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Update on Pest Management and Crop Development
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COMING EVENTS

	43°F	50°F
Current DD* accumulations		
(Geneva 1/1-5/15):	430.4	199.0
(Geneva 1/1-5/15/2016):.....	390.5	173.2
(Geneva "Normal"):	447.5	235.1
(Geneva 1/1-5/22, predicted):....	579.4	300.4
(Highland 1/1-5/15):	639.1	324.2

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

Codling moth 1st catch	396-566	200-307
Codling moth 1st flight peak.....	558-971	306-574
Lesser appleworm		
1st flight peak.....	364-775	183-444
Pear psylla		
adults & hardshells present	408-606	220-324
San Jose scale 1st catch	438-614	220-339
San Jose scale 1st flight peak.....	557-737	297-414
Spotted tentiform leafminer		
sapfeeding mines present.....	343-601	165-317
White apple leafhopper		

nymphs on apple.....	302-560	146-308
McIntosh fruit set	506-596	262-330

*[all DDs Baskerville-Emin, B.E.]

Phenologies

Geneva:	Current	5/22, Predicted
Apple (McIntosh):	80% petal fall	petal fall/ fruit set
Apple (Empire):	50% petal fall	petal fall/ fruit set
Apple (Red Del.):	50% petal fall	petal fall
Apple (Idared):	80% petal fall	
Pear (Bartlett):	petal fall	fruit set
Pear (Bosc):	petal fall	fruit set
Tart Cherry:	80% petal fall	fruit set
Sweet Cherry:	fruit set	
Peach:	petal fall/shuck split	
Plum:	petal fall	fruit set

Highland:
Apple (all), Pear (all), Peaches, Cherries: fruit set+

PEST FOCUS
Highland: Codling moth 1st trap catch 5/12.
Pear psylla 1st generation adult emergence; increased egg laying.

Plum curculio 1st stings to fruit (Ginger Gold, Golden Delicious).

TRAP CATCHES (Number/trap)

Geneva

	5/4	5/8	5/11	5/15
Green Fruitworm	0.5	0.0	0.0	0.5
Redbanded Leafroller	9.0	5.0	3.5	28.5
Spotted Tent. Leafminer	10.0	2.5	2.0	25.0
Oriental Fruit Moth	66.0	0.0	0.5	11.0
Lesser Appleworm	0.0	0.0	0.0	0.0
Codling Moth	0.0	0.0	0.0	0.0
San Jose Scale	-	-	-	0.0
Lesser Peachtree Borer	-	-	-	0.0

Highland (Peter Jentsch)

	4/24	5/1	5/8	5/15
Green Fruitworm	0.0	0.0	0.0	0.0
Redbanded Leafroller	103.5	109.5	54.0	30.5
Spotted Tent. Leafminer	75.5*	154.5	16.0	10.0
Oriental Fruit Moth	0.5	47.0	9.5	9.5
Lesser Appleworm	8.5	93.5	64.5	29.0
Obliquebanded Leafroller	0.0	0.0	0.0	0.0
Codling Moth	0.0	0.0	0.0	4.0*
San Jose Scale	0.0	0.0	0.0	0.0

* 1st catch

ORCHARD RADAR DIGEST

[H = Highland; G = Geneva]:

Roundheaded Appletree Borer

RAB egglaying begins: June 1 (H)/June 6 (G). Peak egglaying period roughly: June 22-July 5 (H)/June 26-July 10. First RAB eggs hatch roughly: June 16 (H)/June 21 (G).

Dogwood Borer

First DWB egg hatch roughly: June 16 (H)/June 22 (G).

Codling Moth

Codling moth development as of May 15 (H):
1st generation adult emergence at 2% and 1st generation egg hatch at 0%
1st generation 3% egg hatch expected: June 2 (H)/June 7 (G).

Lesser Appleworm

Peak LAW trap catch: May 16 (H)/May 20 (G).

Obliquebanded Leafroller

1st generation OBLR flight, first trap catch expected: June 2 (H)/June 7 (G).

Oriental Fruit Moth

1st generation 55% egg hatch and first treatment date, if needed: May 21 (H)/May 28 (G).

San Jose Scale

First adult SJS caught on trap: May 14 (H)/May 18 (G).

1st generation SJS crawlers appear: June 12 (H)/June 17 (G).

Spotted Tentiform Leafminer

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

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

[Section: INSECTS]

BUZZ IN THE AIR

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

[Box text: MIXED SIGNALS]

Like most regular biological events, insect development responds positively to warmer conditions, so anticipating that this week's forecast of 80-plus degree weather will provide the needed push, management decisions for most major pests 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 24 - scars present)

Curcs have only so much egg-laying activity programmed into their behavior, and it's directly related to the temperature. The warmer the post-petal fall period is, the quicker 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 WNY orchards probably will be receiving their petal fall spray this week, while those in the Hudson Valley should have started already. Peter Jentsch notes the appearance of the first PC stings in this today's Pest Focus, and we should soon begin to notice a few instances of injury from this pest in western NY; the **Apple IPM Insect Models Website** (http://newa.nrcc.cornell.edu/newaModel/apple_pest) puts curculios just barely into their egglaying activity. For apples, if you additionally have **Rosy Apple Aphid** colonies active in your trees, consider an application of a material having good activity on 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 8)

We have yet to catch the first obliquebanded leafroller adult in western N.Y., but this should occur very soon in the Hudson Valley, as populations there are usually 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 development. This week or the next 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 Intrepid, Proclaim, Rimon, or a B.t. product (e.g., Agree, Dipel, Deliver, Javelin) at this time will help diminish the population for better management during the summer. Although Altacor, Belt, Delegate, or Exirel are also very effective against OBLR, it would be advisable to save these big guns for the summer generation larvae, which are more of a direct threat to the developing fruits.

Stone Fruit Aphids

Although green peach aphid is 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, which causes curled leaves that may turn yellow or red in severe cases. 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, Baythroid, and Warrior. Pre-mixes labeled for this use include Endigo, Leverage, Voliam Flexi and Voliam Xpress/Besiege.

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 should be caught in Geneva sometime within the coming week. 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 and you are electing this approach. A better and preferred

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-June 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 callus 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, or Warrior for this application (or pre-mixes such as Endigo, Gladiator, Leverage, or Voliam Xpress/Besiege). 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/Besiege, and observe the proper PHIs for these respective materials. Check the labels of all products for the recommended target area, where applicable (trunk vs. foliar).

European Red Mite

Mite populations should be starting to build slowly this season, and adults may already be present, which means that they'll be laying summer eggs that will hatch into

potential problems before long. We did not have much favorable pre-bloom weather for early season oil or miticide applications this year; if you failed to take advantage of any opportunities that did occur before bloom, it's not too late to use one of the preventive materials such as Savey/Onager, Apollo, Agri-Mek, Nealta, 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 Orchex 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, or an application of any thinning materials.

San Jose Scale (June 19 - 1st crawlers)

Minute SJS adult males emerge in the spring from beneath scale covers on the trees, usually following petal fall, and mate; 1st catch of the adult males should occur soon in the Hudson Valley, followed by Geneva shortly thereafter. 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/Besiege. These applications will also be effective against **White Prunicola Scale**, which has gotten to be increasingly common of in our area, in apples as well as peaches.

Oriental Fruit Moth (May 2)

We're generally calling biofix May 3 in western NY this year, although cold temperatures resulted in a temporary nosedive in adult flight last week. 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 159 (April 27 biofix), and 330 DD for the Highland Lab (April 17 biofix). This would put us very near the window in the state's earliest sites for a timely treatment in apples. If you need something specific against OFM in your petal fall sprays, Altacor, Assail, Avaunt, Belt, Delegate, Exirel, Intrepid, and Rimon are recommended options in apples, and Altacor, Assail, Belt, Delegate, Exirel, Asana, Danitol or Warrior in peaches.

Mating disruption (available products include Isomate-CM/OFM TT, OFM TT or CM/OFM Mist; Checkmate OFM-F or Puffer CM-OFM) is a recommended complement to any management program, and although it is still not too late to use them, these dispensers should be deployed this week, since the coming summer temperatures will certainly kick the moths out of their spring stasis.

Pear Psylla

These insects should also have been making steady progress, and the 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, Admire, Asana, Assail, Centaur, Danitol, Delegate, Esteem, Exirel, Movento, Nexter, Portal, Warrior, Voliam Flexi and Agri-Flex also have varying degrees of effectiveness against this pest, usually negatively correlated with frequency of past use.

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