scaffolds

Update on Pest Management and Crop Development

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

June 2, 2008 VOLUME 17, No. 11 Geneva, NY

INSECTS

ABOUT TIME

ORCHARD RADAR DIGEST

MODEL BUILDING

Oriental Fruit Moth (Apples - targeted spray application at 55–60% egg hatch, predicted at 350–375 DD base 45°F after biofix):

Geneva Predictions:

Roundheaded Appletree Borer

RAB adult emergence begins: May 30; Peak emergence: June 11.

RAB egglaying begins: June 7. Peak egglaying period roughly: June 26 to July 10.

Codling Moth

Codling moth development as of June 2: 1st generation adult emergence at 7% and 1st generation egg hatch at 0%

1st generation 3% CM egg hatch: June 12 (= target date for first spray where multiple sprays needed to control 1st generation CM).

1st generation 20% CM egg hatch: June 19 (= target date where one spray needed to control 1st generation codling moth).

Obliquebanded Leafroller

1st generation OBLR flight, first trap catch expected: June 9.

Oriental Fruit Moth

1st generation second treatment date, if needed: May 30.

Spotted Tentiform Leafminer

2nd STLM flight begins around: June 15.

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Location	Biofix	DD (as of 6/2)
Albion (Orleans Co.)		
	April 25	394
Appleton (S) (Niagara Co,)		
	April 25	368
Geneva	April 24	384
Knowlesville (Orleans Co.)		
	April 23	407
Sodus	April 24	341
Williamson	April 24	363

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Codling Moth (targeted spray application at newly hatching larvae, predicted at 250–360 DD base 50°F after biofix):

Location	Biofix	DD (as of 6/2)
Albion	May 20	112
Appleton-S	May 28	49
Clifton Park (Saratoga Co.)		
	May 17	84
Clintondale (Ulster Co.)		
	May 11	133
Geneva	May 12	144
Knowlesville	May 28	53
Red Hook (Dutchess Co.)		
	May 14	217
Sodus	May 14	117
Williamson	May 12	136

Plum Curculio (spray coverage required until 308 DD base 50°F after biofix; i.e., McIntosh petal fall):

Location	Biofix	DD (as of 6/2)
Albion	May 16	129
Appleton-S	May 23	94
Clifton Pk	May 10	157
Clintondale	May 8	198
Geneva	May 14	132
Knowlesville	May 16	118
Red Hook	May 9	248
Sodus	May 16	105
Williamson	May 21	98

[NOTE: Consult our mini expert system for arthropod pest management, the Apple Pest Degree Day Calculator:
http://www.nysaes.cornell.edu/ipm/specware/newa/appledd.php
Find accumulated degree days between dates with the Degree Day Calculator:
http://www.nysaes.cornell.edu/ipm/specware/newa/
Powered by the NYS IPM Program's NEWA weather data and the Baskerville-Emin formula]

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SEE THE LIGHT

THE END OF THE TUNNEL: MATING DISRUPTION TO CONTROL PEACHTREE BORERS

(Art Agnello and Dave Kain, Entomology, Geneva)

❖❖ 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 (Fig. 1, PTB, fermale on left; Fig. 2 LPTB). 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 up-

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Dept. of Entomology
NYSAES, Barton Laboratory
Geneva, NY 14456-1371
Phone: 315-787-2341 FAX: 315-787-2326
E-mail: ama4@cornell.edu

Editors: A. Agnello, D. Kain

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Fig. 1 Peachtree borer adults

per 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, in late May, and the PTB doesn't show up 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. 2 Lesser peachtree borer

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. Control is difficult, owing to the concealed habit of the larvae, growers have traditionally relied on one or more coarse insecticide sprays (e.g., Asana, Lorsban, Proaxis, Thionex, 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.

In 2000 and 2001 we conducted trials on the efficacy of MD with and without the addition of directed trunk sprays, and after 2 years we saw evidence to justify establishing guidelines for the use of MD against these pests in commercial NY plantings. The trial was conducted in commercial orchards at two locations Wayne Co. (Sodus and Williamson) where there had been serious annual problems with borers. At each farm, we compared MD versus no pheromone treatment in two separate orchards, each approximately 2.5 acres in size. We further selected a group of 10 trees in each of these orchards for treatment with insecticide using directed trunk sprays, so the following treatments were evaluated:

1 - Pheromone disrupted + trunk spray
2 - Pheromone disrupted, no trunk spray
3 - Non-disrupted + trunk spray
4 - Non-disrupted, no trunk spray

At the end of May each year, Isomate-LPTB ties (CBC) were placed in the test blocks at a rate of approximately 200/acre (1/tree). It should be noted that this blend is formulated to be appropriate at this rate for disruption of both borers in situations where PTB is the predominant species or at least comparable in occurrence to LPTB. Although we assumed that LPTB was the main species at these sites, we chose to be conservative and not use the lower (100 ties/acre) rate recommended for such situations. Pheromone traps for each species were hung in each disrupted and non-disrupted

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block, and checked twice weekly from early June through August. Also, screen cages made of greenhouse netting were used to enclose canker/damage sites on the branches and trunks of 10 unsprayed trees in each plot. In the insecticide plots, directed trunk sprays of Asana (4.0 oz/100 gal) were applied three times during the season, in early June, early July, and postharvest. Applications of ~1.25 gal per tree were made to single-tree plots, and replicated 10 times per block. Trees were examined in mid-October for PTB larvae and larval damage, by excavating around the bases of the trunks to a depth of 3–6 inches and inspecting the trunk surface for gum containing frass, as well as for PTB pupal cases. In 2001, the fabric sleeve cages on each tree were also examined for emerged adults or pupal cases of LPTB.

The pheromone dispensers completely suppressed trap catches of both PTB and LPTB at both sites for both seasons, compared with relatively heavy flights noted in the non-disrupted comparison blocks, showing that this pheromone treatment was highly successful in disrupting the chemical communication of males and females of these two species. The tree trunk inspections in 2000 turned up no evidence of any PTB larvae or gum exudations resulting from infestations, in both the treated and untreated trees. In 2001, very low levels of damage were detected that were consistent with PTB entry sites, although no empty pupal cases were found, and no significant differences were seen among any of the treatments (Table 1). These results were not entirely unanticipated, as the previous year's inspection had implied that the incidence of this species was relatively low in these blocks, and any damage noted might have been caused by the small number of specimens that could have been in the trunk tissue from infestation during the year before this study began.

Inspection of the sleeve cages enclosing canker and damage sites on the trees revealed numerically higher numbers of LPTB pupal cases in the non-disrupted blocks than in those treated with the pheromones, although the difference was significant only at the Williamson site. We concluded that 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. ❖❖

Table 1. Infestation of peachtree and lesser peachtree borers as determined by fall trunk inspections, 2001.

	PTB trunk injury sites		Mean avg.	LPTB pupal exuviae Percentage on	
Block/Treatment	Sprayed	Unsprayed	no./tree	trunk	scaffolds
Sodus					
Pheromone	0.1 a	0.3 a	0.1 a	100%	0%
No pheromone	0.1 a	0.1 a	0.7 a	100%	0%
Williamson					
Pheromone	0.0 a	0.2 a	0.2 a	50%	50%
No pheromone	0.2 a	0.1 a	2.1 b	50%	50%

Values in the same column followed by the same letter not significantly different (P = 0.05, Fisher's Protected lsd test).

DISEASES

OLD HABITS

CORRECTION ON SCAB FUNGICIDES (Dave Rosenberger, Hudson Valley Lab, Highland)

❖❖ In the article "Options for Controlling Secondary Scab" that was published in last week's Scaffolds, I referred to Nova as one of the fungicide options for arresting development of secondary scab. I should have noted that Rally is replacing Nova. Last winter, Dow notified us that the product formerly sold as "Nova" (generic name: myclobutanil) was now being marketed as "Rally" and that Nova would disappear from the marketplace as product in the supply pipeline was used up. Rally is the same product as Nova; only the name has changed. I apologize for the error in last week's article. After working with Nova as one of the mainstays in our apple fungicide programs for nearly 20 years, I'm having difficulty deleting that brand name from my vocabulary. ❖❖

GENERAL INFO

FINAL SHOWING

REMINDER OF TOWER AND SENSORS FIELD DEMONSTRATION (Andrew Landers, Entomology, Geneva)

❖❖ There will be one final demonstration that will showcase equipment that was purchased through a USDA Conservation Innovation Grant. The purpose of this grant was to bring a new concept or technology to an area that will reduce environmental impact and increase profitability for agriculture producers. Ten Farmers received cost-share to purchase ten new sprayers in 2007. The District is hoping this program will lead to more cost–share opportunities in the future for farmers to purchase conservation type equipment.

• June 10, 2008 at 10:00 am, LynOaken Farms, Alps Road, Town of Yates

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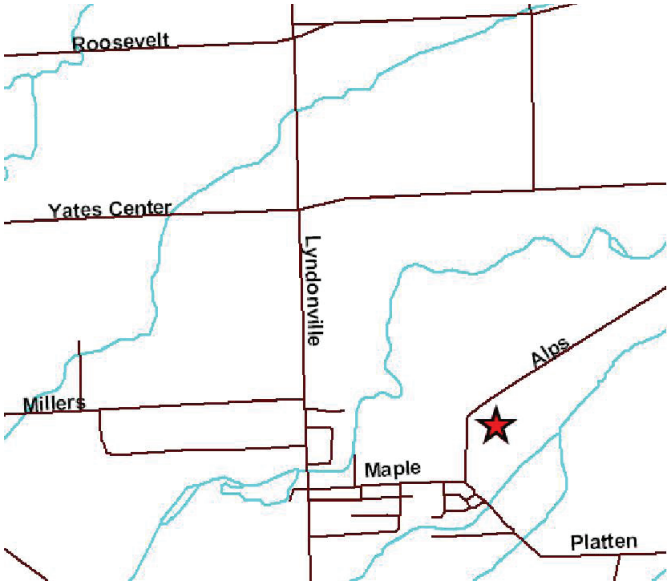
PEST FOCUS

Highland:
Pear psylla laying eggs on new pear foliage. **Plum curculio** degree day model initiated at petal fall. So far 158 DD_{50} have accumulated. Model predicts end of migration into apple at 308 DD_{50}. **Potato leafhopper** observed on apple 5/28.



Oakes Farm

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	5/26	5/29	6/2
Redbanded leafroller	0.0	0.5	0.4
Spotted tentiform leafminer	3.0	5.2	3.0
Oriental fruit moth	0.4	0.7	0.1
American plum borer	0.0	0.0	0.0
Lesser peachtree borer	0.1	0.2	0.3
Lesser appleworm	0.0	0.0	0.0
San Jose scale	9.3*	11.3	9.1
Codling moth	0.5*	0.3	0.3
Pandemis leafroller	–	–	0.0
Obliquebanded leafroller	–	–	0.0

* first catch

Highland, NY

	5/26	5/26
Redbanded leafroller	0.4	0.1
Spotted tentiform leafminer	3.0	0.0
Oriental fruit moth	0.6	0.1
Codling moth	2.4	2.7
Lesser appleworm	0.6	0.9
Obliquebanded leafroller	–	0.0

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–6/2/08):	700	378
(Geneva 1/1–6/2/2007):	748	440
(Geneva "Normal"):	752	442
(Geneva 1/1–6/9 Predicted):	884	513
(Highland 3/1-5/6/2-08):	730	379

Coming Events:	Ranges (Normal ±StDev):	
American plum borer 1st flight peak	561–869	279–511
Lesser appleworm 1st flight peak	379–791	186–448
Codling moth 1st flight peak	599–989	325–581
European red mite summer egg hatch	737–923	424–572
Pandemis leafroller 1st catch	759–907	428–514
Obliquebanded leafroller 1st trap catch	834–1000	480–604
Rose leafhopper adult on multiflora rose	689–893	366–498
San Jose scale 1st flight peak	598–732	320–410
Spotted tentiform leafminer 1st flight subsides	663–943	360–566
Pear psylla summer generation adults present	737–885	428–526

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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