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Update on Pest Management and Crop Development

FRUIT JOURNAL

July 5, 2005 VOLUME 14, No. 16 Geneva, NY

INSECTS

FINGER ON THE PULSE

ORCHARD RADAR DIGEST

Spotted Tentiform Leafminer

Rough guess when 2nd generation sapfeeding mines begin showing: July 6.

Optimum first sample date for 2nd generation STLM sapfeeding mines: July 13.

Geneva Predictions:

Roundheaded Appletree Borer

Peak egglaying period roughly: June 24 to July 5.

Peak hatch roughly: July 9 to July 25.

Codling Moth

Codling moth development as of July 5: 1st generation adult emergence at 98% and 1st generation egg hatch at 80%.

Lesser Appleworm

2nd LAW flight begins around: July 6.

Obliquebanded Leafroller

Where waiting to sample late instar OBLR larvae to determine need for treatment is an option, or to check on results from earlier sprays: Optimum sample date for late instar summer generation OBLR larvae: July 5.

If first OBLR late instar larvae sample is below threshold, date for confirmation follow-up: July 9.

Oriental Fruit Moth

Optimum 2nd generation - first treatment date, if needed: July 4.

Optimum 2nd generation - second treatment date, if needed: July 15.

Redbanded Leafroller

2nd RBLR flight begins around: June 30.

Peak catch and approximate start of egg hatch: July 11.

Highland Predictions:

Roundheaded Appletree Borer

RAB peak egglaying period roughly: June 23 to July 5.

Peak hatch roughly: July 8 to July 25.

Codling Moth

Codling moth development as of July 5: 1st generation adult emergence at 100% and 1st generation egg hatch at 95%.

Lesser Appleworm

2nd LAW flight begins around: July 5.

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IN THIS ISSUE...

Obliquebanded Leafroller
Where waiting to sample late instar OBLR larvae to determine need for treatment is an option, or to check on results from earlier sprays: Optimum sample date for late instar summer generation OBLR larvae: June 27.
If first OBLR late instar larvae sample is below threshold, date for confirmation follow-up: June 30.

Oriental Fruit Moth
Optimum 2nd generation - second treatment date, if needed: July 12.

Redbanded Leafroller
Peak catch and approximate start of egg hatch: July 9.

Spotted Tentiform Leafminer
Optimum first sample date for 2nd generation STLM sapfeeding mines: July 7.
Second optimized sample date for 2nd generation STLM sapfeeding mines, if needed: July 13.

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T LEAVES

SEEN IN THE GREEN
(Art Agnello & Harvey Reissig, Entomology, Geneva)

Obliquebanded Leafroller

❖❖ Assuming a biofix (1st adult catch) of OBLR on approximately June 12, most WNY and Champlain Valley sites have accumulated a total of 525–575 DD (base 43°F) as of this morning, which means that we should generally reach 600 DD over the next 1–3 days. This point in the insect's development roughly corresponds to 50% egg hatch, which is the period during which the earliest emerging larvae begin to reach the middle instars that are large enough to start doing noticeable damage to foliar terminals and, eventually, the young fruits. This is also the earliest point at which visual inspection for the larvae is practical, so sampling for evidence of a treatable OBLR infestation is recommended this week in orchards where pressure has not been high enough to justify a preventive spray already.

Guidelines for sampling OBLR terminal infestations can be found on p. 70 in the Recommends, using a 3% action threshold that would lead to a recommended spray of an effective leafroller material. Spintor remains our preferred choice in most cases; Intrepid, a B.t. material or a pyrethroid are also options, depending on block history and previous spray efficacy against specific populations. If the average percentage of terminals infested with live larvae is less than 3%, no treatment is required at this time, but another sample should be taken three to five days (100 DD) later, to be sure populations were not underestimated.

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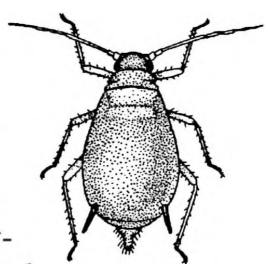
Summer stylets

A number of orchards have begun to show infestations of foliar pests now, some of which tend to increase in response to the "flush growth" that is caused by the hot weather and adequate moisture that we have experienced this season. Green aphids are more plentiful in the Hudson Valley so far; potato leafhoppers were very early there and are showing up now in western NY. No doubt all growers in all our regions would do well to keep an eye on local populations.

Green Aphids

Although small numbers of these aphids (Apple aphid, *Aphis pomi*, Spirea aphid, *Aphis spiraecola*) may have been present on trees early in the season, populations will certainly start to increase as a result of the continuous heat and adequate moisture we've received lately, which will provoke a respectable amount of the succulent terminal growth much favored by these insects. Both species are 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. It's generally assumed that infestations in our area are mostly Spirea aphid.



Nymphs and adults 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 this season starting in late 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. 57) and 12 (p. 64) in the Recommends for toxicity ratings of common spray materials. Both aphid species are resistant to most organophosphates, but materials in other chemical classes that control these pests effectively include: Actara, Asana, Assail, Danitol, Dimethoate, Lannate, Provado, Thionex, Vydate and Warrior.

Potato leafhopper

PLH is generally a more serious problem in the Hudson Valley than in western New York or the Champlain Valley; however, healthy populations are being seen in WNY already this season. PLH does not overwinter in the Northeast but instead migrates on thermals (warm air masses) from the South. Because PLH migrate constantly during the season, there are no distinct broods or generations and they may be present continuously in orchards from June through harvest.

PLH feeds on tender young terminal leaves. Initially, injured leaves turn yellow around the edges, then become chlorotic and deformed (cupping upward) and later turn brown or scorched. Damage is caused by a toxin injected by PLH while feeding. PLH also occasionally causes symptoms similar to the effects of growth regulators, such as excessive branching preceding or beyond the point of extensive feeding. PLH damage is often mistaken for

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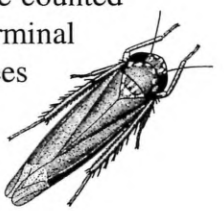
injury caused by herbicides, nutrient deficiency, or overfertilization. PLH injury may not be serious on mature trees but can severely stunt the growth of young trees.

Nymphs and adults should be counted on 50 to 100 randomly selected terminal leaves in an orchard. Older trees should be sampled approximately every three weeks during the summer. Young trees should be sampled weekly from early June through July. PLH nymphs are often characterized as moving sideways like crabs, whereas WALH generally move forward and back. No formal studies have been conducted in New York to determine the economic injury level for PLH on apples, so we suggest a tentative threshold of an average of one nymph or adult PLH per leaf.



Little is known about the natural enemies of PLH, but it is assumed that they cannot control this pest in commercial New York orchards. Populations of PLH in New York are resistant to the conventional organophosphate materials. The list of effective materials is similar to that given for aphids, with the addition of Avaunt.

Japanese Beetle

This perennial pest overwinters as a partially grown grub in the soil below the frost line. In the spring the grub resumes feeding, primarily on the roots of grasses, and then pupates near the soil surface. Adults begin to emerge during the first week of July in upstate N.Y., and there have been reports that they're right on schedule this year. The adults fly to any of 300 species of trees and shrubs to feed; upon emergence, they usually feed on the foliage and flowers of low-growing plants such as roses, grapes, and shrubs, and later on tree foliage. On tree leaves, beetles devour the tissue between the veins, leaving a lacelike skeleton. Severely injured leaves turn brown and often drop. Adults are most active during the warmest parts of the day and prefer to feed on plants that are fully exposed to the sun.

Although damage to peaches is most commonly noted in our area, the fruits of apple, cherry, peach and plum trees may all be attacked. Fruits that mature before the beetles are abundant, such as cherries, may escape injury. Ripening or diseased fruit is particularly attractive to the beetles. Pheromone traps are available and can be hung in the orchard in early July to detect the beetles' presence; these products are generally not effective at trapping out the beetles. Fruit and foliage may be protected from damage by spraying an insecticide such as Sevin or Provado when the first beetles appear.

(Information adapted from: Johnson, W.T. & H.H. Lyon. 1988. Insects that feed on trees and shrubs. Cornell Univ. Press.; and Howitt, A.H. 1993. Common tree fruit pests. Mich. State. Univ. Ext. NCR 63.)

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PEST FOCUS

Geneva: **Redbanded leafroller** and **Oriental fruit moth** 2nd flights beginning. Degree days (base 43°F) since first **obliquebanded leafroller** trap catch (6/13) =630. Degree days (base 43°F) since **spotted tentiform leafminer** 2nd flight began (6/23) = 386

Highland:
Rose leafhopper and **potato leafhopper** damage observed on apple. 1st **apple maggots** caught on sphere traps 6/27 in Milton and 7/5 at HVL. Degree days (base 50°F) since first **codling moth** trap catch =848. Degree days (base 45°F) since first **oriental fruit moth** trap catch = 1159. Degree days (base 50°F) since first **San Jose scale** trap catch = 769. Degree days (base 43°F) since first **obliquebanded leafroller** trap catch =877.

INSECT TRAP CATCHES
(Number/Trap/Day)

Geneva, NY

	6/27	6/30	7/5
Redbanded leafroller	0.1	0.5	2.3*
Spotted tentiform leafminer	21.9	–	5.8
Oriental fruit moth	0.0	0.0	0.4*
Lesser appleworm	0.1	0.2	0.0
San Jose scale	0.3	0.0	0.0
Codling moth	0.0	0.0	0.0
American plum borer	0.3	0.2	0.2
Lesser peachtree borer	2.6	1.5	0.6
Peachtree borer	0.0	0.0	0.0
Pandemis leafroller	0.5	0.5	0.1
Obliquebanded leafroller	0.5	0.2	0.4
Apple maggot	0.0	0.0	0.0

* first catch

Highland, NY

	6/27	7/5
Redbanded leafroller	0.8	4.1*
Spotted tentiform leafminer	103.1	127.3
Oriental fruit moth	0.6	0.4
Lesser appleworm	0.8	0.1
Codling moth	0.4	0.3
Obliquebanded leafroller	0.4	3.2
Apple maggot	0.0	0.1*

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–7/5):	1539	990
(Geneva 1/1–7/5/2004):	1526	931
(Geneva "Normal"):	1503	967
(Geneva 7/11 Predicted):	1709	1118
(Highland 1/1–6/7/5):	1709	1135

Coming Events:	**Ranges(Normal± StDev):**	
Apple maggot 1st catch	1186–1590	747–1029
Apple maggot 1st oviposition punctures	1528–2078	1021–1495
Codling moth 1st flight subsides	1296–1946	808–1252
Comstock mealybug 1st adult catch	1308–1554	809–1015
Lesser appleworm 2nd flight begins	1341–1959	873–1287
Pandemis leafroller flight subsides	1375–1633	849–1041
Spotted tentiform leafminer 2nd flight peak	1369–1835	854–1212
American plum borer 2nd flight begins	1408–1898	1023–1235
Comstock mealybug 1st flight peak	1505–1731	931–1143
Dogwood borer peak catch	1567–1999	996–1308
Redbanded leafroller 2nd flight peak	1517–2025	959–1357
San Jose scale 2nd flight begins	1549–1913	1000–1294

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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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