Scaffolds Fruit Journal

Update on Pest Management and Crop Development

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INSECTS

ORCHARD RADAR DIGEST

Geneva Predictions:

Roundheaded Appletree Borer
Peak egglaying period roughly: June 27 to July 10.

Codling Moth
Codling moth development as of June 24: 1st generation adult emergence at 91% and 1st generation egg hatch at 54%.
Key CM management dates: June 25 (= second spray date where two sprays are needed to control 1st generation CM). 1st gen 20% CM egg hatch: June 19 (= single spray date where one spray is needed to control 1st gen CM).

Lesser Appleworm
2nd LAW flight, first trap catch: July 09.

Obliquebanded Leafroller
1st generation OBLR flight, first trap catch: June 11.
If using B.t. insecticide, optimum date to begin 2 to 4 weekly low-rate applications for small OBLR larvae is roughly: June 26

Oriental Fruit Moth
2nd generation OFM flight, first trap catch: July 01
Optimum 2nd generation - first treatment date, if needed: July 10,
Optimum 2nd generation - second treatment date, if needed: July 17

Redbanded Leafroller
2nd RBLR flight, first trap catch: July 02

San Jose Scale
1st generation SJS crawlers appear: June 21.

Highland Predictions:

Roundheaded Appletree Borer
Peak egglaying period roughly: June 24 to July 06.

Codling Moth
Codling moth development as of June 24:
1st gen adult emergence at 96% and 1st gen egg hatch at 70%
Key codling moth management dates:
Key CM management dates: June 20 (= second spray date where two sprays are needed to control 1st generation CM). 1st gen 20% CM egg hatch:

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2nd LAW flight, first trap catch: July 03.

Obliquebanded Leafroller
If using B.t. insecticide, optimum date to begin 2 to 4 weekly low-rate applications for small OBLR larvae is roughly: June 23.

Oriental Fruit Moth
2nd generation OFM flight, first trap catch: June 28
Optimum 2nd generation - first treatment date, if needed: July 06,
Optimum 2nd generation - second treatment date, if needed: July 13

Redbanded Leafroller
2nd RBLR flight, first trap catch: June 28

MODEL BUILDING

Plum Curculio. The spray cutoff for this pest is 340 DD (base 50°F) past petal fall. Numbers as of today, June 24, follow:

Geneva (May 13 PF estimate) 544 (done)
Highland (May 8 PF estimate) - 570 (done)
Lafayette (May 20 PF estimate) - 457 (done)
Lyndonville (May 20 PF estimate) - 425 (done)
North Appleton/Niagara Co. (May 20 PF estimate) - 409 (done)
Plattsburgh (May 28 PF estimate) - 278
Saratoga/Capital District (May 13 PF estimate) - 485 (done)
Sodus (May 20 PF estimate) - 428 (done)

Codling Moth. With 250 DD (base 50°F) as a first spray date, we currently have:

Lafayette (1st catch on May 31) - 347
Lyndonville (1st catch on May 29) - 373
North Appleton/Niagara Co. (1st catch on May 29) - 376
Plattsburgh (1st catch on June 3) - 201

LOCK 'EM UP!

KEY TO THE TRUNK
(Dick Straub, Entomology, Highland)

❖❖ Infestations in apples of dogwood borer, a clearwing moth, are almost always located in burrknots or graft unions that are planted too high above ground level. Burrknots are aggregations of root initials that can develop on the above-ground portion of the rootstock; all commercial dwarfing and semi-dwarfing rootstocks have a tendency to develop burrknots. Some chemicals with hormone effects, such as NAA, can increase the expression of burrknots, as will failure to keep the area around the trunk weed-free and open to sunlight.

The adult seeks out these spots to lay eggs, particularly if they are surrounded by vegetation or protected by something, such as mouse guards. Moreover, mouse guards may frequently house weeds, and shield the lower trunk from incidental exposure to insecticide cover sprays. Sustained feeding by dogwood borer at the graft

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union may severely weaken the tree at this juncture, or girdle the trunk and cause a slow decline in tree health. Orchards in which mouse guards are emplaced should be examined for signs of damage.

White latex paint brushed on the exposed portion of the rootstock will prevent new infestations of the borers, and also protect against southwest injury to the bark. Dilute trunk applications of an insecticide with good residual activity can provide control of established infestations. Lorsban or Thiodan 50WP are the most effective materials if applied during first week of July (and, for Thiodan, repeated in early August).❖❖

AN OUNCE OF PREVENTION

LEAFHOPPER AND APHID CONTROL WITH REDUCED RATES OF PROVADO

(Dick Straub & Peter Jentsch, Entomology, Highland)

❖❖ All growers remember recent severe infestations of potato leafhopper (PLH). Damage by this migratory pest is usually worse when it shows up early — they arrived early again this season. PLH can cause significant damage to newly planted trees that are not yet established. In general, though, we feel that PLH infestations are not harmful to established bearing trees. When PLH, white apple leafhopper (WALH), rose leafhopper (RLH) and aphids are present, however, control measures are often warranted. That scenario is now playing out in most Hudson Valley orchards, and probably also in areas of western NY.

Knowing from earlier lab studies that Provado is very effective against leafhoppers, we performed field trials in 2000 to evaluate reduced rates of this insecticide against all three species of leafhoppers. This research was prompted because PLH are terminal feeders (on new growth only) and constant reinfestation of new foliage is the norm; therefore, when trees are vigorous, untreated foliage is often available within hours after application of an insecticide. This obviously computes into wasted dollars. The same rationale can be applied to aphids, which are also terminal feeders.

We applied Provado 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). We monitored nymphs of PLH/WALH/RLH and leaf damage by PLH.

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Performance of Reduced Rates of Provado, HVL - 2000

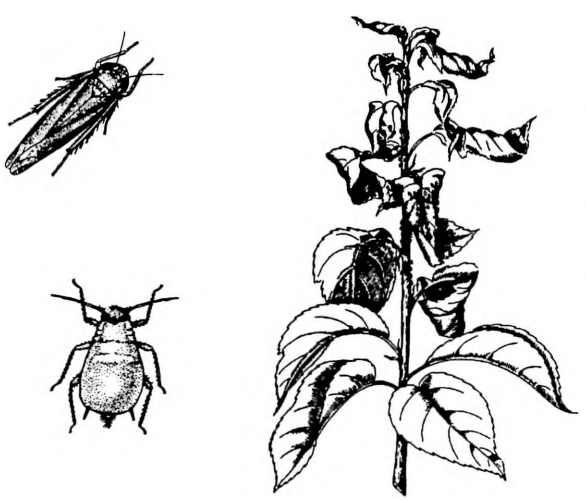
Rate/100 gal	No. applics. (interval)*	No. nymphs/5 leaves WALH/RLH	No. nymphs/5 leaves PLH	% leaves dam. by PLH	Est'd. $/acre
1. 2 oz	1 (3rd C)	0.1	13.0	66.0	24
2. 2 oz	2 (3rd C, 4th C)	0.0	1.6	19.0	48
3. 2 oz; 0.5 oz	1 (3rd C); 2 (4th C, 5th C)	0.0	0.2	56.0	36
4. 0.5 oz	3 (3rd C-5th C)	0.0	0.7	37.0	18
5. Untreated	0	5.1	11.0	97.0	0

*3rd Cover - 6/13; 4th Cover - 6/23; 5th Cover - 7/4

Because of Provado's translaminar activity, all rates and schedules produced excellent control of WALH/RLH nymphs (however, reduced rates will not control leafminer). 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.

Although data on aphids were not taken, we know that Provado is an excellent aphicide, and the same principle would hold as for PLH — maintaining coverage of new growth is more important than rate. Moreover, reduced rates are likely to increase the survival of cecidomyiid and syrphid predators that are common and effective biological control agents.

In the table above, we estimated the relative costs per acre that would be attributed to each schedule. Reduced rates of Provado will provide comparable control of the foliar-feeding pests described, and could result in a significantly lower spray bill. NOTE: NYS-DEC recently revised its interpretation of a FIFRA 'Section 2(ee)' recommendation, so that now a pesticide may be used for agricultural purposes in a dosage, concentration or frequency LESS than that specified on the labeling without having a Section 2(ee) issued for that use.❖❖



SAP SUCKERS

STILL A FEW BUGS IN THE SYSTEM
(Art Agnello & Harvey Reissig, Entomology, Geneva)

Green Aphids: Apple aphid, *Aphis pomi* De Geer, Spirea aphid, *Aphis spiraecola* Patch

❖❖ Although small numbers of these aphids may be present on trees early in the season, populations generally start to increase in mid- to late June. This trend has been evident once again this year, as the plentiful rains and recurring heat have resulted in a profusion of succulent terminal growth much favored by these insects. Large numbers of both species may build up on growing terminals on apple trees during summer. Both species are apparently common during the summer in most N.Y. orchards, although no extensive surveys have been done to compare their relative abundance in different production areas throughout the season.

Nymphs and adults of both species suck sap from growing terminals and water sprouts. High populations cause leaves to curl and may stunt shoot growth on young trees. Aphids excrete large amounts of honeydew, which collects on fruit and foliage. Sooty mold fungi that develop on honeydew cause the fruit to turn black, reducing its quality.

Aphids should be sampled several times throughout the season starting in June. Inspect 10 rapidly growing terminals from each of 5 trees throughout the orchard. Record the percentage of infested terminals. No formal studies have been done to develop an economic threshold for aphids in N.Y. orchards. Currently, treatment is recommended if 30% of the terminals are infested with either species of aphid, or at 50% terminal infestation and less than 20% of the terminals with predators. An alternative threshold is given as 10% of the fruits exhibiting either aphids or honeydew.

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The larvae of syrphid (hoverflies) and cecidomyiid flies (midges) prey on aphids throughout the summer. These predators complete about three generations during the summer. Most insecticides are somewhat toxic to these two predators, and they usually cannot build up sufficient numbers to control aphids adequately in regularly sprayed orchards. Check Tables 5 (p. 50) and 12 (p. 57) in the Recommends for toxicity ratings of common spray materials. Both aphids are resistant to most organophosphates, but materials in other chemical classes control these pests effectively, including Asana, Danitol, Dimethoate, Lannate, Provado, Thiodan, and Vydate.

Woolly apple aphid (WAA), *Eriosoma lanigerum* (Hausmann)

WAA colonizes both aboveground parts of the apple tree and the roots and commonly overwinters on the roots. In the spring, nymphs crawl up on apple trees from the roots to initiate aerial colonies. Most nymphs are born alive to unmated females on apple trees during the summer. Colonies 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.

Aerial colonies occur most frequently on succulent tissue such as the current season's growth, water sprouts, unhealed pruning wounds, or cankers. Heavy infestations cause honeydew and sooty mold on the fruit and galls on the plant parts. Severe root infestations can stunt or kill young trees but usually do not damage mature trees. Large numbers of colonies on trees may leave sooty mold on the fruit, which annoys pickers because red sticky residues from crushed WAA colonies may accumulate on their hands and clothing.

During 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.

Aphelinus mali, a tiny wasp, frequently parasitizes WAA but is very susceptible to insecticides and thus does not provide adequate control in regularly sprayed commercial orchards. Different rootstocks vary in their susceptibility to WAA. The following resistant rootstocks are the only means of controlling underground infestations of WAA on apple roots: MM.106, MM.111, and Robusta.

WAA is difficult to control with insecticides because of its waxy outer covering and tendency to form dense colonies that are impenetrable to sprays. WAA is resistant to the commonly used organophosphates, but other insecticides are effective against WAA, including Thiodan and Diazinon.❖❖

PEST FOCUS

Geneva: **Dogwood borer** pupae present 6/20.
Spotted tentiform leafminer 2nd flight beginning.
Obliquebanded leafroller 1st flight began 6/10.
DD (Base 43°F) since then = 361.

Highland: **Redbanded leafroller** 2nd flight beginning.
Obliquebanded leafroller 1st flight began 6/3. DD (Base 43°F) since then = 555.

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UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–6/24):	1183	716
(Geneva 1/1-6/24/2001):	1234	775
(Geneva "Normal"):	1177	755
(Highland 1/1–6/24):	1515	947

Coming Events:	**Ranges:**	
San Jose scale 1st gen. crawlers present	987–1247	569–784
Dogwood borer 1st catch	798–1295	456–812
Lesser appleworm 1st flight subsides	818–1548	444–999
Obliquebanded leafroller 1st flight peak	869–1548	506–987
Obliquebanded leafroller summer larvae hatch	1076–1513	630–980
Cherry fruit fly 1st catch	650–1500	368–961
Spotted tentiform leafminer 2nd flight peak	1219–2005	701–1355
Apple maggot 1st catch	1045–2057	629–1297
American plum borer 1st flight subsides	848–1668	440–1205
Oriental fruit moth 2nd flight begins	1152–1819	772–1215
Redbanded leafroller 2nd flight begins	1096–2029	656–1381

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	6/17	6/20	6/24
Redbanded leafroller	0.0	0.0	0.0
Spotted tentiform leafminer	0.8	9.2	208*
Oriental fruit moth	0.0	0.0	0.0
Lesser appleworm	0.8	2.8	0.5
Codling moth	2.4	3.2	6.9
San Jose scale	1.0*	0.0	0.0
American plum borer	0.3	1.0	0.1
Lesser peachtree borer	0.6	3.3	4.0
Peachtree borer	0.0	0.2	0.3
Dogwood borer	0.0	0.0	0.0
Pandemis leafroller	0.0	0.0	0.0
Obliquebanded leafroller	0.5	1.8	2.4

* first catch

Highland, NY

	6/17	6/24
Redbanded leafroller	0.2	1.0
Spotted tentiform leafminer	57.1	44.6
Oriental fruit moth	0.0	0.1
Codling moth	0.9	0.6
Lesser appleworm	1.1	1.0
Tufted apple budmoth	0.1	0.3
Variegated leafroller	1.9	1.8
Obliquebanded leafroller	0.9	1.4
Apple maggot	–	0.0

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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