scaffolds

Update on Pest Management and Crop Development

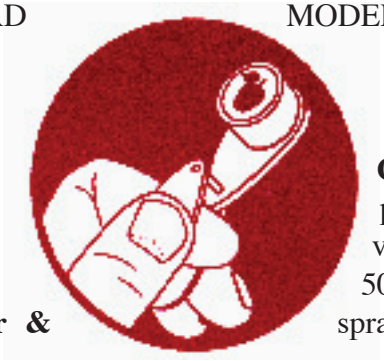
F R U I T J O U R N A L

June 23, 2008 VOLUME 17, No. 14 Geneva, NY

INSECTS

ON TARGET

ORCHARD RADAR DIGEST



MODEL BUILDING

Codling Moth (targeted spray application at newly hatching larvae, predicted at 250–360 DD base 50°F after biofix with follow-up spray 10–14 days later):

Location	Biofix	DD (as of 6/23)
Albion	May 20	503
Appleton-S	May 28	435
Clifton Park	May 17	490
Clintondale	May 11	520
Geneva	May 12	543
Knowlesville	May 28	444
Red Hook	May 14	661
Sodus (high-pressure site)	May 14	460
Waterport	May 20	522
Williamson	May 12	511

Geneva Predictions:

Roundheaded Appletree Borer & Dogwood Borer

RAB peak egglaying period roughly: June 24 to July 8.

First RAB eggs hatch roughly: June 22.

First Dogwood Borer egg hatch roughly: June 25.

Codling Moth

Codling moth development as of June 23: 1st generation adult emergence at 88% and 1st generation egg hatch at 45%.

Obliquebanded Leafroller

Where waiting to sample late instar OBLR larvae is not an option (= where OBLR is known to be a problem and will be managed with insecticide against young larvae): Early egg hatch and optimum date for initial application of B.t., Intrepid, Proclaim, SpinTor or other insecticide with comparable efficacy against OBLR (with follow-up applications as needed): June 25.

Where waiting to sample late instar OBLR larvae to determine need for treatment is an option, or to check on results from earlier sprays: Optimum sample date for late instar summer generation OBLR larvae: July 4.

Oriental Fruit Moth

2nd generation OFM flight begins around: June 28.

Redbanded Leafroller

2nd RBLR flight begins around: June 30.

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DISEASES
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PEST FOCUS

UPCOMING PEST EVENTS

INSECT TRAP CATCHES

Obliquebanded Leafroller (targeted spray application at newly hatching larvae, predicted at 360 DD base 43°F after biofix):

Location	Biofix	DD (as of 6/23)
Albion	June 7	424
Appleton-N	June 15	180
Appleton-S	June 10	304
Clifton Park	June 11	236 (as of 6/21)
Geneva	June 9	342
Ithaca	June 9 (est'd.)	232 (as of 6/19)
Knowlesville	June 8	380
Sodus	June 10	245 (as of 6/21)
Waterport	June 10	323
Williamson	June 10	292

[NOTE: Consult our mini expert system for arthropod pest management, the Apple Pest Degree Day Calculator:
http://www.nysaes.cornell.edu/ipm/specware/newa/appledd.php
Find accumulated degree days between dates with the Degree Day Calculator:
http://www.nysaes.cornell.edu/ipm/specware/newa/
Powered by the NYS IPM Program's NEWA weather data and the Baskerville-Emin formula]

FLIES TIME

THERE INTERPOSED A FLY
(Harvey Reissig and Art Agnello, Entomology, Geneva)

❖❖ It is once again time to anticipate the first appearance of apple maggot (AM) flies in wild apple trees and abandoned orchards, particularly in eastern N.Y.; western N.Y. could be about a week later (or not, depending on what kind of temperatures we get over the next week or so). Crop scouts and consultants have been using traps to monitor AM populations for a long time, but this tactic, useful as it is, nevertheless is not recommended in all cases. Some orchards have such high or such low AM populations that monitoring for them is not time-efficient. That is, in some blocks, sprays are needed predictably every season, and on a calendar basis; conversely, they are rarely needed at all in other blocks. However, most commercial N.Y. orchards have moderate or variable pressure from this pest, so 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.

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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
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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/scaffolds/

Sticky yellow panels have been in use for over 40 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 a likely AM emergence site nearby.

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 that growers don't always have the advantage of this advance warning, in which case the catch of a single (sexually mature) fly indicates 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, something that's not always possible during a busy summer.

To regain this time advantage, researchers developed traps that have the form of a "super apple" — large, round, deep red, and often accompanied by 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 1–2-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 has been found that sphere-type traps baited with a lure that emits apple volatiles attract AM flies so efficiently that an insecticide cover spray is not required until a threshold of 5 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 (towards woods or abandoned apple trees, or else towards the south). Then, periodically check the traps to get a total number of flies caught; divide this by 3 to get the average catch per trap, and spray when the result is 5 or more. Be sure you know how to distinguish AM flies from others that will be collected by the inviting-looking sphere. There are good photos for identifying the adults on the Apple Maggot IPM Fact Sheet (No. 102GFSTF-I8); check the web version at: http://www.nysipm.cornell.edu/factsheets/treefruit/pests/am/am.asp. 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 density that makes this strategy fairly impractical on the commercial level.

A variety of traps and lures are currently available from commercial suppliers; among them: permanent sphere traps made of wood or stiff plastic, disposable sphere traps made of flexible plastic, and sphere-plus-panel ("Ladd") traps. 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 our field tests. Brush-on stickum is available to facilitate trap setup in the orchard. Apple volatile lures are available for use in combination with any of these traps. These tools are available from a number of orchard pest monitoring suppliers, among them:

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• Gempler's Inc., 100 Countryside Dr., PO Box 328, Belleville, WI 53508; 1-800-382-8473, Fax, 1-800-551-1128 <http://www.gemplers.com/>

• Great Lakes IPM, 10220 Church Rd. NE, Vestaburg, MI 48891; 800-235-0285, Fax 989-268-5311 mailto:glipm@greatlakesipm.com <http://www.greatlakesipm.com>

• Harmony Farm Supply, 3244 Hwy. 116 N, Sebastopol, CA 95472; 707-823-9125, Fax 707-823-1734 mailto:info@harmonyfarm.com <http://www.harmonyfarm.com>

• Ladd Research Industries Inc., 83 Holly Court, Williston, VT 05495; 800-451-3406, Fax 802-660-8859 mailto:sales@laddresearch.com <http://www.laddresearch.com>

• Olson Products Inc., PO Box 1043, Medina, OH 44258; 330-723-3210, Fax 330-723-9977 <http://www.olsonproducts.com/>

• Suterra-Scenturion, 213 SW Columbia, Bend, OR 97702-1013; 866-326-6737, Fax 541-388-3705 <http://www.suterra.com>

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. ❖❖

PEST FOCUS

Geneva:
Spotted tentiform leafminer 2nd flight beginning.

HOT FUN

SCHOOL'S OUT
(Art Agnello and Dave Kain, Entomology, Geneva)

Mites

❖❖ Mites generally have not been too apparent yet in most places, but with the warmer typical summer tempuratures now forecast for the coming days, European red mites should be starting to build in their favorite haunts before long. This is still the early part of the season, and trees are quite sensitive to big mite buildups right now (the threshold in apples is 2.5/leaf in June and 5.0/leaf in July), so please do not pass up this opportunity to examine the foliage of all your tree fruits, not just apples, for emerging populations of ERM (or even twospotted spider mites). Two-spots, especially, respond quite rapidly to high temperatures. Simplified sampling charts can be found on pp. 72-73 of the Recommends. Options for confronting threshold populations include Acramite, Kanemite, Nexter, and Zeal.

Obliquebanded Leafroller

Although early season populations of OBLR again didn't seem to be as high as they traditionally are, this durable pest has repeatedly demonstrated its ability to persist and rebound with little fanfare. We caught the first moths between June 6-15 in most NY sites, which means that the 360 DD (base 43°F) timing for expected first hatch either occurred last week or will do so over the next week or so. In problem blocks, this would be a prudent time for an initial B.t., Proclaim or Intrepid application; low- or variable-pressure blocks can wait until 600 DD, when a visual sample for infested terminals can provide information on the need for a treatment (your attention is directed to sampling guidelines on p. 70 of the Recommends). At that timing, SpinTor and a variety of pyrethroids round out the list of potential treatment options. Proclaim also provides suppression of mites.

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San Jose Scale

The first crawlers of the season should be showing up in tape traps by now, for those inclined to set them out, so this would be an advisable time for the first application of an effective insecticide against the most susceptible stage of this recently rejuvenated pest. Materials recommended include Esteem and Provado, although OPs such as Guthion and Imidan are capable of some control if well timed.

Comstock Mealybug

It also shouldn't be long before we start seeing adult Comstock mealybugs in pear foliage, followed by their invasive crawler offspring. The crawlers are the most susceptible stage for chemical control, which we expect sometime during the next couple of weeks, especially in the Hudson Valley. Adults 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.

To date, the Comstock mealybug has been a problem to growers of processing pears because of contamination and aesthetic reasons. An infestation generally requires 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 double-sided tape such as 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.

Our management recommendations are for an application in early August of a material such as Provado, Actara, Calypso or Assail to control this insect.

Dogwood Borers

Adults should be laying eggs in susceptible apple orchards now (those with succulent burrknot tissue or suckers), with hatch forecast starting within the week. The larva of this clearwing moth feeds on apple trees, primarily on burrknot tissue on clonal rootstocks. Burrknots are aggregations of root initials that can develop on the above-ground portion of the rootstock; all commercial dwarfing and semi-dwarfing rootstocks have a tendency to develop burrknots. Some chemicals with hormone effects, such as NAA, can increase the expression of burrknots, as will failure to keep the area around the trunk weed-free and open to sunlight. White latex paint brushed on the exposed portion of the rootstock will prevent new infestations of the borers, and also protect against southwest injury to the bark.

Dilute trunk applications of an insecticide with good residual activity can provide control of established infestations. Lorsban 75WG, 4EC or 50WS may be used postbloom as a directed trunk spray in N.Y. for borer control in apples. We feel that Lorsban is the best tool we presently have for this use, and early to mid-July would be a good time to take advantage of this welcome opportunity to use it on apples to control both dogwood borer and the second generation of American plum borer.

Peachtree Borers

If you're not using pheromone disruption ties (Isomate-LPTB) against peachtree and lesser peachtree borers, this is the time of the season when a trunk application of a pesticide should be made against these pests in cherries and peaches. A coarse spray directed at the trunk and scaffold branches gives the best protection against ovipositing adults; shutting off all but the bottom nozzles on a speed sprayer won't do an effective job. Use Lorsban (do not spray the fruit), Thionex, or a pyrethroid. Asana's label specifies trunk application; Ambush, Pounce, and Baythroid/Leverage labels do not, so foliar use is implied, and the Proaxis/Warrior labels include a non-specific "foliage or target" clause, so trunk application is probably allowed. Danitol is not registered in stone fruits. ❖❖

DISEASES

POST-HAIL ADVICE

FUNGICIDE CONSIDERATIONS FOR HAIL-DAMAGED ORCHARDS

(Dave Rosenberger, Plant Pathology, Hudson Valley Lab)

❖❖ Over the past few weeks, hail has damaged the fruit crop in scattered areas throughout New York State. After a hailstorm, growers are faced with many difficult decisions. If the crop is a total loss, then the objective will usually be to minimize inputs throughout the remainder of the season without endangering tree viability and/or potential for good return bloom next year. If part of the crop is still salvageable, then continued fungicide coverage may be needed, but fungicide selection and timing may need to be adjusted to reduce costs even if that adjustment increases risks that some diseases will not be completely controlled.

This article summarizes my perspectives on disease control for orchards damaged by June hailstorms. The suggestions that follow are based on "best guesses" rather than on scientific research because there is little published data on how to deal with hail damage. In cases where I suggest that there is no biological reason to apply more fungicides, that advice may need to be modified if insurance coverage will be diminished in cases where hail-damaged fruit become infected with fruit rots and summer diseases. Other adjustments may be needed on a block-by-block basis depending on cultivar susceptibility to diseases, marketing strategies, and options for diverting the crop to juice, processing, or some other alternative market.

APPLES

Fire blight

Where blight was present in orchards or in adjacent upwind blocks, growers should have applied streptomycin ASAP after the hailstorm but within 24 hr if at all possible. Applications up to 48 hr after hail events may still provide some benefits, but effectiveness will be greatly diminished after 24 hr. To maximize effectiveness, I would use streptomycin at 2 lb/A along with Regulaid or another good spreader. (This rate is higher than the standard rate recommended during bloom, but trees have much more foliage to cover at this time of year than they do at bloom, and getting the streptomycin to penetrate injured leaves and fruit is essential for maximum effectiveness.) Where no streptomycin was applied within 48 hr, the window for strep applications has closed and streptomycin should NOT be applied if hail-induced trauma blight shows up next week.

Remember that the preharvest interval for streptomycin on apples is 50 days, so cultivars harvested in early August might not be harvestable if sprayed with strep in mid-June. The risk of hail-induced trauma blight is relatively low if apple shoots are not actively growing, so mature orchards with a full crop should not need a strep spray if hail occurs after terminal buds are set.

Apple scab

No additional fungicide sprays should be needed this year in orchards where primary scab was completely controlled and the crop will not be harvestable. Also, I would probably stop spraying non-harvestable orchards that had "a little scab" even if that will cause scab to build up during summer. This advice is based on the assumption that it will be cheaper to attack over-wintering scab with a ground spray of urea next spring rather than paying for captan sprays through the rest of the summer.

Summer fruit rots

The fungi that cause black rot and white rot might infect fresh cuts in fruit caused by hail, but green fruit are relatively resistant to infection and cuts will heal and become resistant to infection fairly quickly (perhaps within 24 hr?). If no fungicide was applied immediately after the hail storm,

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one application of Topsin M, Sovran, or Flint might still serve to arrest decay organisms established in fruit cuts because all three of those fungicides will be absorbed into sprayed fruit surfaces where they may provide some post-infection activity. Where black rot or white rot spores are deposited in fresh cuts and no fungicides are applied for the rest of the season, I suspect that some fruit will develop decay as fruit begin to ripen because the natural inhibitors present in green fruit disappear as fruit ripen, thereby allowing quiescent infections to become active. If the crop has no value, having decayed fruit present in the fall will not be an issue although some of these fruit may mummify and will then need to be knocked out of trees during winter pruning.

PEARS

Where the crop is lost, no fungicide sprays should be needed for the rest of this year UNLESS the blocks have a history of Fabraea leaf spot. Where Fabraea is a threat, growers should maintain fungicide coverage because Fabraea can cause early defoliation that will result in complete loss of return bloom next spring. Mancozeb fungicides are the most effective, BUT they can be used during summer ONLY where no fruit will be harvested and in blocks that have not yet received the annual label limitation of 21 lb/A/yr. Orchards sprayed with mancozeb should be resprayed every 30 days or after 2.5 inches of accumulated rainfall if that occurs in less than 30 days. Adding one percent spray oil to mancozeb or to any other fungicide registered on pears will increase fungicide efficacy against Fabraea leaf spot.

PEACHES

Even where the crop is a total loss, one or two sulfur sprays may be needed as fruit ripen so as to suppress brown rot fruit decay. Sulfur is presumably the cheapest way to slow the spread of brown rot. It is not effective enough to recommend in an orchard with marketable fruit, but it might suffice if the objective is to suppress brown rot at minimal cost. If no fungicides are applied and weather during fruit ripening favors brown rot, then brown rot might become so severe that it will invade and kill shoots. Shoots infected with brown rot this summer can provide inoculum for next year's crop, thereby complicating brown rot control for the next season.

If summer fungicides for brown rot control are reduced or eliminated, then special care may be required to manage peach leaf curl this fall and/or next spring. Fungicides used for brown rot suppress peach leaf curl, so leaf curl is often worse in the year following a complete crop loss, especially if the intervening winter is rather mild. Leaf curl can be easily managed with copper sprays or other leaf curl fungicides applied at leaf drop in late fall and/or at bud swell in spring.

PLUMS

Comments about brown rot in peaches apply to plums as well. Otherwise, no fungicides should be needed. Black knot spreads earlier in spring and should not be an issue at this time.

CHERRIES:

On sweet cherries, one or two additional sprays may be required to control brown rot, and sulfur may not be adequate. If brown rot is not controlled, an immense amount of inoculum can be carried through winter and brown rot control in 2009 might be difficult if weather conditions favor brown rot next year. With peaches and plums, it is feasible to knock brown rot mummies out of the trees during winter pruning, so I am less concerned about having brown rot mummies in those trees at the end of the season. With cherries, removing brown rot mummies can be nearly impossible, so more attention should be given to keeping hail-damage fruit from mummifying on the tree.

On tart cherries, several additional sprays may be needed to keep cherry leaf spot under control through late summer. Trees receiving no additional fungicides may defoliate early, leaving them susceptible to winter damage.

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INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	6/16	6/19	6/23
Redbanded leafroller	0.1	0.0	0.0
Spotted tentiform leafminer	0.4	0.2	3.5*
Oriental fruit moth	0.0	0.0	0.3
American plum borer	0.5	0.0	0.0
Lesser peachtree borer	0.4	0.0	0.3
Lesser appleworm	0.1	0.0	0.0
San Jose scale	1.1	2.2	1.3
Codling moth	0.0	0.5	0.0
Pandemis leafroller	0.1	0.5	0.1
Obliquebanded leafroller	0.1	0.3	0.0
Peachtree borer	0.1	0.0	0.0

* first catch

Highland, NY

	6/9	6/16
Redbanded leafroller	0.0	0.0
Spotted tentiform leafminer	1.1	20.7*
Oriental fruit moth	0.0	0.1
Codling moth	1.4	0.2
Lesser appleworm	0.8	0.6
Obliquebanded leafroller	0.6	1.4

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–6/23/08):	1226	747
(Geneva 1/1–6/23/2007):	1238	772
(Geneva "Normal"):	1217	737
(Geneva 1/1–6/30 Predicted):	1415	887

Coming Events:	Ranges (Normal ±StDev):	
Obliquebanded leafroller 1st flight peak	904–1322	538–834
Obliquebanded leafroller summer larvae hatch	1038–1460	625–957
Oriental fruit moth 2nd flight begins	1274–1560	787–1017
American plum borer 1st flight subsides	1172–1550	705–1029
Lesser appleworm 1st flight subsides	974–1482	589–949
Apple maggot 1st catch	1196–1598	753–1035
Codling moth 1st flight subsides	1296–1946	808–1252
Comstock mealybug 1st adult catch	1308–1554	809–1015
Redbanded leafroller 2nd flight begins	1258–1684	778–1094

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.

This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.