

SCAFFOLDS Fruit Journal, Geneva, NY

Volume 27, No. 17

Update on Pest Management and Crop Development

July 16, 2018

COMING EVENTS

| | 43°F | 50°F |
|-------------------------------|--------|--------|
| Current DD* accumulations | | |
| (Geneva 1/1-7/16): | 1846.5 | 1264.4 |
| (Geneva 1/1-7/16/2017): | 1806.4 | 1150.1 |
| (Geneva "Normal"): | 1860.5 | 1223.6 |
| (Geneva 1/1-7/23, predicted): | 2046.0 | 1414.9 |
| (Highland 1/1-7/16): | 2180.5 | 1507.8 |

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

Apple maggot

1st oviposition punctures 1605-2157 1144-1544

American plum borer

2nd flight peak 2005-2575 1351-1777

Codling moth 2nd flight start 1583-2230 1032-1494

Codling moth 2nd flight peak 1954-2684 1300-1854

Comstock mealybug

1st flight subsides 1818-2132 1216-1418

Lesser appleworm

2nd flight start 1429-2108 924-1405

Obliquebanded leafroller

1st flight subsides 1630-2048 1060-1377

Oriental fruit moth

2nd flight subsides 2026-2524 1344-1756

San Jose scale

2nd flight subsides 1998-2354 1318-1625

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

PEST FOCUS

Williamson: 1st Apple Maggot adult capture, 7/12.

MODEL BUILDING

Insect model predictions for Highland[H]/Geneva[G]

[Source: NEWA Apple Insect Models,

<http://newa.cornell.edu/index.php?page=apple-insects>]

Obliquebanded Leafroller: 90% egg hatch @ 810 DD43;
100% egg hatch @ 950 DD43 (currently @ 1088 [G] /
1184[H] / 885[Wmson] / 897[Sodus] / 932[Wolcott]).

TRAP CATCHES (Number/trap)

Geneva

| | 7/6 | 7/9 | 7/13 | 7/16 |
|----------------------|------|-----|------|------|
| Redbanded Leafroller | 10.5 | 6.5 | 5.5 | 2.5 |

| | | | | |
|--------------------------|------|------|------|------|
| Spotted Tentiform LM | 55.5 | 23.5 | 24.5 | 13.5 |
| Oriental Fruit Moth | 74.5 | 63.5 | 78.0 | 81.0 |
| Codling Moth | 9.5 | 4.0 | 7.0 | 16.5 |
| Lesser Peachtree Borer | 3.5 | 2.0 | - | 8.5 |
| Obliquebanded Leafroller | 2.5 | 1.0 | 1.5 | 0.5 |
| Dogwood Borer | 0.0 | 0.0 | 0.0 | 0.0 |
| Peachtree Borer | 10.5 | 8.5 | - | 25.0 |
| Apple Maggot | 0.0 | 0.0 | 0.0 | 0.0 |

Highland (Peter Jentsch)

| | | | | |
|--------------------------|-------|------|------|-------|
| | 6/25 | 7/2 | 7/9 | 7/16 |
| Redbanded Leafroller | 18.5 | 31.0 | 60.5 | 75.0 |
| Spotted Tentiform LM | 56.0 | 89.0 | 65.5 | 57.0 |
| Lesser Appleworm | 0.5 | 0.5 | 0.0 | 0.0 |
| Oriental Fruit Moth | 5.0 | 0.0 | 1.5 | 0.0 |
| Codling Moth | 49.0 | 13.5 | 7.5 | 34.5 |
| San Jose Scale | 0.0 | 0.0 | 7.0* | 269.0 |
| Obliquebanded Leafroller | 53.0 | 17.0 | 17.0 | 0.0 |
| Dogwood Borer | 0.0 | 0.5 | 1.0 | 2.5 |
| Tufted Apple Bud Moth | 23.0* | 12.0 | 4.5 | 1.5 |
| Sparganothis Fruitworm | 7.0* | 11.0 | 7.5 | 3.5 |
| Apple Maggot | - | 1.8* | 4.3 | 3.0 |

* 1st catch

ORCHARD RADAR DIGEST

[H = Highland; G = Geneva]:

Roundheaded Appletree Borer

Peak RAB egg hatch roughly: July 4-22 (H)/July 11-28 (G).

Codling Moth

Codling moth development as of July 16:

2nd generation adult emergence at 26% (H)/9% (G)
and

2nd generation egg hatch at 3% (H)/0% (G).

Oriental Fruit Moth

OFM second treatment date, if needed, July 17 (G).

[Section: INSECTS]

THE LITTLE THINGS THAT COUNT

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

[Box Text: THE BRONZE AGE?]

The recent and continued bursts of heat moving through our region this month are providing sufficient heat (and food) to promote buildups of European red mite populations in various sites. Because mites have many generations per year, they have a high potential to develop resistance. Some major differences

between resistance management programs for fungicides vs. insecticides and miticides are:

1 - Insect and mite resistance is not promoted by using low dosages of materials; i.e., it doesn't cause a population shift in their susceptibility, as can occur with pathogens.

2 - Frequent applications of high rates usually will not prevent or slow down the development of insect and mite resistance.

3 - Usually, high dosages are not toxic to resistant insects or mites, but they do kill a greater number of susceptible individuals.

Recall that resistant mites are theoretically "less fit" or weaker than susceptible individuals. They have shorter lives, are physically smaller or weaker, produce fewer offspring, take longer to develop, and their mating success is lower. In the absence of competition from susceptible individuals, resistant pests rapidly multiply.

The key to management of resistance to insecticides and miticides is to reduce selection pressure that favors the survival of resistant individuals. Some tactics for doing this are:

- Treat different generations with materials of different chemical classes.
- Use nonchemical control tactics where possible (e.g., biological control by using selective insecticides -- i.e., avoiding pyrethroids and carbamates -- to encourage predator mites) -- see Table 7.1.2 (p. 67) in the Recommends.
- Use good miticide stewardship, apply only when necessary, use correct dosages, obtain adequate coverage, and optimize your timing.

Not so long ago, our miticide choices were not very numerous: oil, Morestan (prebloom), Vydate, Omite, Carzol, and Kelthane. We have many more options today, but it's important to keep in mind how they may (OR may not) differ:

[6] Agri-Mek/Proclaim: GABA (neurotransmitter) site; affects chlorine ion channel, inhibits nerve transmissions

[10A] Apollo/Savey/Onager: growth inhibitors

[10B] Zeal: growth inhibitor

[20B] Kanemite and [25] Nealta: METI (mitochondrial electron transport inhibitor), Site II; also,

Magister

(cherries only)

[21] Nexter/Portal: METI (mitochondrial electron transport inhibitor), Site I

[23] Envidor: lipid biosynthesis inhibitor

[25] Acramite: GABA (neurotransmitter) site (probably);
contact activity

These numbers, which are listed just before the product names in the Tree Fruit Guidelines spray tables, are assigned by IRAC (Insecticide Resistance Action Committee). This is an international organization of researchers and scientists committed to prolonging the effectiveness of pesticides at risk for resistance development. The number codes represent Mode of Action Classification Groups. An arthropod population is more likely to exhibit cross-resistance to materials within the same group, so if you're seeing (or anticipating) reduced efficacy from a miticide that may have been effective in the past, it would be advisable to switch to a material that's in a different IRAC grouping. For more information on this effort, see:

<http://www.illac-online.org/>

European red mite eggs and motile forms are present on the foliage right now, some of them at increasing levels. Under the current sultry temperatures, the

period from egg deposit to hatch and multiplication will be a short one. Inspect your leaves using the 5 mites/leaf form on p. 76 of the Recommends, and be aware that two-spotted mite populations increase more quickly than ERM, so be conservative in your interpretations. Envidor, Kanemite, Portal, and Zeal are options to keep in mind if treatment is needed; Acramite tends to be more effective against TSSM than ERM, and Nexter works better against red mites than it does on twospots, but the main advice is to get out there and look at your foliage. This also will give you an occasion to observe any incidental invasions of either Japanese beetles or potato leafhoppers, both of which have been noted as increasing around the region. For management guidelines for the former, refer back to Scaffolds issues No. 13 (June 18), and see below for the latter.

Potato Leafhopper

PLH feeds on tender young terminal leaves. Initially, injured leaves turn yellow around the edges, then become chlorotic and deformed (cupping upward) and later turn brown or scorched. Damage is caused by a toxin injected by PLH while feeding. PLH also occasionally causes symptoms similar to the effects of growth regulators, such as excessive branching

preceding or beyond the point of extensive feeding. PLH damage is often mistaken for injury caused by herbicides, nutrient deficiency, or over-fertilization. PLH injury may not be serious on mature trees but can severely stunt the growth of young trees.

Nymphs and adults should be assessed on 50–100 randomly selected terminal leaves in an orchard. Older trees should be inspected approximately every three weeks during the summer. Young trees should be examined weekly through July. PLH nymphs are often described as moving sideways like crabs, whereas white apple leafhoppers generally move forward and back. No formal studies have been conducted in N.Y. to determine the economic injury level for PLH on apples, so we suggest a tentative threshold of an average of one PLH (nymph or adult) per leaf. Little is known about the natural enemies of PLH, but it is assumed that they cannot effectively prevent damage by this pest in commercial New York orchards.

Damage by this migratory pest is usually worse when it shows up early. PLH can cause significant damage to newly planted trees that are not yet established. When PLH, white apple leafhopper (WALH), rose leafhopper

(RLH) and aphids are present, control measures are often warranted.

Field trials conducted some years ago in the Hudson Valley evaluated reduced rates of Provado against all three species of leafhoppers. Provado was applied in combinations at a full rate (2 oz/100 gal) and a quarter rate (0.5 oz/100 gal), at varying intervals (3rd–5th cover). Nymphs of PLH, WALH, and RLH were sampled and leaf damage by PLH was monitored.

Because of Provado's translaminar activity, all rates and schedules produced excellent control of WALH/RLH nymphs. Against PLH nymphs, the number of applications was shown to be more important than rate; i.e., better protection of new foliage. Considering the percentage of leaves with PLH damage, the number of applications again appeared to be more important than application rate.

Admire Pro, the current imidacloprid product from Bayer, is also an excellent aphicide, and the same principle would hold as for PLH — maintaining coverage of new growth is more important than the rate. Moreover, reduced rates are likely to increase the survival of cecidomyiid and syrphid predators that are

common and effective biological control agents. Other management options for these leaf feeding hoppers can be found in the "Additional Summer Sprays" section starting on p. 144 in the Recommends. Check Table 7.1.2 (p. 67) for impacts of any of these products on beneficials.

Notes from the Field:

Conversations and newsletters from local consultants (Jim Eve and Mike Biltonen) have confirmed the presence of some of our habitual summer insect pests in the Lake Ontario region, including first emergence of apple maggot (as we also saw in Williamson last week) and buildup of woolly apple aphid. As it commonly does, WAA tends to be more noticeable in larger trees with dense canopies. Movento and Beleaf are probably not as effective options as they were earlier in the season; if Assail is elected, a penetrant such as LI-700 would improve its effectiveness. Diazinon, as always, is the gold standard for woolly aphid control, but bear in mind the restrictions against its use imposed by certain buyers.

**SPOTTED WING DROSOPHILA UPDATE IN TART
CHERRIES**

(Julie Carroll, NYS IPM Program, Geneva;

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An inland site had first catch of SWD last week. One of the sites, at which we caught SWD last week, had zero SWD in traps this week. The other two are at sustained catch.

The three tart cherry orchards (out of the seven we are monitoring) at which we caught SWD this week had low numbers. My optimistic side is interpreting the low numbers as evidence that the insecticide programs in place are working.

2 females – one each in the traps on the edge and within the orchard.

1 female – in the trap on the edge of the orchard.

4 females – two each in the traps on the edge and within the orchard.

First trap catch of SWD signals that it's time for insecticide protection in tart cherries. Fruit is ripe and soft, and if I were working in your marketing office, I'd probably be screaming at the processor to take delivery before there's nothing to deliver with any level of quality, regardless of SWD!

The insecticide quick guide for tree fruit can be found on the Spotted Wing Drosophila Management page: <http://fruit.cornell.edu/spottedwing/management/>.

A recap of efficacy (days-to-harvest):

Excellent – Exirel (3 days), Minecto Pro (21 days), Danitol (3 days), Mustang Max (14 days), Imidan (7 days)

Good to Excellent – Entrust 80WP 2ee (7 days), Entrust 2SC 2ee (7 days), Asana XL 2ee (14 days), Lambda-Cy EC 2ee (14 days)

Moderate – Delegate WG (7 days)

Fair to Poor – Grandevo (zero days) This biological may prove useful in close rotation (3 days) with excellent materials, such as Entrust to bring you up to harvest. This is how it is being used in commercial blueberry production in NJ.

BMSB MANAGEMENT SURVEY FOR COMMERCIAL PRODUCERS

A nation-wide survey is currently under way to gather information from farmers and growers on the economic impact of the brown marmorated stink bug (BMSB) on agriculture. The objective of the survey is to better provide you with the help you need in managing this

pest. We'd like to find out when BMSB became a problem for you, where you currently get information on how to control them, how much damage you have suffered, your use of and interest in various management practices, and your feelings about biological control methods and their potential for your operation. The results of the survey will be used by Extension programs across the United States to fine tune management advice for the BMSB and help prioritize research and outreach activities.

If you'd like to participate, the survey should take you about 20-25 minutes to complete. Your individual survey responses will be confidential and the data collected will only be reported in summaries. Your participation is voluntary and you can decide not to answer a given question if you choose.

The link to the on-line survey along with more information about the survey can be found on the StopBMSB.org website (<http://stopbmsb.org/go/BfxA>). If you have any questions about the Brown Marmorated Stink Bug Management Survey for Commercial Producers, please contact Jayson Harper by e-mail at jkh4@psu.edu or call 814-863-8638.

NUT PRODUCTION SURVEY

Farmers of NYS, do you think growing tree nuts (chestnuts, hazelnuts, walnuts, etc.) is a nutty idea, or worth considering? Please take a few minutes to fill out this [brief survey](#) for a Cornell PhD project. Thanks!

Samuel Bosco, PhD Student

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This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

The Cornell Pest Management Guidelines for Commercial Tree Fruit Production (aka 'The Recommends') is available from the Cornell Store, both in a printed book format as well as online; visit <https://ipmguidelines.org/> for purchasing details.

Scaffolds is published weekly from March to September by Cornell University -- NYS Agricultural Experiment Station (Geneva), and Ithaca -- with the assistance of Cornell Cooperative Extension. New York field reports welcomed. Send submissions by 2 p.m. Monday to:

Scaffolds Fruit Journal

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