

scaffolds

Update on Pest Management
and Crop Development

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

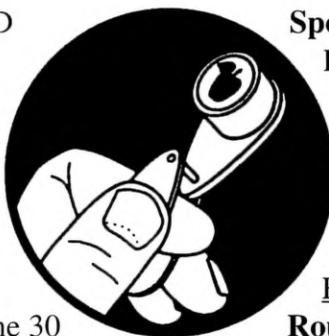
July 6, 2004

VOLUME 13, No. 16

Geneva, NY

SUMMER-TIME BLIPS

ORCHARD
RADAR
DIGEST



Spotted Tentiform Leafminer

Rough guess when 2nd generation sap-feeding mines begin showing: July 8. Optimum first sample date for 2nd generation STLM sapfeeding mines: July 14.

Geneva Predictions:

Roundheaded Appletree Borer

Peak egg laying period roughly: June 30 to July 14.

Peak hatch roughly: July 15 to August 3.

Highland Predictions:

Roundheaded Appletree Borer

Peak hatch roughly: July 2 to July 24.

Dogwood Borer

First Dogwood borer egg hatch roughly: June 26.

Dogwood Borer

Peak Dogwood borer egg hatch roughly: July 25.

Codling Moth

Codling moth development as of July 6: 1st generation adult emergence at 99% and 1st generation egg hatch at 85%.

Codling Moth

Codling moth development as of June 28: 2nd generation adult emergence at 2% and 1st generation egg hatch at 99%.

Lesser Appleworm

2nd LAW flight begins around: July 11.

Lesser Appleworm

2nd LAW flight begins around: July 2.

continued...

Obliquebanded Leafroller

Where waiting to sample late instar OBLR larvae (to determine need for treatment) is an option: Optimum sample date for late instar summer generation OBLR larvae: July 4. If first OBLR late instar larvae sample is below threshold, date for confirmation follow-up sample: July 8.

Oriental Fruit Moth

2nd generation OFM flight begins around: July 3. Optimum 2nd generation - first treatment date, if needed: July 9.

Redbanded Leafroller

Peak catch and approximate start of egg hatch: July 15.

IN THIS ISSUE...

INSECTS

- ❖ Orchard Radar Digest
- ❖ Insect model update
- ❖ Sucking insects

GENERAL INFO

- ❖ Fruit Field Day (see insert)

PEST FOCUS

UPCOMING PEST EVENTS

INSECT TRAP CATCHES

FRANK A. LEE
LIBRARY

JUL 07 2004

NYSAES
CORNELL UNIVERSITY

Obliquebanded Leafroller

If first OBLR late instar larvae sample is below threshold, date for confirmation follow-up sample: July 1.

Oriental Fruit Moth

Optimum 2nd generation - second treatment date, if needed: July 8.

Redbanded Leafroller

Peak catch and approximate start of egg hatch: July 6.

Spotted Tentiform Leafminer

Optimum first sample date for 2nd generation STLM sapfeeding mines: July 4.

Second optimized sample date for 2nd generation STLM sapfeeding mines, if needed: July 10.



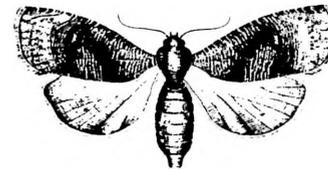
Obliquebanded Leafroller. 25% egg hatch is predicted at 450 DD (base 43°F) from the 1st catch, with 50% egg hatch at 630 DD. Our sample numbers as of July 5 so far:

Geneva (1st catch June 7) - 639

Albion (1st catch June 8) - 580

Sodus (1st catch June 10) - 539

Williamson (1st catch June 9) - 545



COUNT
DOWN

MODEL BUILDING

Oriental Fruit Moth. This pest's development is tracked using a 45°F DD model from biofix, defined as the first sustained moth catch. We are currently just into the start of the second brood, which started about June 30 in WNY. Pesticides to control this brood should be applied at 175–200 DD after this date. Our sample numbers as of today:

Albion - 126

Geneva - 125

Appleton - 128

Williamson - 123

Codling Moth. We are currently between the first and second brood control windows for this pest. With 1260 DD (base 50°F) from the 1st catch of the season as a first spray date for the second brood, we currently have:

Geneva (1st catch May 17) - 663

Albion (1st catch May 17) - 606

Williamson (1st catch May 18) - 584

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

P.O. Box 462

Geneva, NY 14456-0462

Phone: 315-787-2341 FAX 315-787-2326

E-mail: ama4@cornell.edu

Editors: A. Agnello, D. Kain

This newsletter available on CENET at: news://newsstand.cce.cornell.edu/cce.ag.tree-fruit
and on the World Wide Web at:
<http://www.nysaes.cornell.edu/ent/scaffolds/>

INSECT ISSUES

LITTLE SUCKERS
(Harvey Reissig & Art
Agnello, Entomology,
Geneva)

❖❖ 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 frequent showers 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: Apple aphid, *Aphis pomi*, Spirea aphid, *Aphis spiraeicola*

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 delayed somewhat by the cool spring weather this year, but our early plentiful rains and predicted heat should soon provoke a respectable amount of the 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 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. 54) and 12 (p. 61) 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, Vydate and Warrior.

Potato leafhopper (PLH), *Empoasca fabae*

PLH is generally a more serious problem in the Hudson Valley than in western New York or the Champlain Valley. PLH does not overwinter in the Northeast but instead migrates on thermals (warm air masses) from the South. Adults usually reach the Hudson Valley by May or early June and are found from mid- to late June in western New York. Because PLH migrate constantly during the season, there are no distinct broods or generations and the pest 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.

continued...

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 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.

Apple rust mite (ARM), *Aculus schlechtendali*

The wedge-shaped adult has two pairs of legs at the front of its body and is brownish yellow in color. These mites are invisible to the naked eye, requiring a minimum magnification of 15X to be observed.

This species attacks apple primarily. Yellowish brown leaf discoloration occurs under very populated conditions (hundreds per leaf), sometimes accompanied by silvery-white blotches. Browning of the lower surface and drying out of the leaves occur as well. In serious infestations, they may occasionally russet fruit.

Under most circumstances, growers will not notice an infestation until leaf damage has occurred,

and populations generally taper off by midsummer anyway. As a means of prevention, preserve mite predators. Miticides are of questionable value and can be used if populations are very high (>500/leaf), but lower numbers are valuable as prey for predator mites. Kelthane is quite effective, as is Agri-Mek.❖❖

THE BIG TEN-0!

PRESS RELEASE:
CORNELL
CENTENNIAL FRUIT
FIELD DAYS AT
GENEVA

❖❖ Cornell University will host the Centennial Fruit Field Days and Equipment Show at the New York State Agricultural Experiment Station in Geneva, NY on July 27 and 28 from 8:00 am - 4:00 pm. 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 researchers on the Geneva and Ithaca campuses. The focus will be on all commodities key to New York's \$300 million fruit industry: apples, grapes, raspberries, strawberries, peaches, pears, cherries, and nectarines.

"The event celebrates a century of fruit breeding and technology innovation at Cornell's College of Agriculture and Life Sciences, which this year is celebrating its 100th year as the New York State College of Agriculture," said Terence Robinson, associate professor of horticultural sciences and one of the organizers. "On July 27, we will focus on tree fruit technologies and demonstrations and July 28, we will focus on grape and small fruit production."

In addition to the field trials, an international array of equipment will help growers determine which technologies are best for orchard or vineyard. Representatives from various companies

continued...

CENTENNIAL FRUIT FIELD DAYS 2004

Tentative Program

Tree Fruit Tour - Tuesday 27 July

Slot	Name	Min	Venue	Title
8:00-8:30 AM	Registration			
8:30 to 10:00 AM	Terence Robinson/Alan Lakso/Rick Piccioni Terence Robinson Terence Robinson Betsy Bihn Dick Straub	20 20 20 15 15	Res South TLR008 Res South TLR012 Res South TLR010 Res South TLR001 Res South TLR011	Fruit thinning and fruit growth sensors Gala fruit size High Density Apple Orchards Reducing fruit safety risks Leafhopper and aphid management
Travel to McCarthy 10:00-10:15 AM	(cold drinks available at McCarthy Farm)			
10:15 AM to noon	Phil Forsline/Bill Srmack Terence Robinson/Bob Andersen/Steve Hoying Steve Hoying/Terence Robinson Terence Robinson/Steve Hoying Steve Hoying Gennaro Fazio/Terence Robinson	20 15 20 20 15 15	McCarthy Farm Loomis Farm TLR001 Loomis Farm TLR002 Loomis Farm TLR 001 Loomis Farm TLR001 Loomis Farm TLR106W	The apple and tart cherry germplasm collections at PGRU Choosing a sweet cherry planting system Training and pruning of young sweet cherries Mature management of sweet cherries Protecting sweet cherries from cracking and birds CG Rootstocks
Lunch - Noon to 1:50 PM	Robert Seem (or designee) Bob Andersen	10 15	Res South Central Tent Res South Central Tent	Welcome to the NYSAES Introduction of 2 New Sweet Cherries and 2 Plums
1:50 to 5:00 PM	Susan Brown Bill Turechek Terence Robinson/Lailiang Cheng Bill Turechek/Wolfram Koeller Harvey Reissig/Art Agnello Bob Andersen/Susan Brown Bob Andersen/Jay Freer Andrew Landers Andrew Landers	20 20 20 20 15 15 15 20 45	Res South SKB004 Res South TLR002 Res South TLR014 Res South ANL001 Res South TLR012 Res North RLA 006 Res North RLA 006 Res South TLR008 Res South TLR008	New apple varieties for NY The use of Serenade biofungicide for management of apple diseases Honeycrisp fruit quality and zonal chlorosis of Honeycrisp leaves Managing fungicide resistance in apple Internal worm management research Stone fruit breeding at Geneva Stone fruit rootstocks Sprayer testing: Rising to the challenge of EUREPGAP Sprayer demonstrations

Grape Tour - Wednesday 28 July

Slot	Name	Time	Venue	Title
8:00-8:30 AM	Registration			
8:30 to 10:00 AM	Wayne Wilcox David Gadoury Laura Wakefield Megan Kennelly Greg English-Loeb Greg English-Loeb Tim Weigle	20 10 10 10 10 10 20	Robbins Farm Robbins Farm Robbins Farm Robbins Farm Robbins Farm Robbins Farm Robbins farm	Overview of current research on grape disease management Research overview on biology & epidemiology of grape powdery mildew Turning off spore production in the grape powdery mildew pathogen What's new with downy mildew Enhancing beneficial mite populations to help control grape powdery mildew The development of a lure and trap to monitor grape berry moth Using Trichogramma ostrinae for management of grape berry moth
Break 10:00-10:15 AM				
10:15 AM to Noon	Andrew Landers Andrew Landers	30 75	vineyard tba vineyard tba	Nozzle orientation Sprayer demonstration from 10 manufacturers

Grape Tour - Wednesday 28 July (continued)

Slot	Name	Time	Venue	Title
Lunch - Noon to 2:00 PM	TBA		Res South Central Tent	
2:00 to 3:30 PM	Terry Bates Juliet E. Carroll Bruce Reisch & Steve Luce Alan Lakso & Rick Piccioni Thomas J. Burr Lailiang Cheng	15 15 15 15 15 15	Res South Res South Res South 33 South Hansen Lab Res South Reisling vineyard	Current Viticulture Research at the Fredonia Vineyard Laboratory Placing simulation research and cybernetic technology in the hands of grape growers Winter hardiness among NY hybrid wine grape varieties and breeding program selections Measuring root growth and respiration in grapes Development of strategies for managing grape crown gall Water and nitrogen management to reduce atypical aging of white wine
3:30 PM to 4:30 PM	Peter Cousins Phil Forsline & Bill Srmack	30 30	Mccarthy Farm McCarthy Farm	Grape Improvement Research at USDA The <i>Vitis</i> germplasm collection at PGRU

Small Fruits Tour - Wednesday 28 July

Slot	Name	Time	Venue	Title
8:00-8:30 AM	Registration			
8:30 to 10:00 AM	Turechek Weber, Pritts Weber, Pritts, Steve McKay	30 30 30	Crittenden Darrow Darrow	Weed control in strawberries Alternative production practices: Plasticulture, Tunnels, Row covers White pine blister rust control on Ribes
Break 10:00-10:15 AM				
10:15 AM to noon	Weber, Pritts Pritts, grower contributions	90 15	Darrow Darrow	Equipment demonstrations: brush hoe, Reigi weeder, bed maker, plastic layer Bird control in blueberry
Lunch - Noon to 2:00 PM	TBA		Res South Central Tent	
2:00 to 3:30 PM	Betsy Bihn Weber, Pritts Weber, Pritts Pritts, McKay, Weber, Turechek, Grower contributions	20 15 25 20	Darrow Darrow Darrow Darrow	Food Safety in berries Strawberry varieties Raspberry varieties Alternative berry crops
3:30 PM to 4:30 PM	Turechek English-Loeb English-Loeb, Juliet Carroll Turechek, English-Loeb	20 15 15 20	Darrow Darrow Darrow Darrow	Pest management Berry rot management options; anthracnose, gray mold Strawberry sap beetle management Integrated pest management options Organic pest control options

will advise growers on the latest technologies.

Each day, the Cornell pesticide application technology team will demonstrate different methods of improving deposition and testing sprayers, including tips about nozzle orientation.

The event will be held on the Station's Fruit and Vegetable Research Farm South, 1097 County Road No. 4, 1 mile west of Pre-Emption Rd. in Geneva, NY. Signs will be posted. Attendees will be able to select from tours of apples, stone fruits, small fruits, and grapes. Admission is free and lunch is provided, courtesy of industry sponsors. Pre-registration is encouraged.

The last Fruit Field Day was held in Geneva in 2000 and brought in 425 representatives from nurseries, the New York State Department of Agricul-

ture and Markets, the United States Department of Agriculture, Cornell Cooperative Extension, fruit processors, as well as growers from Western New York, the Hudson Valley, Central New York, the Finger Lakes, Ontario, and neighboring states. Organizers this year expect over 500 attendees. The event is co-sponsored by the New York State Agricultural Experiment Station and the New York State Horticultural Society. For sponsorship and exhibitor information, contact Alison DeMarree at 315-589-9698 or Emailto: AMD15@cornell.edu. More information will be posted as it becomes available. To pre-register, contact Nancy Long at 315-787-2288 or Emailto: NPL1@cornell.edu. More information about this event and a complete agenda for both days is available at: <http://www.nysaes.cornell.edu/pubs/press/2004/040622FruitFieldDays.html>



UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1-7/6):	1554	952
(Geneva 1/1-7/6/2003):	1391	836
(Geneva "Normal"):	1519	993
(Geneva 7/12 Predicted):	1721	1077
(Highland 1/1-7/6):	1877	1243

Coming Events:	Ranges:	
Peachtree borer 1st catch	780-1338	445-829
American plum borer 2nd flight begins	1402-1876	1020-1224
Obliquebanded leafroller summer larvae hatch	1038-1460	625-957
Comstock mealybug 1st flight peak	1505-1731	931-1143
Codling moth 1st flight subsides	1296-1946	808-1252
Lesser appleworm 2nd flight begins	1324-1968	866-1298
Oriental fruit moth 2nd flight peak	1379-2101	870-1428
Redbanded leafroller 2nd flight peak	1527-2039	972-1368
San Jose scale 2nd flight begins	1549-1913	1000-1294
Spotted tentiform leafminer 2nd flight peak	1366-1842	854-1218
STLM 2nd gen. tissue feeders present	1378-2035	913-1182

scaffolds

Dept. of Entomology
 NYS Agricultural Exp. Sta.
 Barton Laboratory
 Geneva, NY 14456-0462

PEST FOCUS

Geneva:

1st **dogwood borer** trap catch 7/1. **Redbanded leafroller** trap catch increasing. **Obliquebanded leafroller** flight began 6/7. Sampling should take place at approx. 600 degree days (base 43 °F) following this event. DD43 °F since then = 683. **Spotted tentiform leafminer** 2nd flight began 6/17. The first sample of sap-feeding mines should be taken at 690 degree days (base 43 °F) following this event. DD43 °F since then = 451.

Highland:

Apple maggot fly numbers increasing/above threshold. **Rose leafhopper** and **potato leafhopper** nymphs and adults present. **Obliquebanded leafroller** fruit feeding observed.

INSECT TRAP CATCHES (Number/Trap/Day)

	Geneva, NY			Highland, NY		
	6/28	7/1	7/6	6/21	7/6	
Redbanded leafroller	0.4*	0.0	2.2	Redbanded leafroller	0.0	0.0
Spotted tentiform leafminer	12.8	16.7	234	Spotted tentiform leafminer	65.3	88.1
Oriental fruit moth	0.3*	0.0	0.6	Oriental fruit moth	0.4	0.5
Lesser appleworm	0.0	0.0	0.0	Codling moth	0.3	0.4
Codling moth	0.1	0.0	0.3	Lesser appleworm	1.5	0.1
San Jose scale	0.0	0.0	0.0	Obliquebanded leafroller	1.1	0.3
Obliquebanded leafroller	1.3	0.7	1.2	Sparganothis fruitworm	2.0	1.1
Pandemis leafroller	0.0	0.0	0.0	Tufted apple bud moth	0.5	0.2
American plum borer	0.0	0.2	0.0	Variegated leafroller	0.1	0.1
Lesser peachtree borer	0.8	2.7	0.4	Apple maggot	0.1*	0.3
Peachtree borer	0.0	0.0	0.4*			
Apple maggot	0.2	0.2	0.2			
Dogwood borer	0.0	0.3*	0.1			

* first catch

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.

FRANK LEE LIBRARY
 JORDAN HALL

NYSAES