scaffolds Update on Pest Management and Crop Development

FRUIT JOURNAL

June 13, 1994 VOLUME 3 Geneva, NY

INSECTS

INSECT BITES

THE BUGS OF SUMMER

(Art Agnello)

OBLIQUEBANDED LEAFROLLER

❖❖ The first moth this year was taken in the Hudson Valley on 6/6; there are no reports of adult catches in western N.Y. yet, but they're due any time now. Larval development is all over the place, as usual (everything from 3rd to 6th instars), and pupae were evident a few days ago in Geneva and near Albion. In western N.Y., it's not too late to hang a wing-type pheromone trap in problem apple blocks, in order 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. It pays to keep an eye on the daily highs and lows for your area if you are doing your own trapping, in case our "normal" sampling date of July 5 turns out not to be accurate this year.

Larvae of the first OBLR summer brood cause two kinds of damage — foliar feeding injury and rolling of the leaves, and more important, 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 some rather vengeful campaigns we saw this 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. You will need to know the date of the first adult flight in your area; the value of knowing the precise date of this event on your own farm cannot be emphasized too strongly, and maintaining a few pheromone traps is not very difficult or time consuming. Check traps two or three times a week until the first adult is caught. Wait for 600 degree-days (43°F base) after this date. Degree-day (DD) values can be obtained for some locations from CENET (from the "CLIMOD" Menu) or from Cooperative Extension personnel. You can also calculate them yourself each day by using the following formula:

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

If you do not have access to any of this information, use July 10 as an estimated best sample date in a "normal" year.

Guidelines for sampling can be found on pp. 80–81, 88–89, 93 and 98 of the 1994 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

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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. A second "Below Threshold" decision indicates that no treatment against this generation of OBLR is recommended. Recommended materials include a B.t. product (such as Dipel, Biobit or MVP), Lorsban, Lannate, or possibly Asana or Penncap-M, if these products have still been giving adequate control in your orchards. We have a 2(ee) recommendation for Dipel plus a 1/10 rate of Asana, but please note that this strategy tends to be variable in its success rate from block to block. More on this pest in the next issue.

CODLING MOTH MODEL

As of today, 6/13, a total of 422 DD have accumulated in the Hudson Valley since the "1st adult catch" biofix; in Geneva, the value is 296. The recommended spray window to control 1st generation codling moth is 250–360 DD. We are obviously a little late for Hudson Valley growers, for which we apologize; we did not have access to current DD information last week. The more problematic 2nd generation has a control window starting 1260 DD from the same biofix date; we will endeavor to keep everyone posted.

APPLE MAGGOT

It is not too early to expect the first appearance of these adults (flies) in abandoned orchards by next week, particularly in eastern N.Y. (western N.Y. should be a couple of weeks from now if all goes normally). Crop scouts and consultants have been using traps to monitor apple maggot (AM) populations for a long time. Some orchards have such high AM populations that monitoring for them is a waste of time (that is, sprays are needed on a calendar basis). But most commercial N.Y. orchards have moderate or erratic pressure from this pest, and monitoring to determine when damaging numbers of them are present can reduce the number of sprays used in the summer with no decrease in fruit quality.

Sticky yellow panels have been in use for over 20 years, and can be very helpful in determining when AM flies are present. These insects emerge from their hibernation sites in the soil from mid-June to early July in New York, and spend the first 7–10 days of their adult life feeding on substances such as aphid honeydew until they are sexually mature. Because honeydew is most likely to be found on foliage, and because the flies see the yellow panel as a "super leaf", they are naturally attracted to it during this early adult stage. A few of these panels hung in an orchard can serve as an early-warning device for growers if there is an AM emergence site nearby.

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scaffolds
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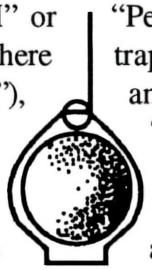
Many flies pass this period outside of the orchard, however, and then begin searching for fruit only when they are ready to mate and lay eggs. That means this advance warning doesn't always have a chance to take place — the catch of a single (sexually mature) fly then means that a spray is necessary immediately to adequately protect the fruit. This can translate into an undesirable risk if the traps are not being checked daily, which is often the case.

To regain this time advantage, researchers have developed newer traps that have the form of a "super apple" — large, round, deep red, and sometimes even with the smell of a ripe apple — in an attempt to catch that first AM fly in the orchard. Because this kind of trap is so much more efficient at detecting AM flies when they are still at relatively low levels in the orchard, the traps can usually be checked twice a week to allow a one- or two-day response period (before spraying) after a catch is recorded, without incurring any risk to the fruit. In fact, research done in Geneva over a number of years indicates that some of these traps work so well, it is possible to use a higher threshold than the old "one fly and spray" guidelines recommended for the panel traps. Specifically, it was found that sphere-type traps baited with a lure that emits apple volatiles attract AM flies so efficiently, an insecticide cover spray is not required until a threshold of five flies per trap is reached.

The recommended practice is to hang three volatile-baited sphere traps in a 10- to 15-acre orchard, on the outside row facing the most probable direction of AM migration (south, or else toward woods or abandoned apple trees). Then, periodically check the traps to get a total number of flies caught; divide this by 3, and spray when the result is 5 or more. In home apple plantings, these traps can be used to "trap out" local populations of AM flies by attracting any adult female in the tree's vicinity to the sticky surface of the red sphere before it can lay eggs in the fruit. Research done in Massachusetts suggests that this strategy will protect the fruit if one trap is used for every 100–150 apples normally produced by the tree (i.e., a maximum of three to four traps per tree in most cases).

A variety of traps and lures are currently available from commercial suppliers; among them: permanent sphere traps made of wood (from "Pest Management Supply") or stiff plastic (from "Great Lakes IPM" or "Pest Management Supply"), disposable sphere traps made of flexible plastic (from "Olson"), and sphere-plus-panel traps (from "Ladd"). The disposable traps are cheaper than the others, of course, but only last one season. Ladd traps are very effective at catching flies, but are harder to keep clean, and performed no better than any other sphere trap in field tests. Brush-on stickum is available to facilitate trap setup in the orchard. Apple volatile lures are available from Ladd Industries (septa) and Consep (membranes). Addresses of these suppliers follow:



Consep, Inc., 213 S.W. Columbia St., Bend, OR 97702-1013, 1-800-367-8727

Great Lakes IPM, 10220 Church Road NE, Vestaburg, MI 48891, 517-268-5693

Ladd Research Industries, Inc., P.O. Box 1005, Burlington, VT 05402, 802-658-4961

Olson Products, Inc., P.O. Box 1043, Medina, OH 44258, 216-723-3210

Pest Management Supply Co., 311 River Dr., Hadley, MA 01035, 1-800-272-7672

By preparing now for the apple maggot season, you can simplify the decisions required to get your apples through the summer in good shape for harvest.❖❖

FIELD NOTES

HUDSON VALLEY

HUDSON VALLEY DISEASE UPDATE

(Dave Rosenberger)

FIRE BLIGHT

❖❖ I just received the first report of fire blight, which has shown up in a few Rome trees in Ulster County. Infections may have occurred during the infection periods predicted by MaryBlyt for May 25–26.❖❖

FLYSPECK

❖❖ This is the period when flyspeck ascospores are moving from wild hosts to the apple fruit, where they will cause the flyspeck symptoms that appear in August and September. We have been monitoring development of flyspeck ascospores on blackberry canes at two sites in the Hudson Valley. Although the flyspeck fungus has many wild hosts, wild blackberry is especially useful for monitoring purposes because the waxy cuticle on the canes supports large populations of the flyspeck fungus. Also, the two-year-old canes remain green at the base and the black flyspeck colonies are therefore easy to locate against the green background. We have been monitoring spore development by removing 10 flyspeck pseudothecia from each of two canes collected from each site and examining squash mounts under the microscope. Results of observations for the past three weeks are presented below:

	DATE		
	5/24	5/31	6/7
Asci not yet developed	100%	75%	43%
Empty ascal sacs visible	0%	15%	20%
Immature spores visible	0%	0%	14%
Mature ascospores present	0%	10%	23%

Monitoring ascospore maturity for flyspeck is a relatively new procedure and we have no historical database to use in interpreting results. Dr. Dan Cooley in Massachusetts has been using this procedure for several years, but the best methods for conducting and interpreting maturity counts have not been codified. For example, we have found that asci of the flyspeck fungus are more fragile than those of the apple scab fungus, and it will probably be impossible to see empty asci after spores are discharged because these structures disintegrate when squash mounts are made for observations. Thus, we can show the progression toward spore maturity, but I doubt that we will be able to determine the proportions of the spores that have been discharged as we have typically done with apple scab.

Despite uncertainties in how to interpret our data, a clear progression in development of flyspeck ascospores is evident over the past several weeks. With the combination of high temperatures and high relative humidity predicted for the coming week (June 13–16), I would expect large numbers of ascospores to mature and discharge. Daytime temperatures in the 80's and 90's are above optimum for flyspeck, but warm night temperatures combined with high relative humidity (and perhaps fog) are ideal for infection and growth of the fungus. Thus, I predict that this is the critical period for protecting apples from infection by the flyspeck fungus.

Mancozeb and Polyram provide about three weeks of residual activity against the flyspeck fungus when the fungicides are applied at the rate of 1 lb/100 gal. Thus, sprays applied within the past two weeks should still provide adequate protection where rainfall has been less than two inches since application. Captan 50W used at the same rate will provide only two weeks of protection, perhaps less under severe conditions. Topsin-M and Benlate provide both protectant and eradicant activity against flyspeck. We have had difficulty defining the limits of the eradicant activity, but we know that Benlate is a stonger eradicant than is Topsin-M. An educated

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guess would be that Benlate will provide about two weeks of eradicant activity under average weather conditions in the Hudson Valley. When growing conditions for flyspeck are ideal (as they may be June 13–16), then the eradicant activity of Benlate may be more limited. The disadvantage of applying Benlate at this time is that Benlate may contribute to scarf skin on some cultivars if it is applied within 45 days of petal fall.❖❖

GENEVA

(Wayne Wilcox)

APPLE SCAB
ASCOSPORE MATURITY (6/9)

	Maturity category (%)**					Discharge test
DD 32*	1	2	3	4	5	(Spores/LP field)
–	0	3	5	12	79	140

*Accumulated degree days (base 32°F) between first date of green tip and date of assessment. Ability to discharge ascospores usually begins to increase rapidly at approx. 175–225 DD after green tip.
**Categories: 1–3 = immature; 4 = morphologically (apparently) mature; 5 = discharged. Growth stage on 5/25: McIntosh = Petal fall

Showers that occured June 11 and 12 should, for all intents and purposes, have exhausted the available primary inoculum supply in most western and central N.Y. orchards. This will be the last reported ascospore maturity assessment for the current season. Infections that occurred during the widespread infection period of May 31 should be showing up by now. Take a look.

CURRENT DISEASE SITUATION
(Wayne Wilcox)

❖❖ There are no major disease epidemics raging at the moment, but most of the "old reliables" can be found on various farms. A brief rundown and a few thoughts on what's being seen in western and central N.Y.:

APPLES

You can find scab, but there are few surprises so far. Try to keep it that way; new primary scab lesions can still appear for the next week or so. Also remember that SI sprays applied in a kick-back or curative mode (e.g., at petal fall after a long delay during bloom) are most effective when a follow-up spray is applied 7–10 days later.

As expected, the winter knocked out most overwintering powdery mildew sources, but not all of them. Sporulating primary mildew terminals are very obvious now in some orchards, and warmer weather should be ideal for secondary spread during the next month. Take a look in blocks with mildew-susceptible varieties, and add an effective mildewcide if you see the disease getting started; it will be much easier and cheaper to stop now rather than later. Mildew is most likely to be found in blocks where Nova or Rubigan have not been used to control scab; if you still don't want to use them, Bayleton will do a much better job on mildew than will Benlate/Topsin or sulfur at this stage.

The blossom blight symptoms of fire blight have been observed. As pointed out in last week's newsletter, secondary shoot blight symptoms will first appear about 90–100 degree days (base 55°F) after blossom blight symptoms. The next couple of weeks will be the time to keep a close eye on at-risk blocks, especially those on Mark, M.9, and M.26 roostocks (or interstems).

STONE FRUITS

Winter kill, perennial canker, black knot. Nothing new here, these have been discussed before.

BLUEBERRIES

Winter-killed twigs and shoots are abundant. These are excellent "footholds" for canker-causing fungi such as *Phomopsis* and *Fusicoccum*, which can really knock back a planting once they get

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established. Admittedly it's a pain, but dead wood should be pruned out of these plantings as soon as possible; plants dying on you later on are even more painful. Where reddish-brown dead tissue is extending below the tip dieback (particularly common on the more vigorous canes), be sure to cut several inches below the obvious dead areas in order to get the fungus that's already expanding. The idealized book recommendation is to burn, bury, or remove these prunings from the planting. A more realistic alternative for many will be to toss them into the row middles, where they'll get chopped up by the mower the next time through. Either way, don't leave them on the mulch underneath the plants.

STRAWBERRIES

Now is when red stele symptoms are easiest to diagnose. Look for wilting, off-color plants in groups, especially in wetter portions of the field. Don't confuse these plants with those suffering from root weevil damage, which produces very similar above-ground symptoms (plenty of that around now, too). Dig up affected plants and look for tunneling and "sawdust" near the crowns (root weevil), or for the diagnostic red stele symptoms: a "rat-tail" appearance of the main fleshy roots (fine lateral roots have rotted off), rotting of these fleshy roots from the tip back, and a red core in the center of these roots just above the rotten zone. Generally dry weather has kept leaf disease incidence low in most cases. Keep an eye out for these and leather rot if it gets wet.

RASPBERRIES

Winter-kill and *Phytophthora* root rot are both showing up now. Winter-killed canes are not the long-term problem on raspberries that they are on blueberries, since these overwintering canes will naturally die in a couple of months anyway. Two different symptoms of *Phytophthora* root rot are apparent:

(1) On fruiting canes, leaves are small, off-color, sometimes wilted, and often scorch around the edges and between the veins. Some of these symptoms will also occur when winter-damaged fruiting canes suddenly run out of steam. To distinguish between these two problems check out the new primocane situation—with winter damage, new primocane emergence should be vigorous; with root rot, there should be few primocanes and/or they should show some of the symptoms described next. Finally, you can (should) dig up affected plants, scrape the roots, and see if they're alive or dead beneath the surface.

(2) Affected primocanes show several distinctive symptoms: terminal growth stops, with the newest leaves turning pale and rosetting in a tuft at the top of the young cane; leaves scorch at the margins and between the veins; entire canes wilt; and often, a dark, water-soaked lesion appears at the soil line, extending for an inch or so upwards.

There is a 45-day PHI for Ridomil applications, so they'll need to wait until after harvest at this point.❖❖

OOPS!

TIME STANDS STILL

❖❖ Just a brief erratum to put you all at ease, in case you were paying closer attention to the obvious details than we were: The date of last week's issue was June 6, despite the fact that the hard copy version went out dated June 1.❖❖

PEST FOCUS

Geneva:

Obliquebanded leafroller pupae observed 6/9 in Geneva and Albion

Highland:

166 degree days (base 43°F) have accumulated since the first catch of **obliquebanded leafroller**

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva NY

	6/6	6/9	6/13
Spotted tentiform leafminer	55.6	30.2	9.3
San Jose scale	5.9	1.2	0.4
Lesser appleworm	0.3	0	0.1
Oriental fruit moth(apple)	0.4	0.3	0.4
Oriental fruit moth(peach)	0	0.2	0.1
Codling moth	20.9	4.7	2.3
American plum borer(plum)	1.1	0.2	0.8
American plum borer(cherry)	2	0	1
Lesser peachtree borer(peach)	0.3	0	0.1
Lesser peachtree borer(cherry)	2.5	0.8	1.4
Peachtree borer	1*	0.3	1.9
Obliquebanded leafroller	0	0	0

** We are not catching any RBLR in designated traps, but have seen them in other traps at the Station, and in Wayne County.

HVL, Highland NY

	5/31	6/6	6/13
Green fruitworm	0	0	0
Redbanded leafroller	0	0	0
Spotted tentiform leafminer	7.5	1.1	0.7
Oriental fruit moth	0.2	0.4	0.4
Fruittree leafroller	0	0	0
Lesser appleworm	3.5	1.2	0.7
Codling moth	6.8	2.1	2.5
American plum borer	3.8	0.3	0.1
Sparganothis fruitworm	0	0	1
Tufted apple bud moth	3	0.6	0.5
Variegated leafroller	0	0.5*	1.1
Obliquebanded leafroller	0	0.4*	3.8

* = 1st catch

(Dick Straub, Peter Jentsch)

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations		
(Geneva 1/1 – 6/13):	799	522
(Highland 1/1 – 6/13):	1144	694

Coming Events:	**Ranges:**	
Oriental fruit moth 1st flight subsides	781–1548	442–999
Redbanded leafroller 1st flight subsides	518–893	255–562
STLM 1st flight subsides	489–969	270–566
STLM pupating	778–807	454–456
Codling moth 1st flight subsides	1112–2118	673–1395
San Jose scale 1st flight subsides	768–1058	434–648
San Jose scale 1st gen. crawlers present	987–1247	569–784
European red mite summer egg hatch	773–938	442–582
Obliquebanded leafroller 1st catch	686–1059	392–681
Pear psylla 1st summer adults present	759–864	443–512
Dogwood borer first catch	798–1182	456–718

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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