scaffolds

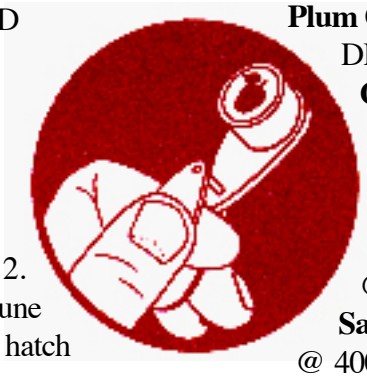
Update on Pest Management and Crop Development

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

May 31, 2016 VOLUME 25, No. 11 Geneva, NY

INSECTS

HOLIDAY TRAFFIC ORCHARD RADAR DIGEST



❖❖ **Geneva Predictions**:

Roundheaded Appletree Borer
RAB egglaying begins: June 2. Peak egglaying period roughly: June 23 to July 7. First RAB eggs hatch roughly: June 17.

Dogwood Borer
First DWB egg hatch roughly: June 21.

Codling Moth
Codling moth development as of May 31: 1st generation adult emergence at 35% and 1st generation egg hatch at 0%.
1st generation 3% egg hatch expected: June 4 (= target date for first spray where multiple sprays needed to control 1st generation CM).

Obliquebanded Leafroller
Early egg hatch and optimum date for initial application of insecticide effective against OBLR (with follow-up applications as needed): June 22.

San Jose Scale
1st generation SJS crawlers appear: June 17.

Spotted Tentiform Leafminer
2nd STLM flight begins around: June 15.

Insect model predictions for Highland[H]/ Geneva[G]
[Source: NEWA Apple Insect Models, http://newa.cornell.edu/index.php?page=apple-insects]

Plum Curculio emergence complete at 308 DD50 (currently @ 298[H] / 212[G]).

Codling Moth larval emergence @ 220 DD50 (currently @ 206[H] / 172[G]).

Obliquebanded Leafroller larval emergence @ 350 DD43 (currently @ 230[H] / 0[G]).

San Jose Scale crawler emergence @ 400 DD50 after 1st flight (currently @ 239[H] / 116[G]).

PEST FOCUS

Geneva: 1st trap captures of San Jose Scale, American Plum Borer, and Lesser Peachtree Borer, 5/26.
1st trap capture of Obliquebanded Leafroller today, 5/31.

Highland: 1st White Apple Leafhoppers and Rose Leafhoppers noted.
1st trap capture of Dogwood Borer today, 5/31.

IN THIS ISSUE…

FUZZY LOGIC

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

❖❖ 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 (Fig. 1). 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.

Fig. 1. Woolly apple aphid aerial colony at the base of a developing fruit cluster.

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.

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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, but other insecticides are effective against WAA, including Diazinon and Movento, and some additional 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 (that would be 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. ❖❖

GET A PLUME

DISRUPTIVE BEHAVIOR
(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 (Figs. 2 and 3). 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 26, but it was probably flying before we had the traps out), and the

Fig. 2. Lesser peachtree borer adult male.

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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.

Fig. 3. Peachtree borer adult female (l.) and male.

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 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

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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

FIELD TESTED

The Cornell Fruit Field Day will be held in Geneva on Wednesday, July 20. This event, being organized by Cornell University, the NYS Agric. Experiment Station, CALS Fruit Program Work Team, and Cornell Cooperative Extension, will feature ongoing research in berries, hops, grapes, and tree fruit. All interested persons are invited to learn about the fruit research under way at Cornell University. Attendees will be able to select from tours of different fruit commodities. It will be based at the NYSAES Fruit and Vegetable Research Farm South, 1097 County Road No. 4, 1 mile west of Pre-emption Rd. in Geneva, NY. Admission is $50/person ($40 for additional attendees from the same farm or business). Pre-registration is required; walk-in registration may be available for a $10 surcharge on the day of the event. Please use the registration link below to register via credit card:
http://events.cals.cornell.edu/ffd2016

CORNELL AND CCE EMPLOYEES get free admission, but please pre-register using the same link; there's a **Cornell Staff** tab at the top of the home page, which will take you to a page to pre-register and select a lunch option.

To participate as a sponsor, see the website page or contact Shelly Cowles (315-787-2274; mw69@cornell.edu).

NOTE: This year's IFTA (International Fruit Tree Association) Summer Study Tour is taking place in western NY and will focus on the Cornell Fruit Field Day, with complementary tours on the day before and after (July 19, Orleans Co. and July 21, Wayne Co.) For more information on this tour, see their website: http://www.ifruittree.org

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–5/16/31):	700.3	387.2
(Geneva 1/1–5/31/2015):	746.1	473.8
(Geneva "Normal"):	722.4	414.8
(Geneva 1/1-6/6, predicted):	840.8	485.7
(Highland 1/1–5/31/16):	1018.0	563.0

Coming Events:	Ranges (Normal ±StDev):	
American plum borer 1st flight peak	594-966	323-585
Cherry fruit fly 1st catch	755-1289	424-806
Codling moth 1st flight peak	557-977	306-578
Dogwood borer 1st catch	771-1261	452-768
European red mite summer eggs hatch	737-923	424-572
Lesser appleworm 1st flight peak	354-772	176-442
Obliquebanded leafroller pupae present	601-821	328-482
Obliquebanded leafroller 1st catch	805-981	470-590
Oriental fruit moth 1st flight subsides	829-1111	488-688
Peachtree borer 1st catch	799-1331	462-824
Pear psylla 1st summer generation adults	737-885	428-526
Plum curculio oviposition scars present	485-589	256-310
Redbanded leafroller 1st flight subsides	598-894	336-558
San Jose scale 1st flight peak	555-739	297-415
Spotted tentiform leafminer 1st flight subsides	672-946	373-575
White apple leafhopper 1st gen adults present	679-1041	380-694

all DDs Baskerville-Emin, B.E.

INSECT TRAP CATCHES (Number/Trap)

Geneva, NY

	5/23	5/26	5/31
Redbanded leafroller	26.5	21.5	10.0
Spotted Tentiform Leafminer	36.0	15.0	3.0
Oriental Fruit Moth	31.5	29.5	29.5
San Jose Scale	0.0	3.0*	3.0
Codling Moth	2.5	11.5	15.5
American Plum Borer	-	1.0*	0.0
Lesser Peachtree Borer	-	12.5*	13.0
Obliquebanded Leafroller	-	-	3.0*

Highland, NY

	5/23	5/31
Redbanded leafroller	3.0	1.0
Spotted Tentiform Leafminer	17.5	1.5
Oriental Fruit Moth	4.5	0.5
Lesser Appleworm	2.0	5.0
San Jose Scale	2.0	32.0
Codling Moth	35.0*	71.0
Obliquebanded Leafroller	0.5*	4.5
Dogwood Borer	0.0	1.0*

* = 1st catch

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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