scaffolds

Update on Pest Management and Crop Development

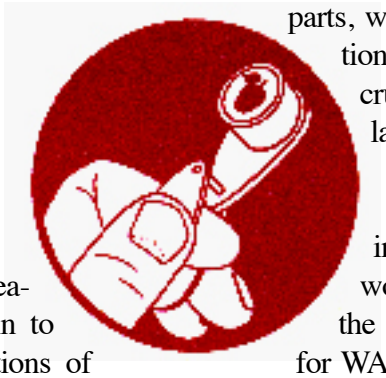
F R U I T J O U R N A L

May 22, 2017 VOLUME 26, No. 9 Geneva, NY

INSECTS

FURTIVE EFFORTS

NOT JUST FLUFF (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, and the earliest occurrences are already starting to be noted. 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.

Beginning now and extending into 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

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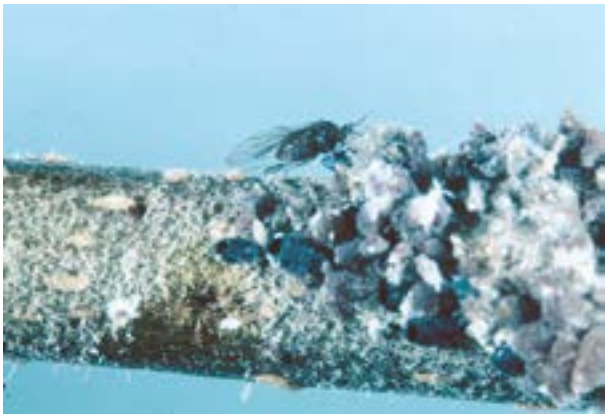
of its sensitivity to many commonly used insecticides; however, the wasp is thought to reduce WAA populations in abandoned orchards.



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 give collateral control of 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. ❖❖

LOOKING FOR OPENINGS

LESSER IN NAME ONLY
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❖❖ In NY, there are two species of sesiid (clearwing) moths that attack peaches — the peachtree borer (PTB, Fig. 1), *Synanthedon exitiosa*, and the lesser peachtree borer (LPTB, Fig. 2), *S. pictipes*. The adult borers are striking clearwinged 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

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last Friday, May 19), 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.

Fig. 1. Peachtree borer 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

Fig. 2. Lesser peachtree borer male.

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

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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 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. ❖❖

ORCHARD RADAR DIGEST
[H = Highland; G = Geneva]:

Roundheaded Appletree Borer
RAB egglaying begins: May 31 (H)/June 5 (G). Peak egglaying period roughly: June 20-July 4 (H)/June 25-July 9. First RAB eggs hatch roughly: June 15 (H)/June 20 (G).

Dogwood Borer
First DWB egg hatch roughly: June 15 (H)/June 21 (G).

Codling Moth
Codling moth development as of May 22:
1st generation adult emergence at 19% (H)/4% (G) and 1st generation egg hatch at 0%.
1st generation 3% egg hatch expected: May 31 (H)/June 6 (G).

Obliquebanded Leafroller
1st generation OBLR flight, first trap catch expected: June 1 (H)/June 6 (G).

Oriental Fruit Moth
1st generation 55% egg hatch and first treatment date, if needed: May 20 (H)/May 27 (G).

San Jose Scale
1st generation SJS crawlers appear: June 11 (H)/June 16 (G).

Spotted Tentiform Leafminer
Optimum sample date is around May 16 (H)/May 22 (G), when a larger portion of the mines are visible.
2nd STLM flight begins around: June 9 (H)/14 (G).

PHENOLOGIES

Geneva:	**Current**
Apple (McIntosh):	petal fall
Apple (Empire):	petal fall
Apple (Red Delicious):	petal fall
Apple (Idared):	petal fall
Pear (Bartlett):	petal fall
Pear (Bosc):	petal fall
Tart Cherry:	petal fall
Sweet Cherry:	fruit set
Peach:	fruit set
Plum:	fruit set

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

PEST FOCUS

Geneva:
Codling Moth 1st trap catch 5/19.
Lesser Appleworm 1st trap catch 5/19.
Lesser Peachtree Borer 1st trap catch 5/19.

Highland:
San Jose Scale 1st trap catch 5/19.

INSECT TRAP CATCHES
(Number/Trap)

Geneva, NY

	5/15	5/19	5/22
Green fruitworm	0.5	0.5	0.0
Redbanded leafroller	28.5	34.5	4.0
Spotted tentiform leafminer	25.0	22.5	5.5
Oriental fruit moth	11.0	81.0	8.0
Lesser appleworm	0.0	0.0	0.0
Codling moth	0.0	8.0*	10.5
San Jose scale	0.0	0.0	0.0
Lesser peachtree borer	0.0	2.0*	0.5

Highland, NY

	5/8	5/15	5/22
Green fruitworm	0.0	0.0	0.0
Redbanded leafroller	54.0	30.5	22.0
Spotted tentiform leafminer	16.0	10.0	2.5
Oriental fruit moth	9.5	9.5	9.0
Lesser appleworm	64.5	29.0	5.5
Obliquebanded leafroller	0.0	0.0	0.0
Codling moth	0.0	4.0*	49.5
San Jose scale	0.0	0.0	30.5*

* first catch

UPCOMING PEST EVENTS

		43°F	50°F
Current DD*	(Geneva 1/1–5/22/17):	555.9	278.5
accumulations	(Geneva 1/1–5/22/16):	457.8	207.7
	(Geneva "Normal"):	541.2	290.8
	(Geneva 1/1-5/29, predicted):	705.4	379.4
	(Highland 1/1–5/22/17):	807.4	444.3

Coming Events:	Ranges (Normal ±StDev):	
American plum borer 1st flight peak	601-967	329-585
Black cherry fruit fly 1st catch	702-934	380-576
Codling moth 1st flight peak	558-971	306-574
Lesser appleworm 1st flight peak	364-775	183-444
Obliquebanded leafroller pupae present	601-821	328-482
Pear psylla adults & hardshells present	408-606	220-324
Redbanded leafroller 1st flight subsiding	601-892	338-556
San Jose scale 1st flight peak	557-737	297-414
Spotted tentiform LM 1st flight subsiding	676-947	376-575
White apple LH 1st brood adults present	679-1041	380-694

*all DDs 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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