scaffolds

Update on Pest Management and Crop Development

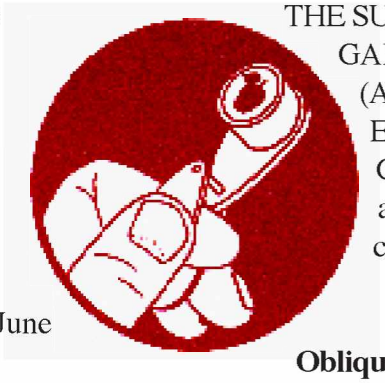
F R U I T J O U R N A L

June 25, 2012 VOLUME 21, No. 16 Geneva, NY

INSECTS

JUNE BUGS

ORCHARD RADAR DIGEST



THE SUMMER GAMES (Art Agnello, Entomology, Geneva; ama4@cornell.edu)

INSECT HURDLES

Roundheaded Appletree Borer
Peak egglaying period roughly: June 15 to June 29.

Codling Moth
Codling moth development as of June 25: 1st generation adult emergence at 100% and 1st generation egg hatch at 92%.

Lesser Appleworm
2nd LAW flight begins around: June 29.

Obliquebanded Leafroller
Where waiting to sample late instar OBLR larvae to determine need for treatment, or to check on results from earlier sprays: Optimum sample date is June 21.

Oriental Fruit Moth
2nd generation - first treatment date, if needed: June 25.

Redbanded Leafroller
Peak catch and approximate start of egg hatch: July 1.

Spotted Tentiform Leafminer
Rough guess of when 2nd generation sap-feeding mines begin showing: June 23.

Obliquebanded Leafroller

❖❖ Assuming a biofix (1st adult catch) of OBLR from about May 27-30 (see the Pest Focus section), sites around the state have accumulated a total of 680-710 DD (base 43°F) in the most advanced sites, with perhaps 550 DD in later northerly regions. The 630 DD point in the insect's development roughly corresponds to 50% egg hatch, and at 720 DD, the earliest emerging larvae have reached the middle instars that are large enough to start doing noticeable damage to foliar terminals and, eventually, the young fruits. This is also the

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earliest point at which visual inspection for the larvae is practical, so sampling for evidence of a treatable OBLR infestation is recommended now 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. Delegate, Belt, Altacor and Proclaim are our preferred choices in most cases; Rimon, 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.

Green Aphids

Although small numbers of green aphids (Spirea aphid, Aphis spiraecola, and Apple aphid, Aphis pomi) may have been present on trees early in the season, populations have been increasing regularly as the summer weather patterns gradually become established. 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 now. Inspect 10 rapidly growing terminals from each of 5 trees throughout the orchard, noting the percentage of infested terminals, including rosy aphid-infestations, since they tend to affect the foliage similarly to the green species at this time of the year. 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 (below). 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 7.1.1 (p. 64) and 7.1.2 (p. 65) in the Recommends for ratings of efficacy and impact on beneficials for common spray materials. Both aphid species are resistant to most organophosphates, but materials in other chemical classes that control these pests effectively include: Admire, Asana, Assail, Aza-Direct, Beleaf, Calypso, Danitol, Lannate, Movento, Proaxis, Pyrenone, Thionex, Vydate and Warrior.

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scaffolds
is published weekly from March to September by Cornell University—NYS Agricultural Experiment Station (Geneva) and Ithaca—with the assistance of Cornell Cooperative Extension. New York field reports welcomed. Send submissions by 3 pm Monday to:

scaffolds FRUIT JOURNAL
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

This newsletter available online at:
http://www.scaffolds.entomology.cornell.edu/index.html

For more fruit resources, check out the Cornell Fruit Page: http://www.fruit.cornell.edu/

Woolly Apple Aphid

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. 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, but owing to the advanced season, we are already beginning to notice these aerial colonies in high pressure orchards in the region. Refer to the June 4 issue of Scaffolds for an overview of some control recommendations.

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 can be found in WNY as well this season. Refer to the June 11 issue of Scaffolds for an overview of its biology and some control recommendations.

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 normally begin to emerge during the first week of July in upstate N.Y., but again, this activity has already started in some of the warmer sites around the state. 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 also be attacked, all of which have been suffering increasing damage from these insects in recent years. 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 Assail, Calypso, Sevin or Voliam Xpress (in apple) or Admire, Assail, Sevin, Endigo, Leverage or Voliam Xpress (in cherries or peaches) 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.)

PEST FOCUS

Geneva: **Oriental fruit moth** 2nd flight began Thurs., 6/21. **Redbanded leafroller** 2nd flight began today, 6/25. **Obliquebanded Leafroller** DD43 developmental model @ 685 (May 28 biofix); earliest emerging larvae predicted to be 4th instar at 720 DD.

GENERAL INFO

WHAT'S NEW?

EVENT REMINDERS

LAKE ONTARIO CORNELL COOPERATIVE EXTENSION SUMMER FRUIT TOUR
Featuring New Technology in the Wayne Co. Fruit Industry
Tuesday, July 24, starting 8:00 am: G & S Orchards, 825 Atlantic Ave., Walworth

Highlights of the tour will include berry and odd fruit production and pest management issues, innovative CSA marketing, weed control treatment plots in young trees, alternative pollinators for fruit crops, update on strep-resistant fire blight in NY, controlling tree growth in a light crop year, climate, frost and crop protection methods, managing growth in grafted trees, using induction cones for safer pesticide mixing, using platforms and hedgers for increased labor efficiency in tall spindle plantings. Growers, industry, and Cornell faculty and specialists will share new technology and better ways to produce fruit.

Stops: G & S Orchards, Walworth; Mason Farms, Williamson; Orbaker Fruit Farm, Pultneyville; Knapp Orchards, Sodus; and VandeWalle Fruit Farms, Alton.

Thanks to Sponsors, there is no charge to attend!
Please register by July 20: Call 585-798-4265 or email krh5@cornell.edu
For more information, visit: http://www.fruit.cornell.edu/lof

HORTICULTURE

TAKE ME TO YOUR LEADER

STRONG LEADER GROWTH CRITICAL WHEN GROWING A WEAK APPLE CULTIVAR IN YEARS 1-3
(Mario Miranda Sazo, CCE Lake Ontario Fruit Program & Terence L. Robinson, Horticulture; mrm67@cornell.edu & tlr1@cornell.edu

❖❖ With weak growing cultivars such as NY1 or Honeycrisp, the lack of sufficient leader growth to reach the top of the trellis (10ft) by the end of the 3rd year is a serious problem that limits yield in future years. NY1 is turning out to be a difficult tree to achieve sufficient leader growth when grown on M.9 or B.9 rootstocks. It is very precocious and growth is often weaker than its 'Honeycrisp' parent. NY1's ability to set a heavy crop load in years two and three, coupled with its low vigor, can challenge the best growers to fill the tree spacing in the first 3 years. With more vigorous cultivars such as Gala, Fuji or McIntosh, reaching the top of the trellis by the end of the 3rd season is usually not a problem. However, with weak-growing cultivars, growers need to intensively manage the trees in the first 3 years to achieve the desired growth. There are several important strategies for maximizing tree growth after planting and during years 2 and 3, including a balanced nutritional program, irrigation, excellent weed control and overall good orchard management.

This year was the first year of widespread planting the NY1 variety. We have previously recommended that NY1 be planted at close spacings (3 ft or less) using the more vigorous M.9 clones (Pajam 2, Nic 29), or G.41 (comparable to the large M.9 clones, fire blight-resistant). G.41 will be especially useful when orchards are replanted on old orchard sites since

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it has some tolerance to replant disease. However, as we have observed this variety over the last 3 years, few plantings have achieved sufficient leader growth. Thus for the future, slightly more vigorous (but precocious) rootstocks should be used. A good option will be G.935 for establishing high-density plantings for weak growing cultivars like NY1 and Honeycrisp.

For those who have planted NY1 this year, we hope you were able to plant them early, which this year was the end of March. If so, you should by now have 12–14 inches of leader growth. The goal now is to keep the leader growing until the end of July through intensive water and nitrogen management and achieve 18–24" of shoot growth. To achieve this, we assume that (1) you quickly installed the new trellis and irrigation lines after planting, (2) you selected the leader when 2" long and removed buds #2–4 when 1" long, (if this was not done, you should now cut competing shoots back with clippers to 2" long to prevent competition with the leader, (3) the new trees have grown and are healthy, without weed competition, mildew, and fire blight, (4) water (when needed) has been supplied by trickle irrigation frequently but with low doses per tree, (5) flowers were manually removed, and (6) about 2 weeks after planting, the trees received a small dose of nitrogen (1/4 lb of calcium nitrate) carefully applied in a doughnut-shaped band around each tree.

At this point, it is time for a second application of 1/4 lb of calcium nitrate around each tree and more intensive water management. Water should be applied 2–3 times per week (unless we get more than 1" of rainfall that week) but with relatively small volumes each time (2–3 gallons per tree). The best tree growth response can be achieved by injecting liquid nitrogen fertilizer (fertigation) with each irrigation (100ppm = 0.4g N per gallon of irrigation water). These applications encourage maximum and safe leader growth. It is also imperative to maintain excellent insect control and excellent weed control at least through the end of July. This should result in 18" of leader growth by the end of the year.

If your trellis has not yet been installed, make sure to install a 10-foot tall trellis using 12-foot posts with inline spacing of no more than 35 feet, so trees are properly supported to the 10-ft height. The trellis should have 3 wires if there is a vertical supporting element such as a conduit pipe, a bamboo, or a wire stabilizer. It should have 4 wires if no vertical supporting element is used. The leader should be attached to the trellis with a rubber band or a wire loop as soon as it reaches each successive wire. With young trees that have crop, the unsupported terminal portion of the leader above the last wire should be defruited for maximum shoot growth and good lignification during years 2, 3 and 4. Interestingly, the twisting of the leader to a vertical wire stabilizer works, supports the leader, and encourages new growth above where it is supported by a tie at the trellis wire. A good, strong, and tall support system for a high density orchard must be viewed as an investment (rather than just an orchard establishment cost!) that allows fruit production in the early years while preserving the vertical tree structure (without ever bending the top if unsupported!) and canopy for future large, mature yields from the bottom to the top of the tree.

For those who planted NY1 last year, we recommend that the trees be defruited. NY1 seemed to still set a crop this year, despite the frost, but should be defruited in the second year so all resources can be allocated for maximum tree growth. In years 3-5 we suggest a strict crop load management program of 4 fruits/cm2 TCA to balance growth and cropping. ❖❖

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY	6/18	6/21	6/25	Highland, NY	6/11	6/18
Redbanded leafroller	0.0	0.0	0.1*	Redbanded leafroller	0.5	1.6
Spotted tentiform leafminer	7.9	24.3	34.1	Spotted tentiform leafminer	70.2	7.6
Oriental fruit moth	0.0	0.2*	0.4	Oriental fruit moth	0.5	0.0
American plum borer	0.1	0.0	0.0	Codling moth	0.6	0.6
Lesser appleworm	0.0	0.0	0.0	Lesser appleworm	1.9	1.1
San Jose scale	0.0	0.0	0.0	Tufted apple budmoth	0.0	4.6
Codling moth	0.4	0.2	0.0	Fruittree leafroller	0.9	0.6
Lesser peachtree borer	0.1	0.5	0.0	Variegated leafroller	0.9	0.8
Peachtree borer	0.1	0.0	0.3	Obliquebanded leafroller	0.9	1.6
Pandemis leafroller	0.3	0.8	0.1	San Jose scale	23.6*	0.0
Obliquebanded leafroller	0.8	0.5	1.8	Sparganothis fruitworm	0.0	0.1*
Apple maggot	–	–	0.0	Apple maggot	–	0.0

* first catch

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–6/25/12):	1601	1038
(Geneva 1/1–6/25/2011):	1357	874
(Geneva "Normal"):	1254	759
(Geneva 1/1–7/2/12 predicted):	1787	1176

Coming Events:	Ranges (Normal ±StDev):	
Lesser appleworm 2nd flight begins	1418–2002	918–1326
Oriental fruit moth 2nd flight peak	1466–1996	932–1344
Apple maggot 1st catch	1235–1653	786–1058
Codling moth 1st flight subsides	1280–1858	811–1225
Comstock mealybug 1st adult catch	1308–1554	809–1015
Comstock mealybug 1st flight peak	1505–1731	931–1143
Redbanded leafroller 2nd flight peak	1554–2002	996–1344
Spotted tentiform leafminer 2nd flight peak	1373–1795	856–1194
STLM 2nd gen. tissue feeders present	1378–1795	856–1194
Pandemis leafroller flight subsides	1412–1644	880–1052
American plum borer 2nd flight begins	1522–2064	1011–1363
Obliquebanded leafroller 1st flight subsides	1612–1952	1048–1302
San Jose scale 2nd flight begins	1611–1965	1044–1322

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.

This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.