White apple leafhopper nymphs on apple	302-560	146-308
McIntosh petal fall	445-523	227-285

*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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