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Update on Pest Management
and Crop Development

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

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INSECT BITES

SITTIN' ON THE DOCK

(Art Agnello,
Entomology,
Geneva)



❖❖ Before and during apple harvest the past couple of years, a number of growers and fieldmen have been finding 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 are inclined to attribute this damage to apple maggot, 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 them, 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 burrows 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.

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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 clean orchards or where the food plants don't exist. 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.)



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 if you have looked at any roses lately, you know that they are 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 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.)♦♦

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CODLING MOTH MODEL

❖❖ The developmental model for 2nd generation codling moth larvae predicts that a control spray should be applied in problem orchards 1260 DD (base 50°F) after the start of the FIRST flight (5/17 in Geneva, 5/15 in the Hudson Valley). As of today, 7/10, 927 DD have accumulated in Geneva and 1053 at Highland. Keep your eye on the thermometer so that you will be timely with any OP applications you should decide to make.❖❖

MILDEW

APPLE DISEASE
UPDATE —
POWDERY MILDEW
(Dave Rosenberger, Plant
Pathology, Highland)

❖❖ The unusually dry season we are having throughout much of eastern New York has resulted in relatively little apple scab or cedar rust. Powdery mildew, however, thrives on dry weather. The fungi causing most fruit diseases can infect plants only when the fruit and foliage are wet, but powdery mildew spores do not require rains or dews to germinate. Mildew spores can germinate on leaf surfaces anytime that relative humidity is above 70% and temperatures are above 50°F. However, newly developing apple leaves are susceptible to infection for only a few days after they unfold.

Primary mildew infections develop from buds in which the mildew fungus overwintered. On shoots with primary infections, the fungus grows with the developing shoot and most leaves are completely covered with the powdery white fungus. Spores from these primary infections

are blown to other leaves and cause the secondary infections that are most evident this time of year. Most secondary infections appear as white spots affecting portions of scattered leaves on the trees.

Trees that did not receive adequate mildewcide sprays earlier in the season may have many infected leaves at this time of year. With a few exceptions, however, mildewcide applications are NOT recommended at this time. Apple fruit are susceptible to mildew infection only for a short period around the pink-bud stage, so fruit are no longer at risk. With the dry weather, most trees have already stopped growing or will stop growing very soon. Thus, most trees no longer have any susceptible tissue (new leaves) for mildew to infect. Mildewcides applied now might kill some of the fungus in infections on the older leaves, but the damage to these leaves has already been done. No fungicide will return the infected leaves to a completely green and healthy condition. Applying mildewcides to mature trees that have set terminal buds is a practice that falls into a category that Entomologist Rick Weires used to call "revenge spraying". Revenge spraying has no biological or economic justification, but it may help a grower feel he is "getting even" with the bug or fungus that damaged his trees. In today's economic climate, no one can afford revenge sprays. Therefore, mildewcides are best left in the spray shed and applied next spring when they will be needed to control the disease for the 1996 season.

Dr. Lorraine Berkett (now in Vermont) and Dr. Ken Hickey (Biglerville, PA) did extensive studies of powdery mildew spray timing with Bayleton on Rome Beauty in the early 1980's. They showed that the greatest benefit from the mildewcide occurred when sprays were applied at bloom, petal fall, and first and second cover. Adding sprays after second cover did not improve disease control. Although Berkett and Hickey did all of their work with Bayleton, Rubigan and Nova would work the same way.

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Mildewcides may be needed during July (and perhaps even August) only on young trees that continue terminal growth until late in the summer. Young trees of mildew-susceptible cultivars should be protected through summer to encourage maximum extension growth of the terminals. Careful attention should be given to protecting young trees of mildew susceptible cultivars such as Ginger Gold, Cortland, Rome, Paulared, and Idared.

Occasionally in dry years, mature trees will develop late-season growth when late-summer rains restore soil moisture. These late "breaks" of shoots that had already formed terminal buds are especially

susceptible to mildew. However, in most cases, I do not believe that the costs of a Rubigan, Nova, or Bayleton spray is justified just to protect these late shoots. Depending on the cultivar, such applications may also be prohibited because of the preharvest interval required for these fungicides. Benlate or Topsin-M applied in August sprays to control sooty blotch and flyspeck may help to control powdery mildew on late terminal breaks and would be the only recommended mildewcides to apply to mature trees in August. The effectiveness of Benlate and Topsin-M may be compromised in some orchards because of the presence of fungicide-resistant strains of the fungus. ❖❖

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva NY

HVL, Highland NY

	<u>7/3</u>	<u>7/6</u>	<u>7/10</u>		<u>6/26</u>	<u>7/3</u>	<u>7/10</u>
Redbanded leafroller	0	0.3	0.1	Redbanded Leafroller	0	0	1.6
Spotted tentiform leafminer	104	279	261	Spotted tentiform leafminer	9.2	2.6	24.9
Oriental fruit moth (apple)	14.9	4.0	3.4	Oriental fruit moth	0.4	0.6	1.4
Lesser appleworm	11.5	1.2	6.1	Fruittree leafroller	0.2	0.3	0
Codling moth	1.9	5.8	3.5	Codling moth	8.6	0.8	0.4
San Jose scale	0	0.2	0.3	Lesser appleworm	0	0	0
American plum borer	0	0.5	1.5	Sparganothis fruitworm	2.4	3.8	1.1
Lesser peachtree borer (peach)	3.4	4.3	1.1	Tufted apple bud moth	1.3	2.8	0.1
Lesser peachtree borer (cherry)	2.1	3.8	1.5	Variegated leafroller	4.9	-	0
Peachtree borer	1.1	3.0	0.8	Obliquebanded leafroller	5.9	7.2	0.9
Obliquebeanded leafroller	0	0	0	Apple maggot	-	0	0
Pandemis leafroller	0.1	0	0				
Apple maggot	0.2	0.4	0				

* = 1st catch

(Dick Straub, Peter Jentsch)

PEST FOCUS

Geneva: We are now in the middle of the sampling period for **OBLR** terminal infestation. DD (base 43) since 1st OBLR catch (on 6/12)= **731**. Sampling for **STLM** sapfeeding mines should commence at 690 DD (base 43). DD43 since start of **STLM** 2nd flight (6/19) now = **623**. **Redbanded leafroller** 2nd flight began. **American plum borer** 2nd flight began.

Highland: DD (base 43) since 1st catch of **Obliquebanded leafroller** = **763**. **Spotted tentiform leafminer** 2nd flight began 6/12. DD (base 43) since 1st catch = **763**. Sampling for sapfeeders should commence now. **Redbanded leafroller** 2nd flight began.

UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1 - 7/10):	1642	1142
(Highland 3/1 - 7/10):	1763	1146

<u>Coming Events:</u>	<u>Ranges:</u>	
Spotted tentiform leafminer 2nd flight peak	1295-1979	854-1355
Spotted tentiform leafminer 2nd gen. tissue feeders present	1504-2086	952-1201
San Jose scale 2nd flight begins	1449-1975	893-1407
Codling moth 2nd flight begins	1417-2302	999-1549
Apple maggot 1st oviposition	1566-1724	1001-1232
Comstock mealybug 1st flight subsides	1844-2245	1241-1450
Lesser peachtree borer flight peak	1099-2330	667-1526
Peachtree borer flight peak	869-2241	506-1494
Dogwood borer peak flight	1551-1952	986-1306
OBLR summer larvae hatch	1076-1513	630-980
Redbanded leafroller 2nd flight peak	1479-2443	952-1698
Oriental fruit moth 2nd flight peak	1612-2908	1062-2066

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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