

scaffolds

Update on Pest Management
and Crop Development

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

July 15, 1996

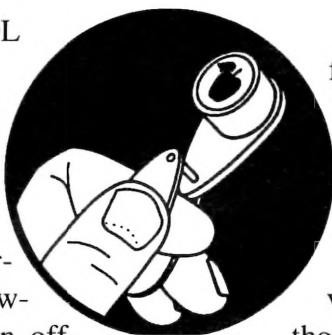
VOLUME 5

Geneva, NY

I
N
S
E
C
T
S

APPLE BORED

DOCK PATROL
(Art Agnello,
Entomology,
Geneva)



❖❖ Before and during apple harvest in recent years, a number of growers and fieldmen have been taken off guard by the appearance of neat little (2 mm) holes bored into the side of their fruit, similar in appearance to those caused by a stem puncture. Although some graders may be inclined to attribute this damage to apple maggot or European corn borer, cutting open these apples reveals a bright green worm, not feeding but lying inactive, in the burrow extending in from each hole.

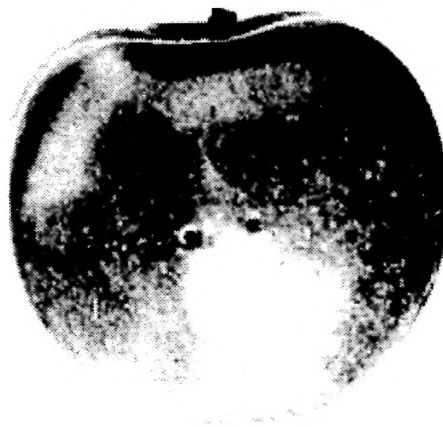


These are larvae of the dock sawfly, *Ametastegia glabrata*, a highly sporadic but nonetheless well documented apple pest that has been known to show up in our area since 1908.

Dock sawfly probably confines its feeding almost entirely to plants belonging to the buckwheat family (Polygonaceae), including numerous docks and sorrels, the knotweeds and bindweeds, or else wild buckwheat or alfalfa. In feeding on any of these plants, the larvae devour the leaf tissue and the smaller veins, eating out irregular holes in the leaves. Ordinarily, the midribs and the larger veins are untouched. This insect should not be confused with the related European apple sawfly, *Hoplocampa testudinea*, which has a whitish larva that lives and feeds in young apples, particularly prevalent in the eastern apple regions of N.Y.

Injury to apples by the dock sawfly is known to occur only in the late summer and early fall, when the fruit is approaching maturity and the sawfly is searching for an overwintering site. The greater hardness of immature apples probably deters the larvae from burrowing into these, so although 4 generations per year have been

identified, only the last is of concern to apple growers. The injury to apples consists externally of the small round holes bored by the larvae, which after a few days show a slightly sunken, brownish ring around them and occasionally may be surrounded by a larger discolored halo. These holes may occur anywhere on the surface, but are most numerous around the calyx and stem ends, or at a point where the apple touches a leaf or another apple, since it is easier for the larva to obtain a foothold here. Inside, the injury is usually more serious, since the larva often bur-



rows to the core and usually hollows out a pupal cell somewhat larger than itself. Apples may have three or four, or sometimes even eight, holes in them of varying depths, but contain only one or two worms.

continued...

Since the dock sawfly does not feed upon any part of the apple tree, but must live on the above-mentioned succulent weeds, it becomes an apple pest only where these plants are growing in or around the orchard. There is little danger from this insect in orchards where these food plants don't exist. Likewise, the possibility of the larvae coming into the orchard from neighboring meadows, ditch banks, or roadsides is slight, for the larvae are incapable of finding their way over any extent of bare soil. The adults, though active, are not strong fliers, and it is not possible for the insect to travel far in this stage. Now would be a good time to assess the weed situation in your orchard and make plans for such selective herbicide applications as may be appropriate regarding this insect. Even though common wisdom says this sawfly is a pest only every 12 years or so, this is only an average estimation, and it's not a bad idea to anticipate the unexpected in a season as atypical as this one has been.

(Information adapted from Newcomer, E. J. 1916. The dock false-worm: An apple pest. USDA Bull. 265, 40 pp.) ♦♦

FROM LITTLE GRUBS

JAPANESE BEETLE (Art Agnello)

♦♦ 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 judging from the reports and phone calls we've been receiving lately, they appear to be 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 also 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 PennCap-M 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.) ♦♦

continued...

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 14456-0462

Phone: 315-787-2341 FAX: 315-787-2326
E-mail: ama4@cornell.edu

Editors: A. Agnello, D. Kain

This newsletter available on CENET, on the Tree Fruit News bulletin board under FRUIT and on the World Wide Web at:
<http://www.nysaes.cornell.edu/ent/scaffolds/>

UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1- 7/15):	1661	1095
(Highland 1/1-7/15):	2057	1366

Coming Events:**Ranges:**

OBLR 1st flight subsides	1420-2277	899-1546
Oriental fruit moth 2nd flight peaks	1000-2908	577-2066
American plum borer 2nd flight begins	906-1876	973-1265
Lesser appleworm 2nd flight begins	1152-2302	778-1531
San Jose scale 2nd flight begins	1449-1975	893-1407
STLM 2nd gen. tissue feeders present	1504-2086	952-1201
Apple maggot 1st oviposition punctures	1566-2200	1001-1575
Redbanded leafroller 2nd flight peaks	1479-2443	952-1698

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva NY**HVL, Highland NY**

	<u>7/8</u>	<u>7/11</u>	<u>7/15</u>		<u>7/1</u>	<u>7/8</u>	<u>7/15</u>
Redbanded leafroller	0.3	0.2	0.5	Redbanded leafroller	1.8	3.0	3.8
Spotted tentiform leafminer	568	511	423	Spotted tentiform leafminer	1.7	33.9	38.3
Oriental fruit moth	1.7	4.8	6.5	Oriental fruit moth	0.4	0.9	0.5
Lesser appleworm	0.3	0.2	0.5	Lesser appleworm	0	0.2	0.1
Codling moth	6.7	1.7	2.6	Codling moth	1.8	1.4	0.2
San Jose scale	0	0	0	Fruitree leafroller	0	0	0
American plum borer	0.5	0.2	0.4	Tufted apple budmoth	1.0	1.1	0.9
Lesser peachtree borer (cherry)	0	0.2	0	Obliquebanded leafroller	2.4	2.6	0.4
Lesser peachtree borer (peach)	0.7	0.7	0.4	Sparganothis fruitworm	1.8	0.9	0.3
Peachtree borer	5.2	2.5	0	Variegated leafroller	-	0	0.1*
Pandemis leafroller	0.2	0.2	0	Apple maggot	0.2*	0.3	0.3
Obliquebanded leafroller	1.0	0.3	0				
Apple maggot	0.2*	0	0.1				

*=1st catch

(Dick Straub, Peter Jentsch)

PLOT PLANS

FRUIT FIELD DAY PROGRAM

❖❖ Plans are proceeding for the Fruit Field Day to be held at the N.Y.S. Agricultural Experiment Station of Tuesday, August 13, which is intended to update growers on the latest research and extension advances in tree fruits, grapes and small fruits. The field day will begin at 8:30 a.m. and end at 4:30 p.m. and is open to all interested fruit growers, consultants and industry personnel. Following is a more detailed listing of the day's program than the previously released version; some of the tour stops are still somewhat tentative, but the schedule is essentially finalized. A registration fee of \$10.00 will be charged, which will include lunch. Advance registration is requested; send checks (payable to "Cornell University - NYSAES") to Art Agnello, Dept. of Entomology, NYS Agric. Expt. Sta., Geneva, NY 14456.❖❖

1996 GENEVA FRUIT FIELD DAY AUGUST 13, 1996

Registration 8:00 am - 9:00 am
Station Pavilion

Morning tour: 8:30 am - 12:00 noon

There will be two tour routes for the morning session (Hansen Farm and Loomis Farm). Each route will have 3 stops. Each bus will be a tour unit and will visit each stop sequentially at each farm. After completing one route each bus will return to the pavilion behind Jordan Hall for a juice break and then complete the second route.

Time	Farm	Presentation	Location	Presenter
20 min	Hansen Farm	1) Traditional Fruit Breeding and Enology	Grape breeding plots	Reisch, Henick-Kling
20 min	Hansen Farm	2) Production Systems	Hansen 1 TLR Plot	Robinson
20 min	Hansen Farm	3) IPM	Area J Strawberry IPM Plot	English-Loeb, Kovach
20 min	Loomis Farm	4) Genetic Engineering	Transgenic Plot	Aldwinckle, Cummins, Norelli
20 min	Loomis Farm	5) Physiology of Grapes	Lakso O.34	Lakso, Pool
20 min	Loomis Farm	6) Water and Nutrient Management	O.106 Irrigation	Stiles

Lunch Stop at Pavilion: 12:00 noon - 1:30 pm

There will be a tent set up next to the pavilion where manned displays from Food Science and PGRU will highlight those programs. After lunch either a federal or state legislator will address the audience.

Presentations	Presenter	Time
Food Venture Center	Anderson	Continuous through lunch
IR-4 Program	Spittler	Continuous through lunch
PGRU	Forsline, Lamboy	Continuous through lunch
Legislator Address	Either Walsh (representing Federal) or Kuhl (representing State)	30 min at the end of lunch
Sponsored by NYS Hort Soc.		

Afternoon tours: 1:30 pm - 4:30 pm

There will be 3 concurrent commodity tours in the afternoon (Grapes, Small Fruits/Stone Fruits and Apples). Each commodity group will have 2 tours. Between each tour, the buses will return to Jordan Hall for a juice break. At that time, tour participants will be able to switch commodity tours. For these tours we envision presenters making the presentation only one time to however large a group chooses that particular tour.

Concurrent tours

Time	Grapes	Small Fruits/Stone Fruits	Apples
1:30-3:00	Tour 1	Tour 1 (Small Fruits)	Tour 1
3:00-4:30	Tour 2	Tour 2 (Stone Fruits)	Tour 2

Individual tour stops are as follows:

Grape Tour 1

Time	Farm	Presentation	Presenter
1:30-3:00	Research South	1) Vineyard Management Research 2) Vinifera Grape Research 3) Breeding	Pool, Lakso Pool, Henick-Kling Reisch

Grape Tour 2

Time	Farm	Presentation	Presenter
3:00-4:30	Robbins Farm	1) Grape Pathology Research 2) Grape Breeding 3) Grape Entomology Research	Wilcox, Gadoury, Seem Reisch English-Loeb

Small Fruit Tour

Time	Farm	Presentation	Presenter
1:30-3:00	Darrow	1) Biocontrol of Phytophthora on Raspberries 2) Phytophth. Screened Raspberry Seedlings 3) Raspberry 3rd Test Plot with trickle & trellis 4) Day-Neutral Strawberries on raised beds with trickle 5) Raspberry Harvester (not confirmed yet)	Wilcox, Harman Sanford, Maloney Sanford, Maloney Rieckenberg Maloney

Stone Fruit Tour

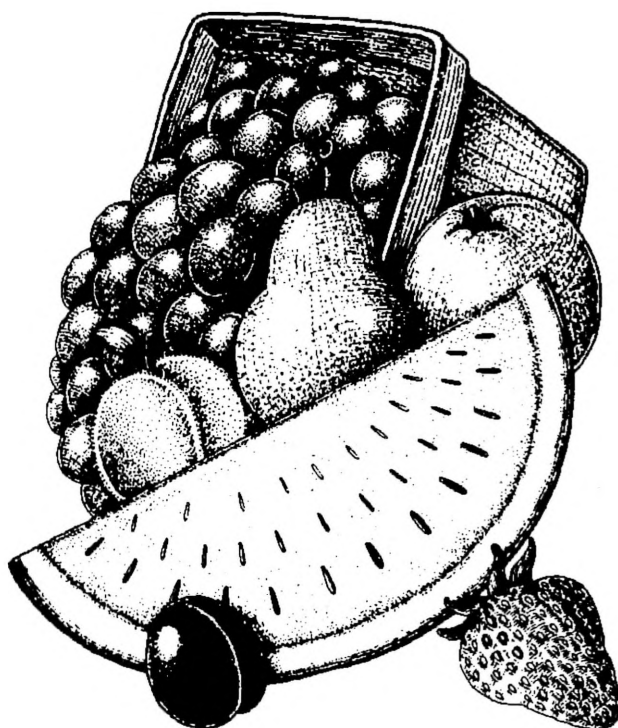
Time	Farm	Presentation	Presenter
3:00-4:30	Research North	1) Friday Peach Varieties 2) Peach Rootstocks 3) Sweet Cherry Varieties and pruning 4) Bacterial Canker in Sweet Cherries	Andersen

Apple Tour 1

Time	Farm	Presentation	Presenter
1:30-3:00	Research South	1) CG-Rootstocks Trials 2) M.9 Rootstock Clones 3) Vertical Axis Tree Training 4) Trickle Irrigation and Fertigation 5) Apple Variety Breeding	Robinson Robinson, Stiles, Lakso Brown

Apple Tour 2

Time	Farm	Presentation	Presenter
3:00-4:30	Lucey Darrow	1) Orchard Systems 2) Mirid Bug Research 3) Yeast and Russetting of Apples 4) New Developments in Research on Apple Scab	Robinson Kain, Agnello Burr Gadoury, Seem



HOME STRETCH

MODEL PEST

❖❖ The OBLR developmental totals we've calculated as of this morning, 7/15, are given below; note that 720 DD marks the median development point (i.e., through fourth instar) of the earliest emerging larvae; at 810 DD, egg hatch is 90% complete, and at 950 DD, egg hatch is essentially over:

Highland - 953

Albion - 819.1

Sodus - 758.0

Lyndonville (with last 5 days estimated): - 729

Williamson - 705.0

Appleton - 675.7

Geneva - 700

❖❖

COUNT ON STLM, TOO

SPOTTED TENTIFORM LEAFMINER

(Harvey Reissig & Art
Agnello, Entomology,
Geneva)

❖❖ The injury caused by the second and third generations is identical to that caused by the first, but second-generation injury is most damaging to the tree. Third-generation STLM is usually not a problem if the second generation was controlled properly. Proper timing is essential for both the assessment of STLM densities and control, if required. If done too early, sampling will underestimate the population. If control is applied too late, it will not be effective. Sampling for sap-feeding mines should be done at approximately 690 degree-days (base 43° F) after the start of the flight of the second generation. The second-generation flight began on June 17 in the Hudson Valley, and on June 20 in Geneva. If moth trap data or DD readings are not available in your area, you should be starting to sample for sap-feeding mines about now. Sampling guidelines can be found on pp. 81, 89-90, and 98 in the 1996 Tree-

Fruit Recommendations. Although this procedure can sometimes require as many as three separate sampling sessions to properly determine the need for a treatment, the total time spent sampling a given block should not exceed 30 minutes. A decision regarding the third generation is generally not required unless the density of the second brood exceeded two mines per leaf. In recent years, approximately 8% of sampled orchards have required a treatment for second-generation STLM.

Several insecticides are effective against second-generation STLM, including Provado, Vydate, Lannate, and Asana. All of these products except for Provado are detrimental to predatory mites. Depending on the product chosen, application can be made anytime from initial egg deposition until larvae enter the tissue-feeding stages. Sampling is, of course, recommended before any spray is applied. If Provado is chosen, the manufacturer recommends aiming for the period 10–14 days after the flight starts. Unfortunately, if mines haven't yet begun to show up, this approach requires you to predict the need for a treatment based on either moth numbers or past field history, neither of which has been shown to be a very reliable indicator of actual pressure. According to our experience with this material, waiting until the appearance of early sap-feeding mines will give a better picture of problem blocks, and should still be timely enough to effectively manage economic populations. Regardless of when an application is made, we don't know ahead of time whether another spray will be needed, but considering the aphid and leafhopper potential in our region, a second application might eventually end up being elected anyway. ❖❖

PEST FOCUS

Geneva: DD (base 43) since 1st catch of
Obliquebanded leafroller (6/17 in Geneva) = 700.
STLM 2nd flight started 6/20; DD (base 43) = 627.
Highland: DD (base 43) since 1st catch of
Obliquebanded leafroller (6/10 in Highland) = 953.
STLM 2nd flight started 6/17; DD (base 43) = 738.

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.

scaffolds

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

ARTHUR AGNELLO
ENTOMOLOGY
BARTON LAB

NYSAES