

scaffolds

Update on Pest Management
and Crop Development

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

June 24, 2013

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Geneva, NY

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BUG
DOPE

ORCHAR
RADAR
DIGEST



HEAT OF THE
MOMENT
(Art Agnello,
Entomology,
Geneva;
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SOLSTICE
STARS

Geneva Predictions:

Roundheaded Appletree Borer

Peak egg laying period roughly: June 25 to July 9.

Peak hatch roughly: July 10-29

Dogwood Borer

First DWB egg hatch roughly: June 25.

Codling Moth

Codling moth development as of June 24: 1st generation adult emergence at 94% and 1st generation egg hatch at 62%.

Obliquebanded Leafroller

Egg hatch and optimum date for initial application of B.t., Delegate, Proclaim, Intrepid, Rimon, Altacor, Belt, or other insecticide effective against OBLR: June 24.

Oriental Fruit Moth

2nd generation OFM flight begins around: June 28.

Redbanded Leafroller

2nd RBLR flight begins around: June 29.

San Jose Scale

1st generation SJS crawlers appear: June 19.



Obliquebanded Leafroller

❖❖ Assuming a biofix (1st adult catch) of OBLR from about June 3–5, sites around the state have accumulated a total of 380–410 DD (base 43°F) in the most advanced sites, with perhaps 330 DD in later northerly regions. First egg hatch is generally expected at about 360 DD; 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 earliest point at which visual in-

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PEST FOCUS

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spection for the larvae is practical, so sampling for evidence of a treatable OBLR infestation would be recommended at that time in orchards where pressure has not been high enough to justify a preventive spray.

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 right away, 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 (*Spiraea* aphid, *Aphis spiraeicola*, 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 *Spiraea* 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. 62) and 7.1.2 (p. 64) 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, Calyp-

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scaffolds

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scaffolds FRUIT JOURNAL
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so, Danitol, Lannate, Movento, Proaxis, Pyrenone, Thionex, Vydate and Warrior.

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 you may already begin to notice these aerial colonies in high pressure orchards in the region. Refer to the June 3 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 10 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. 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: **Spotted tentiform leafminer** 2nd flight began today, June 24. **Peachtree borer** flight began today. **Woolly apple aphid** nymphs present.

OF
NOTE

HUDSON VALLEY
INSECT UPDATE
(Peter Jentsch,
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Hudson Valley Perspectives on Insect Pest Management

❖❖ "Two more weeks" ... Managing the 17-year cicada in the Hudson Valley.

Four weeks have passed since the emergence of Brood II of the 17-year cicada. The insect will continue ovipositing into deciduous trees during the next two weeks and will require continued management to keep cicada out of the orchards. Damage from recent egg laying can be seen in apple and pear blocks, stone fruit, blueberry and grape as well as non-agricultural host plants. Since the first appearance of adults on the 27th of May, egg-laying slits in pencil size stems have led to broken and dying branches and subsequent fruit losses on terminal bearing, 1st and 2nd year wood. In newly planted trees, egg laying into terminal growth of central leader and scaffold limbs in young trees has compromised development and will require curative pruning to re-establish single leaders after oviposition is complete.

In heavily infested orchards, weekly applications of pyrethroid insecticides have had the greatest impact on reducing egg-laying damage to branches over the past three weeks. Insects directly hit with high label rates of Calypso (thiacloprid), Lannate (methomyl), Asana (esfenvalerate), Danitol (fenprothrin) and Warrior (lambda-cyhalothrin), provided high mortality on contact. Bioassay results show good efficacy using insecticide applications directed at the adult with female mortality slightly lower than that of males. Yet all of these insecticides have demonstrated short residual toxicity in the field. The py-

rethroids have provided the greatest level of repellency, which is an important mode of action to keep cicadas from re-infesting the trees, thus leading to fruit losses. Tight intervals of 7 days or less and the highest labeled rates have provided significant reductions in economic losses thus far.

Laboratory Bioassay of Adult 17-Year Cicada Using Highest Labeled Rates and Directed Fine Spray Application to Male and Female, June 2013.

Insecticide	Mortality Range		
	(0-3)	Males	Females
Bifenthrin	3.0	0	3
Calypso + Lannate	0.5	0	0.5
Calypso	0.0	0	0
Lannate	0.25	0	0.3
Endigo	1.0	0.5	0.5
UTC	19.25	11.75	7.5

Mortality Range (0-3): Live = 3, moribund = 2, Dead = 0

The threat of the brown marmorated stink (BMSB) continues to loom on the seasonal horizon. In orchards where injury from BMSB occurred last year, the choice of insecticide used to manage the 17-year cicada should not be those highly effective against the BMSB. Insecticides such as Danitol have much better efficacy against stink bug, specifically BMSB, and so should be reserved for late season use against that pest. In this case, a good strategy to control the 17-year cicada would be the use of Asana, with the highest labeled rate of 14.5 oz./A rate allowing 7 applications per season. See [Scaffolds Issue No. 12](#) for efficacy data on insecticide selection for cicada.

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Obliquebanded leafroller (OBLR) eggs have been predicted to hatch as of last week, the 19th of June, at the Hudson Valley Laboratory in Highland. Managing this insect during the early stages of development has provided the greatest level of control in orchards with perennial OBLR problems. Two applications of insecticides effective against OBLR applied at 14-day intervals should be applied to blocks in which damage was observed last season. (see <http://ipmguidelines.org/TreeFruits/Chapters/CH11/default-5-8.aspx> for Management Options)

Pear psylla 2nd generation nymphs have been developing on pear over the past two weeks, with very high egg numbers and developing nymph populations (in untreated controls) that exceed economic thresholds. Suckering water sprouts will reduce psylla populations for this generation. Delegate used with a penetrating surfactant will work well against psylla while reducing OBLR larval emergence. Pyrethroids will have reduced impact on psylla, as this insect is more easily able to detoxify the insecticide with increasing temperatures. We have also seen reductions in efficacy of the pyrethroid class in many pear blocks due to lower levels of susceptibility to this insecticide group. (see <http://ipmguidelines.org/TreeFruits/Chapters/CH12/default-3-7.aspx> for Management Options)

San Jose Scale crawlers have begun to emerge from adult female coverings, and to move throughout the tree canopy. Timing of the first contact insecticide against crawlers should begin this week (see <http://ipmguidelines.org/TreeFruits/Chapters/CH11/default-5-8.aspx> for Management Options)

Spotted wing drosophila was first observed this year on June 10 along a wooded edge in western Massachusetts. It was captured in apple cider vinegar (ACV) traps baited with a yeast solution, in the southern and mid-Hudson Valley on June 17 and 21, respectively. The fly was observed on the border of a small fruit block in southern Orange County in raspberry (var. Prelude). In Mid-Ulster County, the SWD was captured along the wooded

edge and within a row of early maturing blackberry within 1 week of harvest.

Trap captures of SWD are at least three weeks earlier than last year. In 2012, which was our earliest year on record for bloom of apple, SWD was first captured in the Hudson Valley in Mid-July. We have not yet observed egg laying in fruit during inspection of raspberry, blackberry, blueberry, strawberry and cherry fruit. We are recommending that growers intensively monitor fruit for egg laying. If small pin-sized holes are observed in pre-harvested fruit, programs to manage the SWD should begin. (click http://ipmguidelines.org/BerryCrops/Chapters/CH05/default-2.aspx#_Toc346891906 for Management Options for brambles, blueberries.) ❖❖



ON
SCHEDULE

EVENT
ANNOUNCEMENTS

CORNELL FRUIT FIELD DAY

❖❖ Cornell University will host the 2013 Fruit Field Day at the New York State Agricultural Experiment Station in Geneva, NY, on Thursday, August 1, from 8:00 a.m. to 5:00 p.m. The field day will be composed of two concurrent day-long tours, one of tree fruit presentations and another tour of grapes, hops and small fruit presentations. Fruit growers, consultants, and industry personnel are invited to tour field plots and learn about the latest research and extension efforts being carried out by Cornell researchers in Geneva and Ithaca and on commercial farms around the state. The event will focus on all commodities of key importance to New York's \$350 million fruit industry: apples, grapes, cherries, raspberries, strawberries, blueberries and other berry crops, plus hops. During lunch, equipment dealers and representatives from various companies will showcase their latest products and technologies to improve fruit crop production and protection.

The list of presentations will include the following topics:

Tree Fruit Tour

- Apple breeding at Cornell and new varieties in the pipeline
- Precision apple thinning
- Apple mechanization
- Tall Spindle management in years 1-6
- Spray volume for Tall Spindles
- Precision spraying in the orchard
- Fruit russet control on NY1
- CG rootstocks
- Nutrient removal by fruit harvest and maintenance application of fertilizers
- Impacts of glyphosate on apple tree health
- Evaluation of bactericide programs for fire blight management

- Persistent NY nematodes for plum curculio biocontrol
- Peach rootstocks
- Rain protection in cherries
- Pear systems and rootstocks
- Apple scab management in a fungicide-resistant orchard

Berries/Grapes/Hops Tour

- Soil and root factors in improved blueberry productivity
- Mass trapping and exclusion tactics to control Spotted Wing *Drosophila* in organic blueberries
 - Limiting bird damage to small fruit crops
 - SWD trap network in NY
 - Day-neutral strawberries and low tunnel production
 - SWD, a new threat to strawberries and raspberries in NY
 - Enhancing pollination and biological control in strawberries
 - Training systems for Arandell
 - New hops variety trial and pest management trials
 - Biology and control of sour rot in grapes
 - Precision spraying in the vineyard
 - High tunnel raspberry and blackberry production
 - A fixed-spray system for SWD control in high tunnel raspberries

The event will be held on the Experiment Station's Fruit and Vegetable Research Farm South, 1097 County Road No. 4, one mile west of Pre-emption Road in Geneva, NY. Signs will be posted. Attendees will travel by bus to the research plots to hear presentations by researchers on the work being conducted. The cost of registration is \$30 per person (\$40 for walk-ins) for all-day attendance. Lunch will be provided.

Pre-registration is required for the \$30 rate, register online at: <http://is.gd/ffd2013>

For sponsorship and exhibitor information, contact Debbie Breth at 585-798-4265 or dib1@cornell.edu.

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CORNELL UNIVERSITY STORAGE WORKSHOP

This year's workshop, slated for August 6 in Ithaca, will feature an international, national and statewide cast. Our guest speakers include Dr. Angelo Zanella, who heads the post-harvest research group at Laimburg Agriculture Research Centre in Italy, and who will be presenting their work on DCA and ILOS, as well as their experiences with DPA. Other presentations will include Honeycrisp, and Empire and Gala browning by Jim Mattheis (USDA, Washington), Jennifer DeEll (Ontario Ministry of Agriculture and Food, Canada), as well as the Cornell team of Chris Watkins and David Rosenberger. Industry presentations include DECCO, PACE and Storage Control Systems. Registration materials will be available shortly.



INSECT TRAP CATCHES (Number/Trap/Day)						
	Geneva, NY				Highland, NY	
	<u>6/17</u>	<u>6/20</u>	<u>6/24</u>		<u>6/17</u>	<u>6/24</u>
Redbanded leafroller	0.0	0.2	0.0	Redbanded leafroller	0.0	2.4
Spotted tentiform leafminer	0.2	1.0	7.3*	Spotted tentiform leafminer	19.7	31.3
Oriental fruit moth	0.3	0.0	0.1	Oriental fruit moth	0.2	1.0
San Jose scale	0.0	0.0	0.0	Lesser appleworm	0.6	0.2
Codling moth	0.3	0.0	0.0	Codling moth	0.9	0.3
American plum borer	0.1	0.0	0.1	Obliquebanded leafroller	0.4	2.7
Lesser peachtree borer	0.5	0.2	0.3	San Jose scale	0.0	0.6
Pandemis leafroller	1.4	0.2	0.8			
Obliquebanded leafroller	1.8	0.0	1.3			
Dogwood borer	1.4	0.2	2.3			
* first catch						

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–6/24/13):	1192	751
(Geneva 1/1–6/24/2012):	1363	857
(Geneva "Normal"):	1080	646
(Geneva 1/1–7/1 predicted):	1418	928
(Highland 1/1–6/24/2013):	1397	876

<u>Coming Events:</u>	<u>Ranges (Normal ±StDev):</u>	
Pear psylla 2nd brood hatch	967–1185	584–750
Obliquebanded leafroller 1st flight peak	826–1208	479–755
Obliquebanded leafroller summer larvae hatch	1038–1460	625–957
San Jose scale 1st flight subsidies	851–1233	506–764
San Jose scale 1st generation crawlers present	1033–1215	619–757
Lesser appleworm 1st flight subsidies	990–1466	604–932
Apple maggot 1st catch	1243–1663	791–1067
American plum borer 1st flight subsidies	1199–1435	745–923
Comstock mealybug 1st adult catch	1308–1554	809–1015
Oriental fruit moth 2nd flight begins	1286–1510	793–983
Redbanded leafroller 2nd flight begins	1252–1580	771–1031

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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