

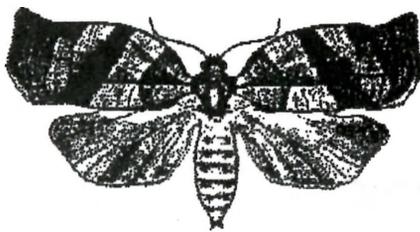
SUMMER INSECT CONTROL

HOT FUN
(Art Agnello
& Harvey
Reissig)



OBLIQUEBANDED LEAFROLLER

❖❖ The first summer brood obliquebanded leafroller moths have been caught so far as follows: Highland - 6/6; Geneva - 6/14; Albion - 6/14; Lyndonville (Orleans Co.), Appleton (Niagara Co.) and Hamlin (Monroe Co.) - 6/15; Williamson (Wayne Co.) - 6/16. Recall that we recommend sampling at 600 DD (base 43°F) after the first adult catch. As of today, 6/20, 410 DD₄₃ have accumulated already in the Hudson Valley, and temperatures in the 80's are forecast for this week, so it would be a good idea to note high and low temperatures in your area to better time your sampling and treatment forays.



• Life History Details

This insect, a native of this continent and widely distributed, feeds on a large range of plants, particularly members of the rose family. Outbreaks of OBLR can cause severe damage to the fruit of apple, peach, pear, and even blueberry. Depending on the locality, there can be 1-2 generations a year, but these are biologically ill-timed for convenient control measures in New York orchards. Prebloom sprays at pink bud are not completely effective, because the

insects are usually concealed in rolled leaf terminals or bud clusters, which makes adequate spray contact difficult. Also, not all of the population is fully active at this time, so any applications made then will simply not contact all the insects that will eventually emerge by bloom (and would need to be controlled at petal fall

anyway.) During the next normal spray at petal fall, the larvae are extremely large and not susceptible to most commonly used organophosphate insecticides, and so must be treated with the "unconventional" OP, Lorsban, or else a carbamate or synthetic pyrethroid. At the time of the next (1st summer generation) larval emergence in mid- to late June, growers were formerly in the habit of postponing a specific spray until the apple maggot treatments in July, but by this time the OBLR larvae are again quite large, and still not susceptible to OP's. The difficulty of obtaining thorough coverage through the canopy's thick foliage only adds to the problem; therefore, a preferred approach is to make applications somewhat earlier, timed with the occurrence of the smaller larvae. Finally, a second flight occurs in early August, and the 2nd summer generation larvae, which in former days were content to simply go into hibernation without feeding, now seem to be causing more trouble by feeding minimally on the fruit just before it's harvested (and put into CA).

• Damage

The most serious injury caused by the overwintered generation is damage to the developing fruit before and shortly after petal fall. Many of these damaged fruits drop prematurely, but a small percentage do remain on the tree, develop-

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Early damage



Late damage

ing deep corky scars and indentations at maturity. The two summer broods feed on the surface of developing fruit in July and August, causing injury that is virtually identical to that of several other leafroller species. Fruit damage caused by these broods is usually more serious than the feeding by larvae of the overwintered generation, because more of this later-injured fruit tends to remain on the tree until harvest. Also, biological studies have shown that populations of the summer generation of OBLR are generally higher in commercial orchards than are those of the overwintering larvae.

• Control

Various summer management options are used against this pest, with variable success. One approach is to apply sprays starting around mid-June to kill adults and newly emerging 1st-generation larvae. However, extremely complete coverage is required to justify this strategy, and of course this also adds 1–2 extra sprays to the cover spray schedule. Unfortunately, the effectiveness of most materials has been decreasing in recent years, so again it is important for your application to be thorough. Recent field trials indicate that Lannate and Lorsban are probably the most consistently effective materials to use. Generally, the synthetic pyrethroids are almost as effective as Lannate and Lorsban, but Asana has not been recommended for use as frequently against the summer brood of OBLR because of its ability to cause mite outbreaks. *Bacillus thuringiensis* materials (Biobit, Dipel, MVP, etc.) are effective if they are used in multiple applications and timed properly, but these products tend to be a little more expensive, and their control efficacy has been marginally poorer in our field trials than that obtained using the broader spectrum materials men-

tioned above. Nevertheless, their selectivity makes them more desirable from the standpoint of preservation of natural enemies.

To control the summer larvae, most growers have traditionally applied a spray 12–16 days after the first adult catch in their area. This timing generally coincides with peak egg hatch, and does in fact kill some larvae, but usually a second spray is necessary 10–14 days later. Another approach is to time a single application in mid- to late July, after most 1st-generation larvae have emerged, but before they begin to severely damage fruit, which occurs primarily during the fifth and sixth instars. This strategy used to give control as effective as the 2-spray option, especially if timed to reduce larval densities as much as possible — at 600 degree-days (43°F base) after the catch of the first adult, which coincides with a cumulative egg hatch of approximately 40%. However, our OBLR populations are getting tougher to control this way, and this timing is probably better regarded as the preferred time for a first application, with a repeat spray (or 2) during the next 2–3 weeks.

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• Research

A number of different treatment strategies were tested in 1993 to control the 1st summer OBLR brood, using sprays timed according to certain test criteria. The specific dates used were:

- June 24: estimated 1st hatch of eggs (10 days after the first catch of male moths)
- July 8: 640 DD (base 43°F) after the first catch of male moths

A generalized summary of the treatments follows:

- Lorsban (3 lb/A) at 1st hatch, plus 3 more sprays at 2-week intervals
- Lorsban (2 lb/A) at 640 DD, plus 1 more spray at 2-week interval
- Lorsban (3/8 lb/A) at 1st hatch, plus 4 more sprays at 1-week intervals
- Lannate SP (24 oz/A) at 640 DD, plus 1 more spray at 2-week interval, using 100 gallons per acre
- Lannate SP same as above, but using 50 gallons per acre
- Dipel (2 lb/A) at 1st hatch, plus 3 more sprays at 2-week intervals
- Dipel (1 lb/A) at 640 DD, plus 1 more spray at 2-week interval
- Dipel (1/2 lb/A) at 1st hatch, plus 4 more sprays at 1-week intervals

None of the treatments provided outstanding control of fruit injury, and differences among the damage in the various treatments were generally not significant (range, 0.5–3.7%, and 8.7% in the checks). The 4-spray program of the highest rate of Lorsban was the most effective treatment in preventing fruit injury, but the economic merits of all the various programs need to be compared by calculating fruit losses at harvest according to individual grading standards. In most of the treatments and in the unsprayed check plots, fruit damage was substantially higher in early October (range, 3.0–10.7%, and 9.3% in the checks) than that observed on August 17. This increase was primarily caused by late-season feeding from the 2nd generation larvae before their hibernation in the fall. Although no research has been done to determine optimum timing of sprays against these second brood larvae, it is

obvious that sprays applied in late July are not effective. We presume that sampling and spray measures, if necessary, would need to take place sometime around the third week in August. Currently, we are not recommending control of this second summer generation of OBLR for several reasons. Research trials have shown that 2nd brood damage is not a serious problem in orchards where the 1st summer brood was adequately controlled. Also, spraying in late August and early September can cause potential problems with harvest intervals and it is inconvenient for growers to apply sprays in late summer because they are preparing to harvest apples by then.

As of today, 6/20, it's still too early to predict when the best sampling and spraying period will be, other than to rely on historical records, which indicate sometime during the first week of July. At the designated time, use the OBLR sampling chart in the 1994 Recommends with a 3% infestation threshold for fresh fruit (pp. 88–89 or 93), or the 10% threshold for processing fruit (pp. 88–89 or 98). If a below-threshold decision is reached, wait for 100 additional degree-days (3–5 days) and repeat the sample. A second below-threshold result indicates a population low enough to ignore. As always, if spraying is necessary, good coverage is more than half the battle. ♦♦

SPOTTED TENTIFORM LEAFMINER

♦♦ You will note from the pheromone trap counts that the 2nd brood spotted tentiform leafminer flight began today (6/20), both in Geneva and Highland. By the second or third week of July, this flight should have peaked and eggs will have hatched, at which time we recommend sampling leaves for the young (sap-feeding) mines of the second generation, to determine the need for a spray. Sampling should be conducted when the first of the mines reach the tissue-feeding stage. This is the time when most of the population is in the sap-feeding stage, and it

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usually occurs about 500–700 degree-days (base 43°F) after the start of the second moth flight. The larvae can be found easily at this stage, but they have not yet caused much damage to the leaf. You may wish to make a note of the 2nd flight's start date in your region, or use the Geneva date for accumulating degree-days in your locality if you don't happen to document this event in local traps. ♦♦

SAN JOSE SCALE

♦♦ The San Jose scale (SJS) is a pest of tree fruit that attacks not only apple, but also pear, peach, plum, and sweet cherry. The minute SJS adult males emerge in the spring from beneath scale covers on the trees, usually during bloom, and mate. The first of this year's crawlers should be showing up any day now. The females produce live crawlers within 4–6 weeks of mating; these are bright yellow, very tiny insects resembling larval spider mites. About 24 hours after birth, the crawlers have walked or drifted to new sites and settled in by inserting their mouthparts into the tree and secreting a white waxy covering that eventually darkens to black.

SJS infestations on the bark contribute to an overall decline in tree vigor, growth, and productivity. Fruit feeding causes distinct red-purple spots that decrease the cosmetic appeal of the fruit. Control measures for SJS are recommended when the scale or their feeding blemishes have been found on fruit at harvest during the previous season. Insecticidal sprays are most effective when directed against the first generation crawlers, specifically timed for the first and peak crawler activity, which are usually 7–10 days apart.

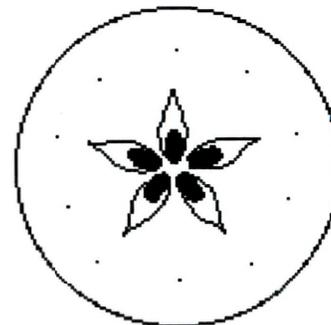


The most reliable method of determining first appearance of the crawlers in your specific area is by putting sticky-tape traps on the tree limb near scale-

encrusted areas and checking them at least twice a week. We are a bit past the predicted time for this event, based on a degree-day accumulation of 310 (50°F base) from the date of first adult catch. Effective materials for SJS control include Lorsban 50WP, Guthion, Imidan and Penncap-M. These sprays may also help in the control of OBLR, apple maggot, and codling moth. Coverage and control are generally better if the pesticide is applied dilute and in every row. SJS is frequently a problem in larger, poorly pruned standard size trees that do not receive adequate spray coverage. Dormant or delayed-dormant sprays of oil, or 1/2-inch green applications of Lorsban 4EC or Supracide will help prevent populations from getting established. Early season pruning is important for removing infested branches and suckers, as well as for opening up the canopy to allow better coverage in the tree tops where SJS are often concentrated. ♦♦

CODLING MOTH MODEL

♦♦ According to the developmental model, the second spray against 1st brood codling moth populations should be applied 10–12 days after the first spray, which is calculated at 250 DD (base 50°F) after the first moth catch. For the Geneva area, this means that the second spray is due sometime during the middle of this week (June 21–23). If you missed it, you have another shot against the 2nd brood in the not-too-distant future. ♦♦



INSECT TRAP CATCHES (Number/Trap/Day)

Geneva NY

HVL, Highland NY

	<u>6/13</u>	<u>6/16</u>	<u>6/20</u>		<u>6/6</u>	<u>6/13</u>	<u>6/20</u>
Spotted tentiform leafminer	9.3	8.8	296	Redbanded leafroller	0	0	0
San Jose scale	0.4	0	-	Spotted tentiform leafminer	1.1	0.7	17.1
Lesser appleworm	0.1	0	0	Oriental fruit moth	0.4	0.4	0.4
Oriental fruit moth(apple)	0.4	0.3	0	Fruittree leafroller	0	0	0.1
Oriental fruit moth(peach)	0.1	0.2	0	Lesser appleworm	1.2	0.7	0.1
Codling moth	2.3	4.5	8.9	Codling moth	2.1	2.5	1.9
American plum borer(plum)	0.8	0.2	0	American plum borer	0.3	0.1	0
American plum borer(cherry)	1	1.8	0.6	Sparganothis fruitworm	0	1	1.8
Lesser peachtree borer	1.4	2.2	2.8	Tufted apple bud moth	0.6	0.5	1.6
Peachtree borer	1.9	2	0.8	Variogated leafroller	0.5*	1.1	0.8
Obliquebanded leafroller**	0	0	0.3*	Obliquebanded leafroller	0.4*	3.8	3.7
Pandemis leafroller	-	0.8	1.1				

** Actual first catch at the Experiment Station was 6/14.

* = 1st catch

(Dick Straub, Peter Jentsch)

PEST FOCUS

Geneva:

Obliquebanded leafroller 1st catch 6/14 in Geneva. Degree days (base 43°F) since then = 224.

Spotted tentiform leafminer 2nd flight began today (6/20)

Highland:

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

Spotted tentiform leafminer 2nd flight began today (6/20)

Rosy and green apple aphid numbers high

UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations		
(Geneva 1/1 - 6/20):	1023	711
(Highland 1/1 - 6/20):	1379	880
<u>Coming Events:</u>	<u>Ranges:</u>	
Oriental fruit moth 2nd flight begins	1272-1668	772-1091
Redbanded leafroller 2nd flight begins	1280-2029	804-1381
STLM 2nd flight peak	1361-1979	854-1355
Codling moth 1st flight subsides	1112-2118	673-1395
Lesser appleworm 1st flight subsides	1059-1548	672-999
San Jose scale 1st gen. crawlers present	987-1247	569-784
Obliquebanded leafroller 1st flight peak	869-1482	506-964
OBLR summer larvae hatch	1076-1513	630-980
Pear psylla 2nd brood hatch	992-1200	609-763
Comstock mealybug 1st adult catch	1270-1673	756-1105
Apple maggot 1st catch	1045-1662	629-1062
Lesser peachtree borer flight peak	1099-2330	667-1526
Peachtree borer flight peak	869-2241	506-1494

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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