Update on Pest Management and Crop Development
June 1, 2020

COMING EVENTS

Current DD* accumulations
(Geneva 1/1-6/1): 594.1 503.8 328.2
(Geneva 1/1-6/1/2019): 573.8 481.0 293.3
(Geneva "Normal"): 655.9 642.0 378.3
(Geneva 1/1-6/8, predicted): 718.2 614.6 407.8
(Highland 1/1-5/31): 801.5 430.9

Upcoming Pest Events (Geneva) - Ranges (Normal +/- 1 Standard Deviation):

American plum borer
  1st flight peak................. 601-967 329-585

Black cherry fruit fly
  1st catch.......................... 702-934 380-576

Black stem borer
  1st flight peak................. 635-901 485-1255

Codling moth
  1st flight peak................. 562-980 308-579

Lesser appleworm
  1st flight peak............... 364-775 183-444
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<tr>
<th>Insect or Disease</th>
<th>5/22</th>
<th>5/26</th>
<th>5/29</th>
<th>6/1</th>
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<tr>
<td>Redbanded Leafroller</td>
<td>36.5</td>
<td>45.5</td>
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<tr>
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<td>13.0</td>
<td>15.0</td>
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<td>Oriental Fruit Moth</td>
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<tr>
<td>San Jose Scale</td>
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<td>125.0*</td>
<td>1.7</td>
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<tr>
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<tr>
<th>Insect or Disease</th>
<th>5/7</th>
<th>5/13</th>
<th>5/20</th>
<th>5/27</th>
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<th>Date 2</th>
<th>Date 3</th>
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<td>5/18</td>
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<tr>
<td>Oriental Fruit Moth</td>
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<td>Black Stem Borer</td>
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<tr>
<td>Lesser Appleworm</td>
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<td>Tufted Apple Budmoth</td>
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<td>San Jose Scale</td>
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</tr>
<tr>
<td>Brown Marm. Stink Bug</td>
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<tr>
<td>Fruit Tree Leafroller</td>
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</tr>
<tr>
<td>Variegated Leafroller</td>
<td>-</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Dogwood Borer</td>
<td>-</td>
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<tr>
<td>Sparganothis Fruitworm</td>
<td>-</td>
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</tbody>
</table>

* 1st catch

**PEST FOCUS**

Lesser Peachtree Borer 1st catch 5/29.

Fruit Tree Leafroller 1st catch 5/31.  
Variegated Leafroller 1st catch 5/31.  
Dogwood Borer 1st catch 5/31.  
Sparganothis Fruitworm 1st catch 5/31.

[Section: INSECTS]

**COMING DISTRACTIONS**

(Art Agnello, Entomology, Geneva; ama4@cornell.edu)
As with many other biological events, insect development responds positively to warmer conditions, so anticipating that we'll eventually start accumulating some typical early summer heat units, 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 development, and its duration is 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 have probably received their petal fall sprays this week, while those in the Hudson Valley should have
been completed a couple of weeks ago; some effective options include Imidan, Actara, Avaunt, Exirel, Verdepryn, Besiege, and Minecto Pro). Peter Jentsch has noted adult oviposition damage in the Hudson Valley, along with feeding damage in untreated Ginger Golds and also cherries, 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.cornell.edu/index.php?page=apple-insects](http://newa.cornell.edu/index.php?page=apple-insects)) puts curculios about one-third of the way into their egglaying activity in Geneva. For apples, if you additionally have **Rosy Apple Aphid** colonies active in your trees and want to guard against the buildup of foliar colonies later, consider an application of a material having good activity on this species (e.g., Actara, Admire Pro, Assail, Exirel, Leverage, Minecto Pro, Sivanto Prime).

**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. Effective
options include Imidan, Actara, Altacor, Avaunt, Exirel, Voliam Flexi.

**Obliquebanded Leafroller (June 8)**

It's too early to expect the catch of 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, Grandevo, 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, 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, Grandevo 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, Exirel, Grandevo, Lorsban, Movento, Sevin, and pyrethroids such as Asana, Baythroid, and Warrior. Pre-mixes labeled for this use include Endigo, Leverage, Minecto Pro, 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.

On a related note, USDA APHIS and the NYS Dept of Ag & Markets have confirmed that their quarantine for the invasive European Cherry Fruit Fly (*Rhagoletis cerasi*) this year will include Niagara, Erie and Orleans Counties, and will restrict interstate movement of fruits and other regulated articles from this area. For a complete description of this quarantine and its impacts, go to:


**Lesser Peachtree Borer (May 24)**

The first adults showed up in Geneva Friday, May 29, and earlier in the week in Orleans Co. 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
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 Asana, Baythroid, Lorsban (all formulations), Pounce, or Warrior for this application (or pre-mixes such as Endigo, Gladiator, Leverage, or Besiege). In cherries, use Asana, Baythroid, [Lorsban (tarts only), as a trunk spray ONLY; do not spray the fruit], Pounce, Warrior, Endigo, Gladiator or 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 with the onset of summer temperatures, and adults may already be present in some warmer areas, which means that they'll be laying summer eggs that will hatch into potential problems before long. If you failed to take advantage of any pre-bloom opportunities for early season oil or miticide applications, 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; first catch of the adult males occurred on May 26 in the Hudson Valley and May 29 in Geneva; this should be imminent in the rest of WNY within the week. The females produce live crawlers about 4–6 weeks after 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 Centaur (except Nassau and Suffolk Counties), Movento (which must be mixed with an organosilicone or nonionic spray adjuvant), Sivanto Prime, Venerate and Assail. Other options include Imidan, Admire, or pre-mixes such as Endigo, Leverage, or Besiege. These applications should 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 15 in Geneva this year, with various later dates found in western NY (centering around May 26), although cold temperatures this weekend have resulted in a noticeable nosedive in adult flight since then. 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 364, and 566 DD for the Highland Lab (April 13 biofix). This would put us well into 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, Delegate, Exirel, Intrepid, Verdepryn, Grandevo and Rimon are recommended options in apples, and Altacor, Assail, Delegate, Verdepryn, Exirel, Asana, Danitol or Warrior in peaches. The granulosis virus products Madex and Virossoft CP4, which have efficacy against both codling moth and OFM, can be a valuable supplement to seasonal management programs for both these pests. Mating disruption (available products include Isomate-CM/OFM TT, OFM TT or CM/OFM Mist; Cidetrak OFM-L Meso; Checkmate OFM-F or Puffer CM-OFM) is a recommended complement to any management program, and although it is a bit late to start using them, these dispensers could still be deployed this week, since the coming warmer
temperatures will certainly kick the moths out of their spring stasis.

**Codling Moth (May 18)**

Biofix was May 22 in Geneva, and May 26 in the Lake Ontario counties; the first spray is recommended at 150 DD (base 50ºF) for ovicidal materials (Rimon, Intrepid, Esteem), at 250-360 DD for larvicidal materials. In Geneva we're at 185; 105-110 in Wayne and Orleans Co. Options include the diamides, Assail, Delegate, and possibly Imidan, depending on the status of resistance in your local populations. Options for mating disruption, always a recommended complement to your insecticide programs, include Isomate CM/OFM TT or CM/OFM Mist; Suterra Puffer CM-OFM, and Cidetrak CMDA Combo Meso-A. As for oriental fruit moth, don't overlook the potential contribution of granulosis virus products (Madex and Virosoft CP4) as a complement to your management program.

**Woolly apple aphid**

There have been a few reports of aerial colonies showing up in Wayne Co. in bud scars and shoot angles. Options include Diazinon (the best, but a problematic choice for some growers); Movento at PF–1C or
whenever infestations are noted, and also Assail and Sivanto.

**Black stem borer (May 4)**

Adults were first caught during the first week in May in WNY; high numbers, reaching 100–200 per trap, were seen last week, indicating their peak flight period. Management options are still considered provisional, since nothing we have will completely control this insect. However, trunk sprays are definitely the best option; 2 are recommended using Lorsban for one, and Warrior or Danitol for the other. Timing would be now for the first application, followed by another in 2 weeks. Note: Lorsban is still expected to be banned in NYS by the end of 2021.

**Gypsy moth**

2nd–3rd-instar larvae have been reported as being numerous in some apple plantings in WNY. These are readily controlled by some of the broad-spectrum insecticides, including Imidan, Delegate, Danitol, and the B.t.s (Agree, Dipel, Deliver, Javelin, etc.).

**Brown Marmorated Stink Bug**

It's too early to think about control just yet, but if any are found inside your orchard later in the summer, a
treatment should be considered. We will likely get a Section 18 label for bifenthrin [Brigade/ Bifenture] in NY again this year; alternative options include Endigo, Besiege, and Lannate.

**Pear Psylla**

These insects should also have been making steady progress, and the warming temperatures will eventually result in the production of summer nymphs. Since resistance issues are always a challenge, it makes sense to rotate among classes that you haven't used before. 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, Sivanto Prime, Warrior, Voliam Flexi and Agri-Flex also have varying degrees of effectiveness against this pest, usually negatively correlated with frequency of past use. Additionally, the recently expanded Magister label includes pear psylla, which we haven't tested, but may show promise owing to its being a novel a.i. (fenazaquin) against this species.

**Spotted Wing Drosophila**
Normally not considered to be a significant threat to tree fruits, SWD caused major problems in sweet and (particularly) tart cherry plantings in 2017, but was barely noted last year. This variability is probably related mostly to the timing of its occurrence relative to the spray calendar required for acceptable control, which is more aggressive than many growers are accustomed (or inclined) to using. Most programs require weekly applications, and the options comprise several pyrethroids (Mustang Maxx, Danitol, Asana, Lambda-Cy), as well as Delegate, Entrust, Exirel, and Grandevo. The SWD blog site (http://blogs.cornell.edu/swd1/) contains current trapping results and (eventually) links to quick guides for product selection in various tree fruits and berry crops.

[Section: DISEASES]

Weekly Apple Scab and Fire Blight Updates for NY (6/1 to 6/6/20)
(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.

<table>
<thead>
<tr>
<th>Week of 6/1/20*</th>
<th>Hudson Valley</th>
<th>Finger Lakes</th>
<th>Wayne County</th>
<th>Niagara County</th>
<th>Champlain Valley</th>
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<td>June 2-3</td>
<td>June 2-3</td>
<td>June 1-3</td>
<td>June 1-3</td>
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<td>Maturity</td>
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<td>Discharge</td>
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<td>31 h</td>
<td>39 h</td>
<td>45 h</td>
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* predictions are regional; the model works best under local conditions. Always check weather and crop stage before making a management decision.

Infection predictions:

• "Date": An infection event is predicted for the date listed. If a multi-day infection event is predicted, the first full date of the infection will be listed.

Ascospore maturity: The ascospore maturity during the predicted infection event. If no infection event is predicted, the maturity by the end of the week is listed.

Discharge: The percent ascospore discharge during the predicted infection event(s). If no infection event is
predicted, the cumulative ascospore discharge by the end of the week is listed.

Below are **blossom blight** 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.

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<th>Niagara County</th>
<th>Champlain Valley</th>
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<tr>
<td>Infection Risk</td>
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<td>HIGH</td>
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<td>Highest 4-day DH</td>
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<td>-</td>
<td>616</td>
<td>680</td>
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</table>

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

**Infection risk:**
"Low": EIP and 4-day DH accumulation at/below 75 and 300, respectively; "Moderate": EIP and 4-day DH accumulation between low and high-risk values; "High": EIP and 4-day DH accumulation at or above 100 and 400, respectively with moisture predicted; "None": little to no risk predicted for the week.

**Date:** The date of highest risk for the week is listed.

**Highest EIP & 4-day DH:** The highest EIP value and 4-day DH accumulation for the week is listed.

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