scaffolds

Update on Pest Management and Crop Development

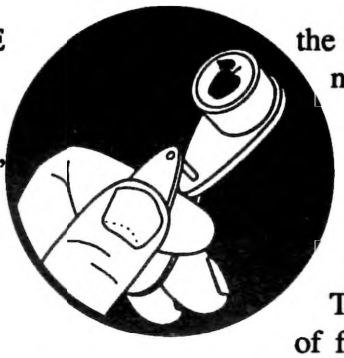
FRUIT JOURNAL

June 1, 1999 | VOLUME 8, No.11 | Geneva, NY

INSECTS

RANK & FILE

FACES IN THE PARADE (Art Agnello, Entomology, Geneva)



Obliquebanded Leafroller

❖❖ No obliquebanded leafroller moths have been caught yet in western N.Y., but it won't be too much longer before the first moths start showing up, considering this spring's warm trend. As usual, larvae can be found now in many stages of development, from the very tiny to the pupal stage in some of the more advanced sites. This would obviously be an advisable time to hang a wing-type pheromone trap in problem apple blocks, to fix the date of first emergence in your specific area. Recall that we recommend sampling at 600 DD (base 43°F) after the first adult catch, to determine the need and timing for treatment. It pays to keep an eye on the daily highs and lows for your area if you are doing your own trapping, as it's likely that our "normal" sampling date of July 5 will turn out to be too late this year.

Larvae of the first OBLR summer brood cause two kinds of damage — foliar feeding injury and rolling of the leaves, and more importantly, injury caused by feeding on the surface of the developing fruits. This fruit damage is usually more serious than the spring feeding by overwintered larvae, because more of the fruit injured late in the season remains on the tree at harvest. Despite the rather extreme measures some growers wage in the spring against the early generation larvae, you should remember that even an excellent control program against the overwintered brood does not eliminate the possibility of a problem summer population. To maximize the effectiveness of any sprays against the first summer generation OBLR infestation, you should sample leaf and fruit clusters at the proper time. The value of knowing the precise date of first adult flight on your own farm cannot be emphasized too strongly, and maintaining a few pheromone traps is not terribly difficult or time consuming. Check traps two or three times a week until the first adult is caught. Wait for 600 degree-days (base 43°F) after this date to begin sampling for 2nd- or 3rd-instar larvae. Degree-day (DD) values can be obtained for some locations from NEWA (Northeast Weather Association) or from Cooperative Extension service letters. Most conveniently, you

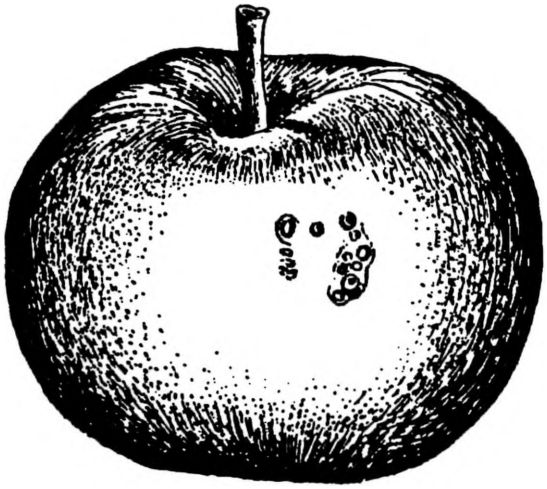
continued...

IN THIS ISSUE...

can also just look them up in the DD charts that appear on pp. 109–112 in the 1999 Recommends by using the daily high and low temperatures, or else estimate them each day by using the following formula:

Degree Days for 1 Day = 1/2 x [Daily Maximum Temp. + Daily Minimum Temp.] - 43.

Guidelines for sampling can be found on pp. 84, 92–93, 96 and 101 of the Recommends. Sample from random trees that are representative of the entire block, examining 10 expanding leaf terminals per tree. It is not necessary to pick the terminals. Record the number of samples infested with live larvae; do not count actual numbers of larvae in an infested terminal, and do not count damaged terminals that have no OBLR in them, or those containing only dead OBLR. To minimize bias, choose half of your samples from inside the tree canopy, including some watersprouts, and the other half from near the outside of the canopy. If the tree is more than 10 ft tall, try to include some clusters from the mid- to upper canopy area. Use the 3% infestation threshold for fresh fruit, and 10% for processing fruit. A "Stop Sampling and Treat" decision means that a spray to control OBLR is recommended at this time. A "Stop Sampling, Don't Treat" decision indicates that you should return in 3–5 days, after 100 more degree-days have accumulated, and repeat the sample. Recommended materials include SpinTor, a B.t. product (such as Dipel, Biobit, Javelin, Agree, etc.), Lorsban, Lannate, or possibly Asana or Penncap-M, depending on the population pressure, field history, and resistance/tolerance particulars of your orchards.



Because of the difficulty of adequately controlling problem OBLR in NY, the preferred spray strategy in blocks with a history of heavy populations is to forgo the sampling and make three applications based on DD accumulation (base 43°F) after the first sustained moth catch. The recommended application timings are: 200–300 (about 5–7 days after first catch), 500–600, and 800–900 after first catch of adults.

Summer Oil for European Red Mite

In situations where European red mite pressure or the crop's sensitivity to them haven't necessarily justified the expense of an early season treatment with Agri-Mek, Apollo or Savey, this is the time of year when a summer oil program might be considered as an alternative preventive approach. Field research trials conducted in commercial and experimental apple orchards in western N.Y. have shown the effec-

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@nysaes.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/scafolds/

tiveness of using a highly refined oil in a seasonal program to control mites throughout the summer. Some examples of these products are Sunspray Ultra Fine Spray Oil (Sun Refining & Marketing, Philadelphia), and Stylet-Oil (JMS Flower Farms, Vero Beach, FL); others are labeled and may be available, although we haven't tested all brands.

Our approach is to make three applications, on a preventive schedule, immediately after the bloom period, before mite populations have a chance to build. The first application can be any time from petal fall to 1–2 weeks later, followed by two additional sprays at 10–14 day intervals. The oil is not concentrated in the tank, but rather mixed on the basis of a rate per 100 gallons of finish spray solution; for instance, at the 1 gal. rate, a spray tank holding 500 gallons receives 5 gallons of oil. The sprays are applied at a volume sufficient to obtain adequate coverage of the canopies; in most cases, we recommend 100 gal. per acre. Dosages that we have tested are 6.5 oz., 1 qt., and 1, 2, and 3 gal./100 gal. of finish spray solution. Results of our tests can be summarized as follows: the 2 and 3 gal. rates effectively controlled mite populations for the entire season in all but the most extreme cases; the 1 gal. rate maintained control of moderate populations but was not effective against severe mite pressure (a fourth spray was necessary later in July); and the lower rates provided only minimal control (light population pressure), permitting unacceptable mite numbers by mid-July in orchards with moderate or severe populations.

Overall, the results of this work have demonstrated that summer oil applications can be used to effectively control European red mite populations in many orchard situations. So far, mites have not demonstrated an ability to develop a resistance to oil, and oil is less toxic to at least some beneficial species than are traditional toxicants. Although it is possible to kill some predator mites by directly spraying them, overall mortality is not very high. Some potential drawbacks to keep in mind if using this management strategy:

- potential compatibility problems with some fungicides needed to control summer diseases, particularly captan.
- small necrotic leaf lesions in some situations or on certain varieties, especially when high-rate (>2%) applications take place under poor drying conditions (not too much of a threat this year so far)
- a tendency for increased "scarf skin" in some varieties such as Red Rome and Jonathan.

Cherry Fruit Flies

No adults have been reported caught on sticky board traps yet, but because of the zero tolerance in cherries for insect damage or presence, it's prudent to begin sprays in your cherries now (for this pest as well as for curculio). Guthion, Imidan (tart cherries only), Sevin, the pyrethroids, or Penncap-M are all effective treatments. Sevin, Imidan and Penncap-M will also control black cherry aphid.

Lesser Peachtree Borer

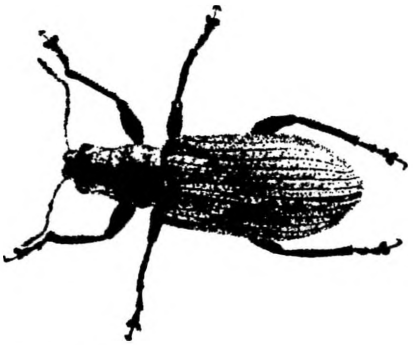
Remember to get your trunk and scaffold sprays on peaches and cherries during the first week of June if borers are a problem in your blocks. This pest increases the severity of Cytospora canker infections in peaches and is often found within the canker; by feeding in the callous tissues, it interferes with the tree's natural defenses against the disease. Infestations can be determined by the presence of the insect's frass, which resembles sawdust, in the gum exuded from the wound. In peaches, you can use Lorsban, Thiodan, Asana, Ambush, Pounce, or Penncap-M for this application. In cherries, use Lorsban 4E, Thiodan 50WP, Asana, or Ambush 25WP as a trunk spray ONLY; do not spray the fruit.

Leaf Weevil

This is about the time of year that a bright metallic green snout beetle about 1/5" in length appears in apple orchards and strawberry fields, sometimes in considerable numbers. This weevil is

continued...

most likely *Polydrusus impressifrons*, also called simply the leaf weevil. It is of European origin and was first reported in New York in 1906. The larvae live in soil, where they feed on roots of various plants. The adult weevils feed on the foliage of many host plants, including birch, poplar, and willow, but also apple, pear, and strawberry. Leaf feeding is usually not extensive enough to justify special sprays. In commercial orchards, the normal cover spray program will take care of this problem. If the weevil appears in great numbers in a nursery, control using an OP may be necessary.



Worms in the Nursery

The spring flush of leaf-feeding caterpillars has arrived in many orchards, and these can be of particular concern in young, non-bearing apple plantings. Brief inspections can turn up not only OBLR, but also other leafrollers, green fruitworms (more than one species), loopers, and of course, gypsy moth larvae. Normal postbloom management programs usually take care of these foliage feeders in commercial blocks, but the amount of defoliation that can be caused by this crowd is often not tolerable by small trees in the nursery that have little foliage to spare. Check your young plantings and apply something appropriate (at least Imidan or Guthion) if you find more than a nominal amount of leaf feeding taking place.❖❖

FIELD NOTES

OUT ON THE BORDER

PLUM CURCULIO
(Deb Breth, Lake Ontario Fruit Team, Albion)

❖❖ Activity has picked up with these warm, damp conditions. If Petal Fall was on May 18 in early sites in McIntosh, we have accumulated about 140 DD (base 50°F). Control sprays for plum curculio are no longer necessary if the last spray has been applied within 10–14 days after the accumulation of 340 DD from Petal Fall. With average temperatures in the 70's, it could be another 10 days before we reach 340. It is time to re-apply if it has been 10–14 days since your last treatment. Border sprays may be adequate if they cover 3–4 rows around the edges, but in orchards with high curculio pressure, a full cover spray would be more appropriate.❖❖

DISEASES

HUDSON VALLEY DISEASES

GENERAL MALAISE
(Dave Rosenberger, Plant Pathology, Highland)

Rust Diseases

❖❖ Cedar apple rust lesions are now apparent on leaves of susceptible cultivars that were not protected with fungicides. Lesions appear as bright yellow or orange dots on the upper surface of the leaves. Infections this year are unusually severe because of the heavy inoculum load in cedar trees. The intermittent but extended wetting periods that we had between May 3 and May 9 provided ideal conditions for infection. Heavy rains tend to wash spores out of the air whereas the intermittent wetting optimizes the process of spore production, release, and dissemination.

continued...

Severe quince rust infection is also evident in our test plots at the Hudson Valley Lab. Quince rust causes deformed fruitlets, but does not cause any symptoms on leaves. Fruit are most susceptible to quince rust from Tight Cluster until the time blossoms open. On unsprayed Jerseymac trees, we noted that most of the fruitlets infected with quince rust are dropping from the trees as our thinning treatments take effect. The selective thinning of quince rust infected fruit probably resulted from the fact that most infections occurred on side flowers rather than on king flowers. The critical infection period for quince rust was probably the split wetting period of May 3–4 when early-flowering varieties were at King Bloom. Because the king flowers were already open, the king fruit was less susceptible to infection during this critical infection period. The thinning treatment (carbaryl plus NAA at 5 ppm) effectively removed most of the side flowers and in the process eliminated much of the quince rust. Had the infection period occurred several days earlier, I suspect more king flowers would have been infected and the thinner would not have removed the quince rust.

In years with heavy cedar apple rust infection, rust-resistant cultivars often develop leaf spots that are associated with cedar apple rust infections. Rust-induced leaf spotting can occur on cultivars such as Empire, Cortland, and Liberty even though the trees of these cultivars will never develop typical cedar apple rust lesions. (These cultivars occasionally have normal lesions of hawthorn rust, but hawthorn rust is much less common than cedar apple rust.) If rust-resistant cultivars are sprayed with a fungicide that does not control rust (e.g., captan), then the rust spores landing on leaves will germinate and begin the infection process before the fungus dies. Infections may kill only a few cells, or they may appear macroscopically as a pin-point yellow or orange spot on the upper leaf surface.

Rust-induced leaf spots develop after the rust fungus dies. The cells that were killed or damaged by the rust infections are then invaded by *Botryosphaeria*, *Alternaria*, or *Phomopsis*. These fungi use the dead or dying cells in the original rust lesion as a food-base that allows them to enlarge the original rust lesion. The resulting leaf spots are indistinguishable from frog-eye leaf spot except that rust-induced leaf spots are usually more uniformly distributed throughout the tree canopy. Sometimes the original orange-yellow rust lesion is visible in the center of the brown leaf spots initiated by rust infections.

As noted in the last issue of Scaffolds, rust diseases have no secondary cycle in apples trees. Therefore, there is no reason to adjust current-season spray programs if rust lesions or rust-induced leaf spotting appears in trees. The damage for this season has been done and will not get any worse.

Fire Blight

The MaryBlyt model predicted that blossom blight symptoms should appear in the Hudson Valley around May 23 if any infections occurred during the high risk periods for blight infection that were registered May 6 and 7. Pears were at greatest risk during that period. The hot weather during the past few days should cause terminal shoots to turn black and wilt if blossoms were infected in early May.

Nectria Twig Blight

Nectria twig blight is just beginning to appear in Rome trees. This disease can easily be confused with fire blight. Nectria causes terminal shoots to wilt and die, with shoot tips forming "shepherd's crooks" similar to those caused by fire blight. The disease occurs when the fungus *Nectria cinnabarina* invades pulled or broken stems after harvest and progresses into the twigs below the stem. After invading pulled or broken stems, the fungus continues to grow into the fruiting node and eventually girdles the twigs. Terminal shoots beyond the infection point wilt suddenly after the twig is girdled. During late June and July, bright orange fruiting structures 2–3 mm in diameter will erupt through the bark of the node just below the pulled stem. Nectria twig blight is most common on Romes and other cultivars that have enlarged nodes where flowers are produced.

continued...

Nectria twig blight can be differentiated from fire blight by the fact that the Nectria cankers are usually associated with pulled stems. Also, cankers caused by Nectria twig blight rarely extend more than an inch or two back into the tree from the affected node, whereas fire blight cankers can "run" considerably further. When affected twigs are sliced open, there is usually a sharp transition between healthy wood and necrotic tissue in a Nectria twig blight canker whereas fire blight cankers frequently have indistinct canker margins at this time of year. Later in the summer, the orange fruiting structures that are unique to Nectria provide a critical diagnostic sign. Diagnosis can be complicated when both diseases are present in the same orchard. The presence of Nectria twig blight makes scouting for fire blight very difficult.

Although the wilted and dying shoots can make a tree look sick, Nectria canker generally causes minimal damage to trees. No fungicides have proven effective for limiting spread of this disease. Nectria twig blight occurs sporadically, but infections are usually most common and abundant in low-lying blocks with poor air-drainage (i.e., blocks subject to cold damage.)❖❖

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–6/1):	749	423
(Geneva 1998 1/1–6/1):	976	593
(Geneva "Normal" 1/1–6/1):	687	377
Hudson (3/17–6/1):	767	411
(Highland 1/1–6/1):	919	519

Coming Events:	**Ranges:**	
Spotted tentiform leafminer 2nd flight begins	795–1379	449–880
Codling moth 1st flight peak	547–1326	307–824
European red mite summer eggs hatch	773–938	442–582
Obliquebanded leafroller 1st catch	686–1104	392–681
Lesser appleworm 1st flight peak	372–851	181–483
American plum borer 1st flight peak	360–962	134–601
San Jose scale 1st flight peak	581–761	308–449

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	5/24	5/28	6/1
Spotted tentiform leafminer	53.7	9.3	12.1
Redbanded leafroller	2.5	0.5	0.4
Oriental fruit moth	40.7	6.8	10.4
Lesser appleworm	6.4	1.3	2.2
San Jose scale	0.1	0	0
Codling moth	16.4	2.5	6.6
American plum borer	1.5	0.1	6.8
Lesser peachtree borer	1.5	0.6	4.1
Pandemis leafroller	–	0	0.6*

Highland, NY

	5/25	6/1
Spotted tentiform leafminer	2.9	2.8
Redbanded leafroller	2.1	0
Oriental fruit moth	1.2	1.1
Codling moth	0.9	3.3
Lesser appleworm	0.8	2.8
European red mite(#/leaf)	18.0	11.0
San Jose scale	0.1*	0
Fruitree leafroller	–	0.5*
Obliquebanded leafroller	–	0

Hudson, NY

	5/17	5/24	6/1
Spotted tentiform leafminer	5.5	3.4	1.9
Oriental fruit moth	0.8	2.0	0.9
San Jose scale	0	0.8	0.1
American plum borer(cherry)	1.5	2.9	4.6
Lesser peachtree borer(peach)	0.4	2.8	0.6
Peachtree borer	–	0.3	0.1
Tarnished plant bug	–	0	0

* first catch

PEST FOCUS

Geneva:
1st **pandemis leafroller** trap catch. This usually precedes the 1st **obliquebanded leafroller** trap catch by 0–4 days. 1st catch of **codling moth** = 5/13. DD(base 50°F) accumulated since then = 228.

Highland:
1st catch of **fruitree leafroller**. 1st **rose leafhopper** adult observed on apple. 1st **two-spotted spider mites observed on Red Delicious. Oriental fruit moth** and **European corn borer** causing visible terminal damage. **Pear psylla** summer eggs hatching.

MODEL UPDATE

CODLING MOTH
(Art Agnello, Entomology, Geneva)

❖❖ The Michigan model for predicting this insect's development gives fairly accurate predictions of codling moth activity in N.Y. As many as two insecticide applications may be made for each of the two generations per year, depending on the severity of pressure. Degree days are accumulated from the date of first sustained moth catch, and the first spray is applied at 250 DD (base 50°F), which corresponds with predicted 3% egg hatch. A second spray may be applied 10–14 days later. If pressure is not too severe, one spray will suffice, applied instead at 360 DD after the biofix date (which we're calling May 13 in Geneva and May 2 in Highland). To control the second generation, the timing is 1260 DD after this same biofix date. Degreee days (Base 50°F) accumulated so far in Geneva =228, and in Highland = 334.❖❖

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