

# scaffolds

Update on Pest Management  
and Crop Development

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

June 26, 1995

VOLUME 4

Geneva, NY

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### APHIDS

#### LITTLE GREEN GUYS

(Harvey Reissig  
& Art Agnello,  
Entomology,  
Geneva)



❖❖ One class of insect pest that seems to be thriving under this year's hot and dry conditions is the green aphid complex, made up of apple aphid, *Aphis pomi*, and spirea aphid, *Aphis spiraecola*. 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. Large numbers of both species may build up on growing terminals on apple trees during summer, particularly when there is an abundance of succulent new foliage. Despite our dearth of rainfall so far this season, there have been several reports of high populations here and there. Both species are apparently common during the summer in New York 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 the season starting in mid-June. Inspect 10 rapidly growing terminals from each of 5 trees throughout the orchard, and record the percentage of infested terminals. No formal studies have been done to develop an economic

threshold for aphids in New York orchards, but treatment is recommended if 30% of the terminals are infested with either species of aphid. The larvae of syrphid and cecidomyiid flies 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. Both aphid species are resistant to most organophosphates, but materials in other chemical classes control these pests effectively. Some options for aphid control are Provado, Lorsban, Thiodan, or (more destructive to predator mites) Cygon, Lannate or Vydate.❖❖

### CRAWLERS

COMSTOCK  
MEALYBUG  
(Art Agnello & Dave  
Kain, Entomology,  
Geneva)

❖❖ The first adult males of the season should be appearing in pheromone traps any day now, and it shouldn't be long before we start seeing some adult females in pear foliage, followed by their invasive crawler offspring. According to our tests over the past few years, this is the most susceptible stage for chemical control, which we expect sometime during the next couple of weeks, especially in the Hudson Valley.

The following information is taken from the Comstock Mealybug IPM Fact Sheet, No. 22:

continued...

The Comstock mealybug (CMB) was first reported in the United States in 1918 concurrently in New York and California, and has since spread to all coastal states and the Ohio and Mississippi River valleys. Its fruit hosts include pear, apple, and peach, and it is also a pest of several ornamental plants such as catalpa, mulberry, pine and others. CMB was first recognized as a fruit pest in the 1930's. From 1950 to 1980, it was infrequently noticed as a fruit pest, but in the early 1980's it caused damage to apple crops in the Hudson and Champlain valleys, and to pears in western New York later in the eighties.



The Comstock mealybug adult female is wingless and elongate-oval in shape, with a many-segmented body (2.5 to 5.5 mm long) and well-developed legs. It has 17 pairs of body filaments, with the caudal (posterior) pair being one-third as long as the body. The legs and antennae are inconspicuous. The body of the adult female is reddish-brown, but has a white appearance because it is covered with wax.

Because of its small size and short life span, the adult male is very unlikely to be seen in the field unless it is captured in pheromone traps; even then it is difficult to distinguish without the aid of a microscope. It has a gnat-like appearance, with delicate, almost veinless wings, a light reddish-brown body (about 1 mm long), and two caudal filaments as long as or longer than the body. It is peculiar in having three pairs of eyes (dorsal, lateral, and ventral). The legs and 10-segmented antennae are apparent, but the mouthparts are absent.

There are two generations of Comstock mealybug in New York, each taking 60 to 90 days to complete, depending on seasonal temperatures. The egg is generally thought to be the primary overwintering stage, but recent evidence from western N.Y. indicates that some nymphs and adult females from the second (summer) generation overwinter, with eggs being laid in the spring rather than the previous

fall. Adult females and males emerge at the same time, from late June to mid-July for the first (overwintering) generation, and late August to mid-September for the second (summer) generation. Adult females are present for a total of 4–6 weeks, and oviposit for about one week after mating. Males survive for only a few days after emerging.

The eggs are elliptical (0.3 mm long and 0.17 mm wide) and bright orange-yellow, but may appear duller because of the waxy filaments covering them. Eggs are laid in jumbled masses along with the waxy filamentous secretions in protected places such as under bark crevices, near pruning cuts, and occasionally in the calyx of fruit. The summer-generation eggs are laid from mid-June through late July, and the overwintering eggs from mid-August into October. The summer generation eggs have an incubation period of about 11 days.

The first and second larval instars of the female and male CMB are virtually indistinguishable. They appear similar to adult females

continued...

## scaffolds

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<http://www.nysaes.cornell.edu/ent/scaffolds/>

except that they are smaller, more oval-shaped, lack the long body filaments, and are more orange-yellowish because they have less wax covering. The first instar female crawler is flattened (0.3 to 0.5 mm long) and pale yellow, becoming darker in time. The second (0.9 to 1.2 mm long) and third (1.7 to 2.5 mm long) instar females are similar in appearance, but become progressively browner and redder.

The third instar of the immature male, called a "pro-pupa", is contained in a cocoon that begins forming toward the end of the second instar. It is 0.9 to 1.2 mm long and elongate-oval, with the head, thorax, and abdomen fused. The fourth stage of the immature male is the pupa. It is elongate, 1.2 to 1.4 mm long, and light reddish-brown. As with the adult male, it has three pairs of eyes and 10-segmented antennae.

The overwintered eggs hatch from mid-April through May and the nymphs (crawlers) migrate from the oviposition sites to their feeding sites on terminal growth and leaf undersides of trees and shrubs. This hatch is completed by the petal fall stage of pears. Nymphs that hatch from these overwintered eggs are active from roughly early May to early July. As the nymphs approach the adult stage, they tend to congregate on older branches at a pruning scar, a node, or at a branch base, as well as inside the calyx of pears. Second- (summer) generation nymphs are present from about mid-July to mid-September.

The Comstock mealybug poses two major concerns for the pear processing industry of New York: First, the emergence of crawlers and adult females from the calyx of pears at the packinghouse creates a nuisance to workers. Second, pears to be made into puree typically are not peeled or cored by New York processors, so infestations can potentially result in unacceptable contamination of the product.

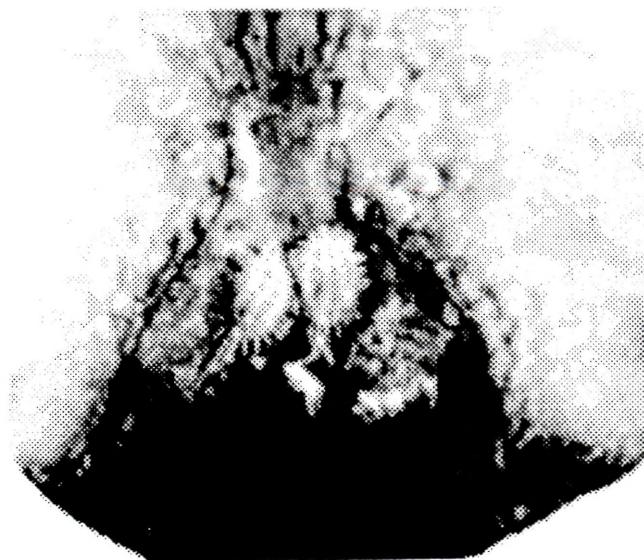
Another problem, of concern to apple growers in the 1930s and 1940s, and again in the Hudson and Champlain Valleys in the early 1980s, is that the honeydew secreted by the crawlers is a substrate for

sooty molds growing on the fruit surface. This problem also occurs on peaches in Ontario, Canada. These molds result in a downgrading of the fruit, and are therefore an additional cause of economic loss.

To date, the Comstock mealybug has been a problem to growers of processing pears because of the contamination and aesthetic reasons noted. Crawler infestation of pears destined for processing can be determined by examination of the calyx end. Cut the pear lengthwise to expose the inner calyx area, which is often concealed in the whole fruit. Once the insects have reached these sites, it is nearly impossible to remove them. Such an infestation generally indicates the need for one or more insecticide sprays during the growing season, directed against the migrating crawlers.

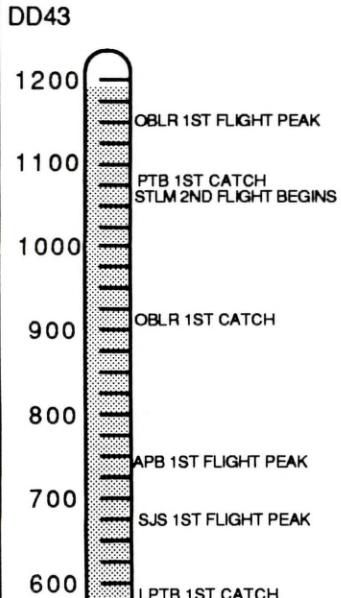
Examine the terminal growth for crawler activity periodically throughout the summer. Crawler and adult female activity can also be monitored by wrapping black electrical or white carpet tape around low scaffold branches and inspecting for crawlers that have been caught by the tape. They can be recognized with a hand lens or, with some experience, by the unaided eye.

Watch this space for our best advice on when to apply a material such as Penncap-M, Diazinon, Lannate, or (on apples only) Lorsban to control this insect.♦♦

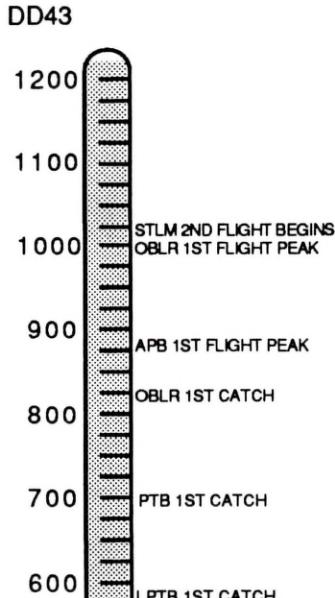


# PROGRESSION OF EVENTS

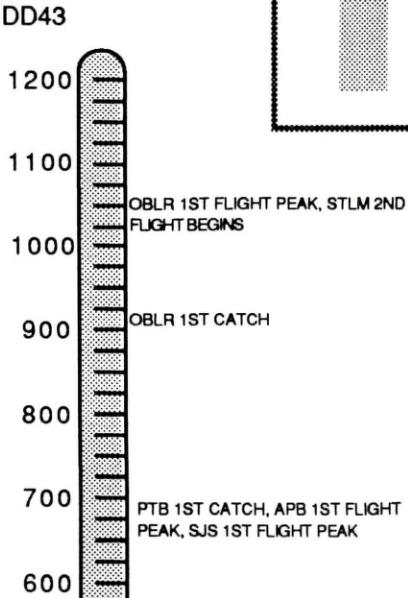
Normal



1994



1995



DD base 43°F  
TO DATE

## PEST FOCUS

Geneva: DD (base 43) since 1st **OBLR** catch (on 6/12) = **366**. DD (base 43) since start of **STLM** 2nd flight (6/19) = **258**. **Oriental fruit moth** and **lesser appleworm** 2nd flights have begun. **Apple maggot** 1st catch.

Highland: **Obliquebanded leafroller** catch at peak. DD (base 43) since 1st catch = **384**. **Spotted tentiform leafminer** 2nd flight began 6/12. DD (base 43) since 1st catch = **384**. 2nd generation sap-feeding mines observed.

**INSECT TRAP CATCHES (Number/Trap/Day)**

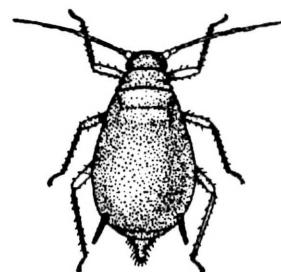
Geneva NY

HVL, Highland NY

	<u>6/19</u>	<u>6/22</u>	<u>6/26</u>		<u>6/12</u>	<u>6/19</u>	<u>6/26</u>
Redbanded leafroller	-	0	0	Redbanded Leafroller	0	0	0
Spotted tentiform leafminer	12.2	15.3	49.3	Spotted tentiform leafminer	2.9	9.1	9.2
Oriental fruit moth (apple)	0	0.7	8.1	Oriental fruit moth	1.4	0	0.4
Lesser appleworm	0	0.7	6.3	Fruittree leafroller	0.3	0	0.2
Codling moth	5.3	2.2	1.1	Codling moth	3.5	1.1	8.6
San Jose scale	0	0.2	0	Lesser appleworm	0	0	0
American plum borer	1.2	0.2	0.1	Sparganothis fruitworm	1.1	3.0	2.4
Lesser peachtree borer (peach)	-	5.1	1.6	Tufted apple bud moth	1.0	1.6	1.3
Lesser peachtree borer (cherry)	4.2	3.3	3.1	Variegated leafroller	0.5*	0.6	4.9
Peachtree borer	-	5.1	2.5	Obliquebanded leafroller	0.8*	1.6	5.9
Obliquebearded leafroller	3.3	3.0	1.1				
Pandemis leafroller	0.8	1.0	0				
Apple maggot	0	0	0.3*				

\* = 1st catch

(Dick Straub, Peter Jentsch)

**UPCOMING PEST EVENTS**

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1 - 6/26):	1276	875
(Highland 3/1 - 6/26):	1385	864

**Coming Events:**

	<b>Ranges:</b>
Spotted tentiform leafminer 2nd flight begins	795-1379
San Jose scale 1st gen. crawlers present	449-880
Codling moth 1st flight subsides	987-1247
American plum borer 1st flight subsides	673-1395
Obliquebanded leafroller 1st flight subsides	1217-1659
Apple maggot 1st oviposition	850-1098
Comstock mealybug 1st adult catch	1420-2277
Lesser peachtree borer flight peak	1001-1232
OBLR summer larvae hatch	756-1105
Redbanded leafroller 2nd flight begins	1099-2330
	667-1526
	1076-1513
	630-980
	1198-2029
	804-1381

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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**scaffolds**

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