scaffolds Update on Pest Management and Crop Development

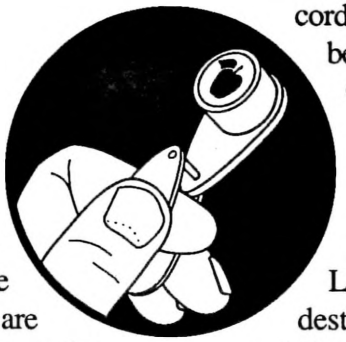
F R U I T J O U R N A L

July 13, 1992 VOLUME 1 Geneva, NY

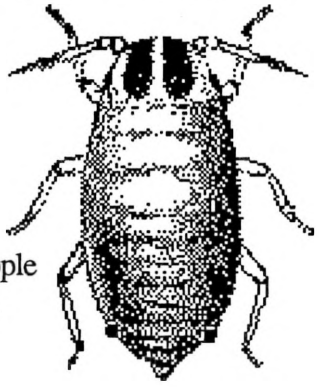
INSECTS

INSECT BITES

(Art Agnello & Harvey Reissig)

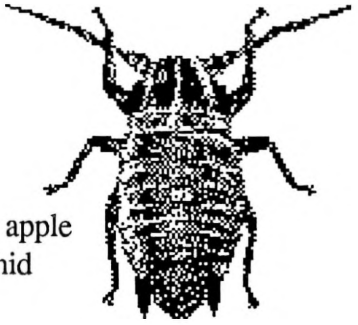


❖❖APHIDS - If the apple season ends up belonging to any one insect pest this year, it may be the complex of aphids with which we are blessed: apple, spirea, rosy, and even woolly. Most insects are somewhat affected by the weather, and this is particularly true for aphids, not only because of their small size and short generation time, but also because their fate is so closely tied to terminal growth, which has been favored by the relatively wet season. Green (apple/spirea) aphids can be found in nearly every block now, and are already causing honeydew problems in some cases.



Green apple aphid

Most orchards we have looked at also have respectable predator populations, mostly syrphids and *Aphidoletes* (cecidomyiids), but their numbers are not increasing fast enough to keep up with the food supply in all cases. Some growers will certainly wish to apply a pesticide treatment, because the threshold of 30-40% infested terminals has been reached, and sticky fruit is a distinct possibility. Since the demise of phosphamidon, we are left to make do with other materials that may give mixed results when used to control aphids. According to Dick Straub's trials last year, the best of the available products include Cygon, Lannate, Asana, and Thiodan. Cygon in particular looked very effective in these tests, although it hasn't commonly been used by N.Y. growers. One of its drawbacks, similarly to Lannate and Asana, is that it is quite destructive to predators of both mites and aphids. Thiodan and Lorsban would be better choices in terms of predator conservation; together with Asana, all of these products fall into the broad category of "moderately effective" materials against aphids.



Rosy apple aphid

Rosy apple aphids have also been making their summer re-appearance, even in blocks where they were fairly well controlled at pink; this is not surprising, considering the recent weather. Fruit deformation damage is beyond worrying about now — if you have some, it can't be corrected, and if you don't, it's not going to occur. However, colonies can be found on actively growing terminals and water sprouts, and the honeydew/sooty mold they cause could spill over onto fruit if numbers continue to build. Unfortunately, they are difficult to contact with a spray now, because most colonies are concealed within rolled leaves. Once

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again, Lorsban, Thiodan, or Asana are the main choices for those attempting to bring numbers down.

We haven't received many reports yet about woolly apple aphid colonies showing up, but they may be expected at any time. This aphid tends to be a sporadic pest in orchards of our region, occurring in noticeably high numbers only every few years. Look for aerial colonies on succulent tissue around the periphery of tree canopies; a spray of Lorsban, Thiodan, or Penncap-M may be necessary if honeydew buildup threatens the fruit.

LEAFHOPPERS - The white apple leafhopper (WALH) has only 2 generations in western N.Y. Eggs from the single generation during the summer usually begin to hatch from late July to early August. Egg hatch continues until mid-late August. Adults appear in late August and continue to be active until fruit harvest. The WALH has 3 distinct generations per season in the Hudson Valley. The second generation WALH nymphs appear from mid- to late July and are active through early August; some of these may be starting to show up now. The third generation of WALH is active during late August until harvest. The second and third generations are spread out in the Hudson Valley, and may overlap so that various stages of WALH are found continuously on leaves throughout June, July, and August.

Nymphs and adults feed on leaves during the summer, removing chlorophyll and causing white stippling on the leaves. The excrement of nymphs and adults is deposited on the fruit, resulting in small black spots that resemble the summer disease, flyspeck. During harvest, adults fly throughout the tree canopy and annoy pickers. WALH nymphs and adults are usually most common on older fruit cluster leaves inside the tree. The number of WALH on a single older fruit cluster leaf should be counted on each of 10 clusters from 5-10 trees. No formal studies have been done in N.Y. to develop economic threshold levels for WALH feeding damage on apples. The economic thresholds suggested in other states vary from an average of 0.25 to 2 WALH nymphs and adults per leaf. In N.Y., treatment for second or third generation WALH is recommended if an average of 1 or more nymphs and adults per leaf is detected. Chemical control, using a material such as Sevin, Cygon, Thiodan, Carzol, Lannate, or Vydate, is usually most effective if treatments are applied primarily against nymphs, after most of the eggs have hatched. Of course, many of these are toxic to beneficial mites.

Evaluation of WALH populations can be confounded by presence of the potato leafhopper (PLH). The PLH is generally a more serious problem in the Hudson Valley than in western N.Y. or the Champlain Valley. The PLH does not overwinter in the northeast, but instead migrates in on thermals (warm air masses) from the south. Adults usually arrive in May or early June in the Hudson Valley, and are found from mid- to late June in western N.Y. Because PLH migrate continually during the season, there are no distinct broods or generations, and the pest is present continuously in orchards from June through harvest. According to Elson Shields, who tracks this pest on forage crops, PLH has been in the state this year since early May, but its numbers appear to be very low, so it may not be as serious as it often is.

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scaffolds

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PLH feed on tender young terminal leaves. Initially, injured leaves turn yellow around the edges, then the leaves become chlorotic, deformed (upward cupping), and later turn brown or scorched. Damage is caused by a toxin injected by the PLH while feeding. PLH also occasionally causes symptoms similar to growth regulator effects, such as excessive branching preceding or beyond the point of extensive feeding. PLH damage is often mistaken for herbicide injury, nutrient deficiency, or overfertilization injury. PLH injury may not be serious on older, mature trees, but the damage can severely stunt the growth of young trees. Nymphs and adults should be counted on 50-100 randomly selected terminal leaves in the orchard. Older trees should be sampled approximately every three weeks during the summer. Young trees should be sampled weekly through July. No formal studies have been conducted in N.Y. to determine the economic injury level for PLH on apples. Therefore, a tentative threshold of an average of one nymph or adult PLH per leaf could be used. Populations of PLH in N.Y. are resistant to the conventional organophosphate materials. However, the same pesticides as those recommended against WALH are effective, if application is made before these often transient insects have caused their damage.

COMSTOCK MEALYBUG - We've received a number of questions about the specifics of monitoring for CMB crawlers, which we don't expect to show up in western N.Y. for approximately another week. Our preference is to use double-sided white carpet tape, which is very sticky and needs no additional sticking agent. Select 3-4 trees per block, and wrap 2 lower scaffold limbs with the tape, locating the traps about 1 foot away from the central trunk. Many eggs are laid beneath bark scales on the trunk, and the objective is to intercept the crawlers migrating from these sites to the foliage after hatching. Areas with smoother bark make the best locations for the tapes. Check the traps twice each week, by cutting off the entire trap and replacing it with new tape. It's best to examine the tape for crawlers under a dissecting scope, but they can be seen with a hand lens. First instar crawlers, which are 1-2 mm long, are pinkish and may not be as covered with mealy substance as the older ones (refer to the photo on CMB Fact Sheet No. 22). Time your control spray for the first and peak emergence of crawlers (about 10 days later).

JAPANESE BEETLE - This is a perennial pest of peaches, particularly in the southern regions of the state. We have begun to see low numbers of beetles on various horticultural crops. If extensive leaf skeletonizing or fruit pitting is noted, it may be controlled by using Sevin at the 2 lb rate.

BLUEBERRY MAGGOT - We haven't actually seen any yet, but this is the time to begin expecting this pest. Although blueberry maggot is potentially very destructive, it generally has not been as serious a problem in N.Y. as in other blueberry-growing regions. Larvae attack the berries and may cause them to drop, decreasing yield; obviously, if they remain on the plant, the crop is not acceptable for market. In areas with a history of maggot problems, or if you're not sure, we recommend hanging yellow apple maggot panel traps at the edge of your planting, 2-3 per field, on the side closest to woods (or south-facing side if no woods are nearby). Check the traps 2-3 times per week for the adults, which look exactly like apple maggots. A 3-spray treatment of malathion, Sevin, or Guthion on a 10-day schedule is recommended if you start to catch significant numbers of them — 2-3 per trap per week is typical of a treatable population.❖❖

DISEASES

RUSTS

Rust Diseases and a Brown Leaf Spot Caused by Rust
(Dave Rosenberger)

❖❖ As noted in the "Scaffolds" issue of June 15, this has been an exceptional year for quince rust and cedar apple rust. I believe most of the quince rust infections occurred during the lengthy infection period of May 15-17. Unsprayed Delicious trees at the lower Hudson Valley have 10-20% of the fruit infected with quince rust. Quince rust is also evident on many other cultivars, including Jerseymac, Cortland, Rome, Golden, and Liberty. The earliest lesions to appear were on the calyx ends of fruit. Now we are seeing sunken green depressions on the cheeks of infected fruits. Within several weeks, many of the infected fruit will color prematurely. The incidence of disease in commercial orchards will be more readily apparent as these fruit turn red. Many of the infected fruit will drop before harvest.

Cedar apple rust galls on cedar trees were still producing spores in mid-June after many growers had already switched to captan for their summer sprays. Captan does not control rust. As a result, even well-sprayed orchards have some cedar apple rust on terminal leaves. The cultivars that are not susceptible to rust (i.e., they do not develop yellow leaf lesions) may develop small 1-3-mm-diameter brown spots on leaves if the cedar apple rust spores germinate and kill some of the leaf cells. Thus, growers who used only captan during June are noting leaf spotting on cultivars that generally are considered resistant to rust. Rust infections during June are usually limited to a few terminal leaves on each shoot. (Fruit become infected primarily from tight cluster through petal fall.) Because there is no secondary rust cycle on apple, growers should not be concerned about the rust lesions or leaf spots they are seeing at this time.❖❖

BITTER ROT

Bitter Rot
(Dave Rosenberger)

❖❖ This is the time of year when bitter rot infections are likely to occur (hot humid weather with frequent rains). Bitter rot produces tan sunken lesions on the fruit, usually on the cheek of the fruit which receives direct sunlight. (Dark decay lesions at the calyx end are more likely caused by the black rot fungus.) Bitter rot lesions gradually enlarge to become the size of a quarter or slightly larger. During wet weather, orange slimy spores are produced in the centers of larger lesions. The disease often becomes apparent only in late-August to early September. Bitter rot has caused significant losses of Empire fruit in some problem blocks in the Hudson Valley and on Long Island.

The only effective fungicide available to control bitter rot at this time of year is captan. In most blocks, captan applied at 14-20-day intervals at the lower end of the labeled rates is adequate to suppress bitter rot. However, in blocks with a history of bitter rot, growers should use the full rate of captan on no more than a 14-day interval. There is some evidence that bitter rot is especially severe when rain is accompanied by high wind, such as in hurricanes or heavy thunderstorms. Possibly, windy rain events are required to bring inoculum from other host plants outside of the orchard. The bitter rot fungus has many hosts, including trees commonly found in forests and hedgerows. In problem blocks, growers may benefit from spraying with captan just prior to predicted hurricanes or thunderstorms during July and August.❖❖

MORE DISEASES

Sooty Blotch/Fly Speck
(W. Wilcox)

❖❖ The weather pattern that we've been experiencing in western N.Y. for the last 6 weeks is very reminiscent of 1990, which is the last time we encountered widespread commercial outbreaks of sooty blotch and fly speck. Remember that the fungi that cause these two diseases grow slowly but steadily whenever relative humidity within fruit canopies is >90% (sooty blotch) or >95% (fly speck). Optimum temperatures for growth are 60-80°F, but they'll also grow outside these limits, albeit more slowly.

An experiment conducted by Dave Rosenberger during 1989 in the Hudson Valley provided a lot of useful information concerning chemical control of these diseases. It's been shared in several educational meetings over the last couple of years, but will be repeated below once again because of its timeliness.

Two major points:

(1) Captan is less effective than EBDC's, especially against fly speck. Everybody's personal experience has already told them this, but here's another reminder. With the 77 day PHI for the EBDC's, it's too late for anything harvested before Oct. 1, but not for later varieties. This may be especially important for Golden Delicious, which can really look awful when affected by these diseases.

(2) Benlate apparently has some eradicative abilities against sooty blotch and fly speck (note the Polyram *vs.* Polyram + Benlate applied 7/26 only). If you think your fungicide program may have been a little weak since these rains started, it would be a good idea to include Benlate in the next maggot spray in fresh fruit blocks.

Last but not least, don't forget that summer pruning can help control these diseases by reducing humidities within fruit canopies.❖❖

		% Fruit infection	
Fungicide, rate/100 gal	Spray Dates	Sooty blotch	Fly speck
Captan 50W, 1 lb.....	6/23, 7/26, 8/24	0.2	15.6
Polyram 80W, 1 lb.....	6/23, 7/26, 8/24	0.1	5.2
Polyram 80W, 1 lb.....	6/23, 7/26	0.2	8.2
Polyram 80W, 1 lb.....	7/26	2.2	24.2
Polyram 80W, 1 lb + Benlate 50DF(!), 2 oz.....	7/26	0.3	9.4
Unsprayed.....	—	15.0	51.9

PHEROMONE TRAP CATCHES

Number/Trap/Day, Geneva NY

	7/2	7/6	7/9	7/13
Redbanded Leafroller	0	0.4	0.8	4.8
Spotted Tentiform Leafminer	507.2	642	789.7	784.4
Oriental Fruit Moth (apple)	0	0.3	1.7	1.9
Oriental Fruit Moth (peach)	0	0	0	0
Lesser Appleworm	0	0.1	0.5	0.3
Codling Moth	20.5	16.1	18.2	12.4
San Jose Scale	0	0	0	0
Lesser Peachtree Borer (cherry)	9.8	9.1	7.2	4.3
Lesser Peachtree Borer (peach)	1.3	1.1	1.3	0.6
Peachtree Borer	2.2	1.6	1.8	2.6
Obliquebanded Leafroller	0.7	0.6	0.5	0.1
Apple Maggot	0	0.1	0.1	0.1

Total Number, HVL, Highland NY

	7/6	7/13
Spotted Tentiform Leafminer	300	290
Redbanded Leafroller	6	1
Obliquebanded Leafroller	5	-
Sparganothis Fruitworm	4	6
Oriental Fruit Moth	4.5	9
Codling Moth	15	6
Apple Maggot	1*	1.5
Variegated Leafroller	0	0

* 1st catch

(Dick Straub)

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1 - 7/13):	1443	891

Coming Events:	Ranges:	
Codling moth 2nd flight peak	1587-2956	1061-2013
Dogwood borer peak flight	1551-1952	986-1306
Obliquebanded leafroller 1st flight subsides	1433-2217	899-1493
Redbanded leafroller second flight peak	1522-1901	952-1298
STLM 2nd brood tissue-feeding mines present	1504-2086	952-1201
White apple leafhopper 2nd gen nymphs present	1531-2746	990-1873

Note: For current information in your area of the state, check PEST STATUS under FRUIT on CENET.

PEST FOCUS

OBLR - 675 DD (base 43°F) have accumulated since the first catch of second brood OBLR. Sampling is recommended after 600 DD (base 43°F) have accumulated. It is time to sample terminals for larvae to determine the need for treatment.

STLM - The spotted tentiform leafminer second brood flight began 6/22 in Geneva. Sampling for STLM sap-feeding mines should begin 500-700 DD (base 43°F) from this date. So far, 458 DD have accumulated.

scaffolds
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