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Update on Pest Management and Crop Development

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

June 1, 2015 VOLUME 24, No. 10 Geneva,

INSECTS

THIS IS PRETTY COOL

ORCHARD RADAR DIGEST

[H = Highland; G = Geneva]:

Roundheaded Appletree Borer
RAB egglaying begins: May 30 (H)/June 1 (G). Peak egglaying period roughly: June 20 to July 5 (H)/June 24 to July 9 (G).

Dogwood Borer
First DWB egg hatch roughly: June 19 (H)/June 22 (G).

Codling Moth
Codling moth development as of June 1:
1st generation adult emergence at 24% (H)/15% (G) and 1st generation egg hatch at 0% (H,G)
1st generation 3% egg hatch expected: June 13 (H)/June 16 (G).

Obliquebanded Leafroller
1st generation OBLR flight, first trap catch expected: June 1 (H)/June 5 (G).

Oriental Fruit Moth
2nd generation OFM flight begins around: June 23 (H)/June 27 (G).

San Jose Scale
1st generation SJS crawlers appear: June 12 (H)/June 16 (G).

Spotted Tentiform Leafminer
2nd STLM flight begins around: June 10 (H)/June 13 (G).

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IN THIS ISSUE…

CHEESE IT, IT'S THE FUZZ!

FULLY WOOLLY
(Art Agnello,
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❖❖ This is the point of the season at which we normally begin to hear reports of the first infestations of woolly apple aphid (WAA) in problem sites in western NY, although the earliest occurrences could easily be overlooked because they are just starting up. In addition to apple, its hosts include American elm, hawthorn, and mountain ash. It overwinters as an egg in bark cracks and crevices, or as a nymph on roots underground and in various protected locations on trees. WAA is attracted to the base of root suckers and around pruning wounds and cankers on limbs and trunks, and colonizes both above-ground parts of the apple tree as well as the roots. In the spring, the nymphs, which are reddish-brown with a bluish-white waxy covering, crawl up from the roots to initiate aerial colonies. These initially build up on the inside of the canopy on sites such as wounds or pruning scars, and later become numerous in the outer portion of the tree canopy, usually during late July to early August.

The aerial colonies occur most frequently on succulent tissue such as the current season's growth, water sprouts, unhealed pruning wounds, or cankers. The main injury to young and mature trees is stunting due to the formation of root or twig galls; mature trees are usually not damaged. Heavy infestations cause honeydew and sooty mold on the fruit and galls on the plant parts, which interferes with harvest operations because red sticky residues from crushed WAA colonies can accumulate on pickers' hands and clothing.

During mid- to late June, water sprouts, pruning wounds, and scars on the inside of the tree canopy should be examined for WAA nymphs. During mid-July, new growth around the outside of the canopy should be examined for WAA colonies. No economic threshold has been determined for treatment of WAA, but they are difficult to control, so the occurrence of any colonies should prompt the consideration of some remedial action.

WAA is frequently parasitized by Aphelinus mali, a tiny wasp that is also native to North America. Parasitized aphids appear as black mummies in the colony. A. mali has been successfully introduced to many apple-growing areas of the world, and is providing adequate control of the WAA in several areas. It does not provide sufficient control in commercial orchards in our region because of its sensitivity to many commonly used insecticides; however, the wasp is thought to reduce WAA populations in abandoned orchards.

WAA is difficult to control with insecticides because of its waxy outer covering and tendency to form dense colonies that are impenetrable to sprays. Insecticide treatments are more effective the earlier they are applied, since they are more capable of decreasing the population before it becomes widespread, and the insects' waxy covering is less extensive earlier in the season. WAA is resistant to the commonly used organophosphates,

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but other insecticides are effective against WAA, including Diazinon, Movento and Thionex, and some newer products such as Admire, Assail, or Beleaf may offer suppression. For Movento and Assail, addition of a non-ionic surfactant (e.g., LI-700 or Regulaid) or horticultural mineral oil will improve activity. Good coverage to soak through the insects' woolly coverings is integral to ensuring maximum efficacy. Additionally, a Lorsban trunk application for borers made at this time will effectively control any crawlers that might be contacted by these sprays. In orchards where WAA has previously been noted as a recurring problem, the petal fall to first cover period (i.e., right now) would be a good time for a protective application of of Movento, preferably at the 8–9 oz/A rate. Because this material is systemic, the best efficacy will be obtained by following up with a second spray in 14 days. It is additionally effective against San Jose scale, the crawlers of which are anticipated to begin emerging within the next 2 weeks. ❖❖

CLEARWING SKIES

SOMETHING IN THE AIR
(Art Agnello, Entomology, Geneva; ama4@cornell.edu)

❖❖ In NY, there are two species of sesiid (clearwing) moths that attack peaches — the peachtree borer (PTB), *Synanthedon exitiosa*, and the lesser peachtree borer (LPTB), *S. pictipes*. The adult borers are striking clear-winged moths with yellow and steel-blue body markings. The adults of these insects have from one to four yellow-orange stripes across the abdomen, depending upon species and sex. The PTB enters the tree near soil level and does not require the presence of wounds or breaks in the bark for entry, but the LPTB nearly always enters the tree at a pruning scar, canker, mechanical injury, or winter-injured area. The LPTB additionally attacks cherries, causing the same type of injury in the upper trunk and scaffold branches of these trees. Both species pass the winter as borers inside the tree, and in the spring emerge as moths that lay eggs on or in the trunk during the summer. The LPTB moth emerges first, normally in mid- to late May, (we caught our first of this season in Geneva on May 18), and the PTB doesn't show up normally until mid-June; both stay active (laying eggs) through August. When the borer stages hatch, the PTB tends to crawl down the tree to soil level and burrow in there, but the LPTB will move to the nearest injured area, which may be on the lower trunk or just as easily up in the scaffold limbs. LPTB completes its development in one year, but some PTB larvae take two years to develop, so any control measure a grower would elect will require repeating for at least 2–3 years.

Injury is caused by larval feeding on the cambium and inner bark of the trunk close to the soil level (PTB) or on the upper trunk and lower scaffold branches (LPTB). Occasionally, larger roots are also attacked by PTB. Areas attacked often have masses of gum, mixed with frass, exuding from the bark. All ages of trees are injured. Young trees are at times completely girdled and subsequently die. Older trees are often so severely injured that their vitality is lowered and they are rendered especially susceptible to attack by other insects or by diseases. Although both species may be found in infested trees, younger plantings and those not afflicted by extensive cankers or other bark splits are attacked primarily by PTB.

Chemical control is difficult, owing to the concealed habit of the larvae. Preplant dipping of roots and crowns of peach tree seedlings before planting using Lorsban has given complete control of the peachtree borer for the 1st growing season and has reduced borers during the 2nd season. For in-season control, growers have traditionally relied on one or more coarse insecticide sprays (e.g., Asana, Lorsban, Proaxis, Warrior) of the trunks and lower scaffold branches to deter egg laying and kill newly established larvae. Because this is a labor-intensive measure that often fails to completely control

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these pests, many growers choose not to elect treatment, or else do an incomplete job, with the intention of getting what they can out of a planting until infestations combine with other peach production factors to warrant tree removal. However, there is a good alternative in the form of pheromone mating disruption (MD) tools for the control of these perennial pests.

Isomate-PTB Dual (Pacific Biocontrol/CBC America, EPA Reg. No: 53575-34) is a twist-tie pheromone dispenser labeled for use against both of these species in all NYS stone fruits. They are placed in the trees at a rate of 150–250 ties/A at or before the first flight, with the higher rate (250/A) recommended when pest pressure is high. This product has replaced the Isomate-LPTB and Isomate-PTB formulations. We have conducted trials on the efficacy of Isomate-LPTB with and without the addition of directed trunk sprays in peaches, and after 2 years we saw that the pheromone dispensers completely suppressed trap catches of both PTB and LPTB for both seasons, compared with relatively heavy flights noted in the non-disrupted comparison blocks, showing that pheromone treatment was highly successful in disrupting the chemical communication of males and females of these two species.

These trials provided sufficient evidence that mating disruption alone is able to provide adequate protection from borer infestations in commercial orchards, giving growers an effective non-chemical alternative to trunk sprays for managing this pest complex in their stone fruit plantings. Growers interested in this approach should be placing the pheromone ties during these next 1–2 weeks, before the LPTB flight gets solidly under way statewide. ❖❖

GENERAL INFO

ORGANIC APPLE WORKSHOP

EVENT ANNOUNCEMENT

❖❖ On Wednesday, June 10, NOFA-NY will be joining with Cornell to sponsor a Field Day Workshop entitled "Organic Production: Managing Productivity, Insects, Diseases and Weeds" at the NYSAES Loomis Farm, 3135 County Rd. 6, Geneva, from 1:00–4:30 PM. Presentations by entomologist Arthur Agnello, horticulturists Terence Robinson and Susan Brown, and plant pathologist Kerik Cox will focus on organic orchard practices informed by their ongoing research in the Station's 3-acre organic apple planting. Growth and productivity will be discussed, including new and upcoming disease-resistant varieties, rootstocks, training systems, pruning, weed control options, and nitrogen fertilization. Basic and advanced seasonal management approaches to insect control will be shared such as the use of entomopathogenic nematodes for biological control of plum curculio, and predatory mite seeding for the control of European red mite. The group will also go over organic fire blight management techniques and results from last year's summer disease trials.
Registration fees are $15/person or $25 for two or more people/farm.
Please pre-register online at: http://www.cvent.com/events/organic-apple-production-managing-productivity-insects-disease-and-weeds/event-summary-dd51400a20b0417e89d-847bae3565cf2.aspx
Pre-registration closes at 4pm on June 8th. [NOTE: This field day is free to Cornell faculty and CCE staff; please sign in at the event, as pre-registration is not necessary.]
This event is produced by NOFA-NY in partnership with the NYS Agricultural Experiment Station and support from the NYS Dept. of Ag & Mkts Specialty Crop Block Grant Program.
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PEST FOCUS

Geneva: 1st **dogwood borer** and **pandemis leafroller** trap catches 5/29. 1st **obliquebanded leafroller** trap catch today, 6/1.

Highland: 1st **obliquebanded leafroller** trap catch 5/29.

Insect model predictions for Highland/Geneva:
Plum curculio emergence complete at 308 DD50 on June 3 (currently @ 273[H]/194[G])
Codling moth larval emergence @ 220 DD50, on May 27 (currently @ 327[H]/241[G])
Obliquebanded leafroller larval emergence @350 DD43 on June 14 (currently @ 73[H]/0[G])
San Jose scale crawler emergence @ 400 DD50 after1st flight, on June 6. (currently @ 303)

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	5/26	5/29	6/1
Redbanded leafroller	4.4	1.7	0.2
Spotted tentiform leafminer	2.0	0.5	0.2
Oriental fruit moth	2.1	0.7	0.2
Lesser appleworm	0.4	0.2	0.0
Codling moth	1.4	1.5	0.7
San Jose scale	0.0	0.0	0.0
American plum borer	0.0	0.3	0.0
Lesser peachtree borer	3.5	2.8	0.5
Peachtree borer	–	0.0	0.0
Dogwood borer	–	0.2*	0.3

* first catch

Highland, NY

	5/26	6/1
Redbanded leafroller	0.6	0.0
Lesser appleworm	0.6	0.2
Oriental fruit moth	1.3	1.6
Codling moth	5.1	4.6
Spotted tentiform leafminer	0.4	0.1
San Jose scale	2.3	0.0
Dogwood borer	1.4	1.0
Obliquebanded leafroller	–	7.8*

UPCOMING PEST EVENTS

	43°F	50°F
Current DD* accumulations (Geneva 1/1–6/1/15):	750	474
(Geneva 1/1–6/1/2014):	663	380
(Geneva "Normal"):	750	389
(Geneva 1/1–6/8, predicted):	868	544
(Highland 1/1–6/1/15):	966	620

Coming Events:	Ranges (Normal ±StDev):	
Spotted tentiform leafminer 1st flight subsides	671–949	372–576
Lesser appleworm 1st flight peak	359–781	176–448
American plum borer 1st flight peak	594–966	323–585
Codling moth 1st flight peak	555–983	302–580
Pear psylla 1st summer adults	737–885	428–526
San Jose scale 1st catch	435–615	218–340
San Jose scale 1st flight peak	555–739	297–415
European red mite summer egg hatch	737–923	424–572
Black cherry fruit fly 1st catch	702–934	380–576
Obliquebanded leafroller pupae present	601–821	328–482
Obliquebanded leafroller 1st catch	811–983	472–592
Pandemis leafroller flight peak	883–1189	507–733
Redbanded leafroller 1st flight subsides	596–896	334–558
Rose leafhopper adults on multiflora rose	689–893	366–498
Rose leafhopper adults on apple	809–1053	440–622

*[all DDs are 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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