scaffolds Update on Pest Management and Crop Development

FRUIT JOURNAL

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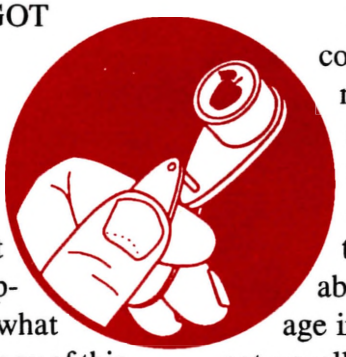
INSECTS

GRUBS & WORMS

APPLE MAGGOT REVIEW (Harvey Reissig)



❖❖ We are currently in the midst of a very strong apple maggot flight, so we thought it would be helpful to reprint last year's writeup on what we do and don't know about the biology of this insect.

The apple maggot overwinters as a pupa in the soil. Adults from the single generation of flies emerge in late June to early July. Females cannot lay eggs until they become reproductively mature, 7–10 days after emergence. Females lay eggs in fruit and larvae develop there, emerging in the autumn after the fruit has fallen and entering the soil to pupate. Flies are active from July to mid-September, but commercial orchards require protection only from about mid-July to mid-August. Flies do not reach orchards in large numbers until mid-July, and before this date fruit remaining on the tree is unfavorable for larval development, so early infestations do not cause sustainable populations in the orchard. In addition, for unknown reasons, fly activity between about August 20 and September 15 does not usually cause serious damage in commercial orchards in New York.

Larval tunneling inside fruit causes it to become rotten and unmarketable. Early stings caused by punctures from the female's ovipositor may severely deform the fruit of some varieties, even though no larvae survive.

Monitoring to determine whether control sprays are necessary is recommended only in orchards that are not near large sources of outside infestation, such as abandoned orchards or those with no indigenous infestations of flies. Theoretically, there is absolutely no tolerance for AM damage in fruit. In practice, AM damage is not usually detected in normal fruit inspections unless there is approximately 5 percent fruit damage.

Small wasps parasitize AM larvae in fruit, and predators such as birds and crickets may eat larvae or pupae in or near the soil. In natural, unsprayed apple and hawthorn trees, AM populations are not regulated by natural enemies. Parasites and predators are also ineffective at controlling AM in commercial orchards.

AM flies have a limited migratory capability, so all apple and hawthorn trees within 1/4–1/2 mile of commercial orchards should be removed if possible. Do not allow dropped fruit to remain beneath the tree for more than one to two days. Eliminating fruit drops will break the life cycle of flies in an orchard by preventing larvae from exiting the fruit and entering the soil.

AM flies can be trapped out in small, well-pruned trees that are not near large sources of outside infestations. A relatively high density of sticky red spheres (plain or volatile-baited) is required, approximately 1 trap per 100 apples. Mass trapping is usually less effective than chemical control, and AM may still damage 1–5% of fruit from mass-trapped orchards.

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Most commercial orchards have no indigenous populations of flies. Therefore, chemical control sprays are usually directed against flies immigrating into orchards from outside, unsprayed hosts, including both apples and hawthorns. Most insecticides, particularly organophosphates, are remarkably effective in controlling adults. Insecticides must kill females before they oviposit in the fruit. Residual effectiveness of insecticides is particularly important in controlling AM in commercial orchards when flies are continuously immigrating.

Insecticides can be applied according to trap catches as described in the 1994 Pest Management Recommendations for Commercial Tree-Fruit Production (p. 100), or on a standard or modified IPM schedule. The standard schedule requires an initial spray 7–10 days after the first emergence of flies, followed by additional sprays at 10–14-day intervals until August 15–20. The modified IPM schedule requires only three sprays, on approximately July 15, August 1, and August 15. We would suggest that growers in high maggot-pressure areas maintaining a standard spray schedule, or at least be vigilant in checking traps twice a week, in order not to be caught unprotected during this peak flight period. ❖❖

EUROPEAN CORN BORER
(Art Agnello)

❖❖ Infestations of ECB in orchards are not very common, but when they do appear, as has been the case recently in N.Y., they can be quite serious. Considerable feeding damage has been noted in late June in terminals of newly planted apple and cherry trees in Western N.Y. Also, early fruit feeding on apple has been seen this year in the Hudson Valley. *Infestations* of this pest on apple are spotty and unpredicatable; incidence in an orchard one year has no correlation with its likelihood to occur the next season. The ECB occurs in N.Y. as a single-brood (univoltine 'Z race') and a double-brood (bivoltine 'E & Z race') strain. Moths of the bivoltine strain peak in mid-June and in mid-August; the univoltine moth flight peaks in mid-July. In many areas of the state, the two strains occur as mixed populations.

Damage to newly-planted, non-bearing trees is caused by larval tunneling into the current season's growth. Browning of terminal leaves is a good indication of corn borer larval presence. The feeding will kill the terminal and disfigure the tree. Nonbearing, newly planted orchards normally do not receive the intensive cover spray program bearing orchards do; therefore, corn borer infestations can build up more easily in young orchards. Corn borer attack on young trees can occur from June through August. Damage to the fruit usually shows up in late summer, when the August flight of the bivoltine strain is active.

Bearing orchards are more likely to show some early corn borer damage on the fruit if growers relax their spray program in June or early July. However, most fruit feeding occurs between the last cover spray (mid-August) and harvest. Weedy sites provide plenty of alternative hosts for this insect, especially those containing broadleaf dock, ragweed, pigweed, smartweed, and barnyard grass. Penncap-M, Lannate, and Lorsban can give very good control of ECB

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scaffolds
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Dept. of Entomology
NYSAES, Barton Laboratory
Geneva, NY 14456-0462
Phone: 315-787-2341 FAX: 315-787-2326
E-mail: art_agnello@cornell.edu

Editors: A. Agnello, D. Kain

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larvae, provided application is made before the caterpillars become concealed in the plant tissue. Potential problem plantings should be checked periodically in August for shoot infestations of this caterpillar, which is cream colored with a dark head. ❖❖

CODLING MOTH MODEL

❖❖ The developmental model for 2nd generation codling moth larvae predicts that a control spray should be applied in problem orchards 1260 DD (base 50°F) after the start of the FIRST flight (5/23 in Geneva, 5/16 in the Hudson Valley). The second spray in problem orchards should be applied this week in Geneva. ❖❖

DISEASES

SUMMER DISEASES

SOOTY BLOTCH AND FLYSPECK (Dave Rosenberger)

❖❖ Hot humid weather during July and early August have speeded development of summer diseases. Sooty blotch and flyspeck (SBFS) have been visible on unsprayed apples for several weeks now in the Hudson Valley. Appearance of these diseases last year was delayed until late August. Daytime temperatures through the last month have frequently exceeded the optimum of 75°F for growth of SBFS. However, extended periods of wetting have occurred during evenings and nights when temperatures were conducive for infection and growth of the SBFS fungi.

The hot and humid conditions this summer have also favored development of bitter rot. Some apples with bitter rot are already visible in our unsprayed plots. Bitter rot usually develops as a tan sunken decay lesion on the exposed cheek of fruits. In humid or rainy weather, the lesions may develop orange, slimy spores that ooze from fruiting structures within the lesion. Spores are rain splashed to other fruit. Lesions may develop slowly in cool weather. In 1988, many fruit developed bitter rot during or just after harvest and bitter rot decays were prevalent in fruit coming out of storage. Probably most of these decays developed between the time fruit were harvested and the time that fruit were cooled to below 35°F. The most serious problems in 1988 and 1989 were detected on Empire.

We really haven't seen much bitter rot in the Hudson Valley since the 1988 and 1989 seasons, but I suspect we will see this disease surface as a commercial problem again this year because of our July-August weather. On Long Island, bitter rot in orchards appears to be spreading from shade trees in border areas. The bitter rot fungus causes a leafspot on shade trees and the spores are blown into apple orchards during windy rainstorms during August and early September. I suspect the same phenomenon may occur in the Hudson Valley. Thus, apples growing next to wooded areas may be at greatest risk for bitter rot.

Captan is the only fungicide that can be applied during late summer that has activity against bitter rot. Ziram, Topsin-M, and Benlate are relatively ineffective against bitter rot. Benlate is likely to provide the best activity against flyspeck and sooty blotch. Bottom line: This is not the year to skimp on summer sprays. Using a Benlate/Captan combination through the remainder of this season is probably the best fungicide strategy for controlling summer diseases. For varieties that will not be harvested before mid-September, the last application for summer diseases should be sometime between August 15 and September 10. Maintaining active protection with Benlate will help to suppress development of any flyspeck infections which may have already occurred.

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Orchards considered at high risk for bitter rot (Empire blocks with a history of problems in 1988–89 or orchards with poor air drainage and adjacent to woodlots) may need fungicide applications at 14–21 day intervals through late July and August to maintain adequate Captan protection against bitter rot. In these high-risk blocks, the last application should probably be made in early September if the weather stays hot and humid through August. If fall hurricanes head up the coast and bring predictions of extended windy and rainy weather, blocks at high risk for bitter rot should be protected with the full rate of Captan just ahead of the hurricane event. The winds and extended wetting periods associated with hurricanes provide the worst-case scenario for dissemination and infection of the bitter rot fungus in the Hudson Valley.

Sooty Blotch on Pears

Both sooty blotch and flyspeck can occur on pears, but most commercial losses I have seen in the Hudson Valley are attributable to sooty blotch alone. Captan is not labeled on pears. The best option for controlling sooty blotch (and Fabraea leaf spot) on pears through August is a combination of Benlate plus ziram. ❖❖

AGRI-MEK AND ORIENTAL FRUIT MOTH (Craig Telgheder)

❖❖ Pear growers who have used Agri-Mek for pear psylla control should not forget about late season sprays on Bosc pears for the Oriental Fruit Moth and Codling Moth. There have been several orchards infested with OFM after the grower got good control Agri-Mek and failed to return to the orchard with a cover spray.

Codling Moth damage is also possible with the lack of a late season application to control this pest. Growers should apply appropriate Codling Moth materials such as Azinphos-methyl (Guthion) or phosmet (Imidan) in early and mid-August. These sprays will provide incidental OFM control. Both compounds have a 7-day preharvest interval on pears. ❖❖

FIELD NOTES

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva NY

	7/28	8/1	8/4
Spotted tentiform leafminer	0.8	35	798
Redbanded leafroller	0	0.1	0
Lesser appleworm	0	0	0
Oriental fruit moth(apple)	3.0	2.8	0.3
Codling moth	7.0	10.4	13.7
American plum borer(plum)	6.0	3.6	2.7
American plum borer(cherry)	5.0	4.8	1.3
Lesser peachtree borer	1.3	0.6	1.2
Peachtree borer	1.7	1.1	1.2
Obliquebanded leafroller	0	0	0
Pandemis leafroller	0	0	0
Apple maggot	0	0.1	0
San Jose Scale	13.8	20.1	25.8

HVL, Highland NY

	7/25	7/29	8/8
Redbanded leafroller	0	0	<0.1
Spotted tentiform leafminer	9.8	8.1	26
Oriental fruit moth	0.8	1.5	2.2
Fruittree leafroller	0	0	0
Lesser appleworm	0.1	0.5	0.5
Codling moth	1.4	0.9	1.5
American plum borer	1	2.3	0.3
Sparganothis fruitworm	0	0.4	0.5
Tufted apple bud moth	0	0	0
Variegated leafroller	0	0.4	1.5
Obliquebanded leafroller	0	0.1	0.4
Apple maggot	0	0.1	0

(Dick Straub, Peter Jentsch)

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations		
(Geneva 1/1 – 8/8):	2386	1731
(Highland 1/1 –8/8):	2908	2066
Coming Events:	**Ranges:**	
Oriental fruit moth 3rd flight begins	2533–2956	1734–2013
STLM 3rd flight peak	2415-3092	1728-2195
San Jose scale 2nd flight subsides	2494-3191	1662-2302
Codling moth 2nd flight subsides	2782–3433	1796–2332
CMB 2nd gen. crawlers emerging	2106–2468	1447–1631
Apple maggot flight peak	2168–2688	1495–1762
OBLR 2nd flight begins	2330–3040	1526–2076
Peachtree borer flight subsides	2230–3255	1497–2309

PEST FOCUS

Geneva:
2nd flight of **Obliquebanded leafroller** begins.

Highland:
Oriental fruit moth and **Spotted tentiform leafminer** catches increasing.

Erratum

❖❖ In last week's issue, it was stated that sabadilla is currently not registered for use on fruits in New York State. Actually, there is one product, formulated by Necessary Trading Co. (EPA No. 50932-1), which is labelled for tarnished plant bug control in apples and peaches. ❖❖

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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Dept. of Entomology
NYS Agricultural Exp. Sta.
Barton Laboratory
Geneva, NY 14456-0462

ARTHUR AGNELLO
ENTOMOLOGY
BARTON LAB
NYSAES