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Update on Pest Management and Crop Development

June 25, 2001 VOLUME 10, No. 15 Geneva, NY

INSECTS

LESS IS MORE

LEAFHOPPER AND APHID CONTROL WITH REDUCED RATES OF PROVADO

(Dick Straub & Peter Jentsch, Entomology, Highland)

❖❖ All growers remember last year's 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, or will soon be present in most Hudson Valley orchards.

Knowing from earlier lab studies that Provado is very effective against leafhoppers, we performed field trials last season 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.

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.

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Performance of Reduced Rates of Provado, HVL – 2000

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

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

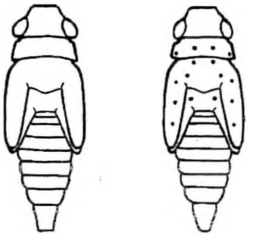
In the table above, we estimated the relative costs per acre that would be attributed to each schedule. Reduced rates of Provado will provide comparable control of the foliar-feeding pests described, and could result in a significantly lower spray bill. Note: NYS-DEC recently revised its interpretation 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.❖❖

ERRATUM

BUG-A-BOO

CORRECTION
(Art Agnello, Entomology, Geneva)

❖❖ I've discovered an error in a statement I made about about plum curculio in this week's article about degree days entitled "WHERE WE STAND". In attempting to rewrite a description of the model that predicts the spray cutoff date for plum curculio, I actually mis-stated how the model should be used. The last sentence should read, "This means that protection is required only **until** the 340 DD mark, which means that sprays applied within 10–14 days of (i.e., before) this date should provide adequate coverage against any adults likely to move into the trees." I apologize for any confusion this may have caused.❖❖



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ALL LOUSED UP?

BUG IN YOUR EAR
(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.

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. 45) and 12 (p. 52) 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 May and 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

continued...

the canopy should be examined for WAA colonies. No economic threshold has been determined for treatment of WAA.

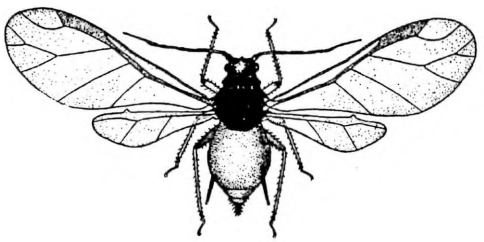
Aphelinus mali, a tiny wasp, frequently parasitizes WAA but is very susceptible to insecticides and thus does not provide adequate control in regularly sprayed commercial orchards. Different rootstocks vary in their susceptibility to WAA. The following resistant rootstocks are the only means of controlling 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.❖❖

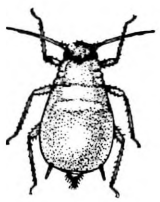
PEST FOCUS

Geneva: 1st **obliquebanded leafroller** caught 6/8. DD_{43} accumulated since 6/8 in Geneva = 454. (Sample larvae at 600) **Codling moth** model is at 461 DD_{50}. (2nd spray date at 1260–1370 DD_{50}) **Spotted tentiform leafminer** 2nd flight began 6/14. DD_{43} accumulated since then = 324. (Sample at 690–840 DD_{43}) 1st **San Jose scale** trap catch was 5/21. DD_{50} accumulated since then = 461 (Sprays against emerging crawlers should start at 310).

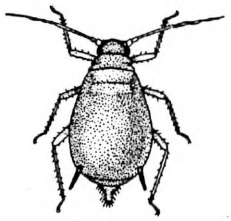
Highland: 2nd generation **pear psylla** nymphs above threshold. **European red mite** populations increasing/causing bronzing. 1st **obliquebanded leafroller** caught 6/4; DD_{43} accumulated since then = 551. **Codling moth** model is at 612 DD_{50}.



Woolly apple aphids



Green aphids



UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–6/25):	1258	794
(Geneva 1/1-6/25/2000):	1293	754
(Geneva 1/1–6/25 "Normal"):	1224	765
(Highland 1/1–6/25):	1476	964
(Hudson 1/1–6/25):	1349	861

Coming Events:	**Ranges:**	
Codling moth 1st flight peak	547–1326	307–824
Obliquebanded leafroller summer larvae hatch	1076–1513	630–980
Apple maggot 1st catch	1045–2057	629–1297
Comstock mealybug 1st adult catch	1270–1673	756–1105
Oriental fruit moth 2nd flight begins	1152–1819	772–1215
Redbanded leafroller 2nd flight begins	1096–2029	656–1381
Pandemis leafroller flight subsides	1420–1665	905–1076
Spotted tentiform leafminer 2nd flight peak	1219–2005	701–1355
San Jose scale 2nd flight begins	1449–1975	893–1407

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	6/18	6/21	6/25
Redbanded leafroller	0.1	0	0
Spotted tentiform leafminer	161	285	120
Oriental fruit moth	1.1	0.5	0.3
Lesser appleworm	1.0	0.2	0.1
Codling moth	6.5	6.7	6.9
San Jose scale	0	0	0.8
American plum borer	0.4	0.3	0.3
Lesser peachtree borer	4.5	6.5	4.6
Peachtree borer	0	0	0
Dogwood borer	0	0	0
Pandemis leafroller	1.3	0.7	1.0
Obliquebanded leafroller	1.8	2.8	0.3

Highland, NY

	6/18	6/25
Redbanded leafroller	0.2	2.9
Spotted tentiform leafminer	88.6	46.1
Oriental fruit moth	0.3	0.4
Codling moth	5.9	5.4
Lesser appleworm	3.2	1.4
Variegated leafroller	1.3	0.9
Obliquebanded leafroller	2.8	5.6
Tufted apple bud moth	0.3	0.9
Apple Maggot	<0.1*	0
Dogwood borer	–	0

Hudson, NY (Steve McKay)	6/18	6/25
American plum borer	0	0
Oriental fruit moth	0	0

* first catch

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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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