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Update on Pest Management
and Crop Development

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

June 22, 1992

VOLUME 1

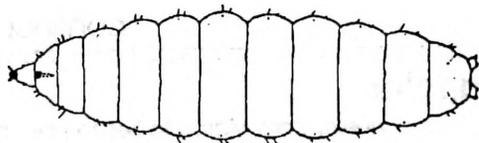
Geneva, NY

BENEFICIAL INSECTS

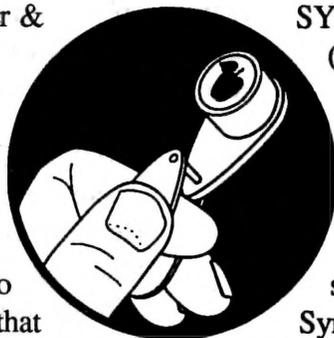
(Steve Spangler &
Art Agnello)

❖❖ There are many insects present in apple orchards that provide a benefit to growers by feeding on pest species. It is important that growers be able to recognize these beneficial insects, so that they are not mistaken for pests. The best way to conserve beneficial insects is to spray only when necessary, and use materials that are less toxic to them (see pp. 12-13 of the 1992 Recommendations). This brief review, taken from IPM Tree-Fruit Fact Sheet No. 18, covers the major beneficial insects that are likely to be seen in New York orchards, concentrating on the most commonly seen life stages. Factsheet No. 7, "Predatory Phytoseiid Mite", reviews mites that are important predators of leaf-feeding mites.

CECIDOMYIID LARVAE (*Aphidoletes aphidimyza*)



This fly (Family Cecidomyiidae) is an aphid predator, which overwinters as a larva or pupa in a cocoon. Adults emerge from this cocoon, mate, and females lay eggs among aphid colonies. The adults are delicate, resembling mosquitoes, and are not likely to be seen. The eggs are very small (about 0.3 mm or 1/85 in. long) and orange. They hatch into small, brightly colored, orange larvae that can be found eating aphids on the leaf surface. These predacious larvae are present from mid-June throughout the summer. Besides aphids, they also feed on soft-bodied scales and mealybugs.



SYRPHID FLY LARVAE (Family Syrphidae)

The Family Syrphidae contains the "hover flies", so named because of the adults' flying behavior. They are brightly colored with yellow and black stripes, resembling bees. Syrphids overwinter as pupae in the soil. In the spring, the adults emerge, mate, and lay single, long whitish eggs on foliage or bark, from early spring through mid-summer, usually among aphid colonies. One female lays several eggs. After hatching, the larvae feed on aphids by piercing their body and sucking the fluids, leaving a shriveled, blackened aphid body. These predacious larvae are shaped cylindrically and taper toward the head. There are 5 to 7 generations per year. Syrphid larvae feed on aphids, and may also feed on scales and caterpillars.

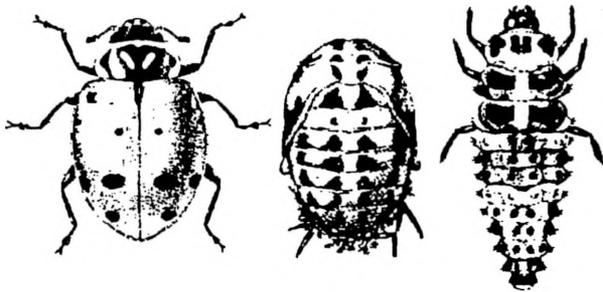


LADYBIRD BEETLES (Family Coccinellidae)

Stethorus punctum - This ladybird beetle is an important predator of European red mite in parts of the northeast, particularly Pennsylvania, and has been observed intermittently in the Hudson Valley of NY, and occasionally in western NY. *Stethorus* overwinters as an adult in the "litter" and ground cover under trees, or in nearby protected places. The adults are rounded, oval, uniformly shiny black, and are about 1.3 to 1.5 mm (1/16 in.) long. Eggs are laid mostly on the undersides of the leaf, near the primary veins, at a density of 1 to 10 per leaf. They

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are small and pale white, and about 0.3 to 0.4 mm (1/85 in.) long. Eggs turn black just prior to hatching. The larva is gray to blackish with numerous hairs, but becomes reddish as it matures, starting on the edges and completing the change just prior to pupation. There are 3 generations per year in south-central Pennsylvania, with peak periods of larval activity in mid-May, mid-June and mid-August. The pupa is uniformly black, small and flattened, and is attached to the leaf.

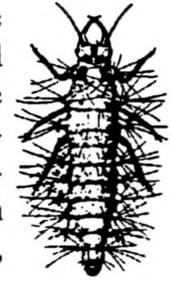


Other Ladybird Beetles - Ladybird beetles are very efficient predators of aphids, scales and mites. Adults are generally hemisphere-shaped, and brightly colored or black, ranging in size from 0.8 to over 8 mm (0.03 to 0.3 in.). They overwinter in sheltered places and become active in the spring. Eggs are laid on the undersides of leaves, usually near aphid colonies, and are typically yellow, spindle-shaped, and stand on end. Females may lay hundreds of eggs. The larvae have well-developed legs and resemble miniature alligators, and are brightly colored, usually black with yellow. The pupal case can often be seen attached to a leaf or branch. There are usually 1 to 2 generations per year.

LACEWINGS (Family Chrysopidae)

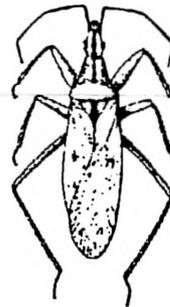
Adult lacewings are green or brown insects with net-like, delicate wings, long antennae, and prominent eyes. The larvae are narrowly oval with two sickle-shaped mouthparts, which are used to pierce the prey and extract fluids. Often the larvae are covered with "trash", which is actually the bodies of their prey and other debris. Lacewings overwinter as larvae in cocoons, inside bark cracks or in leaves on the ground. In

the spring, adults become active and lay eggs on the trunks and branches. These whitish eggs are laid singly and can be seen connected to the leaf by a long, thread-like "stem". Lacewings feed on aphids, leafhoppers, scales, mites, and eggs of Lepidoptera (butterflies and moths).

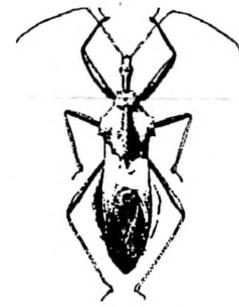


TRUE BUGS (Order Hemiptera)

There are many species of "true bugs" (Order Hemiptera) that feed on plants, such as tarnished plant bug, but a number of them are also predators of pest species. The ones most likely to be seen are "assassin bugs" or reduviids (Family Reduviidae), and "damsel bugs" or nabids (Family Nabidae). These types of predators typically have front legs that are efficient at grasping and holding their prey.



Nabid bug



Reduviid

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PARASITOIDS

Parasitoids are insects that feed on or in the tissue of other insects, consuming all or most of their host and eventually killing it. They are typically small wasps (Order Hymenoptera), or flies (Order Diptera). Although the adult flies or wasps may be seen occasionally in an orchard, it is much more common to observe the eggs, larvae, or pupae in or on the parasitized pest insect. Eggs may be laid directly on a host such as the obliquebanded leafroller, or near the host, such as in the mine of a spotted tentiform leafminer. After the parasitoid consumes the pest, it is not unusual to find the parasitized larvae or eggs of a moth host, or aphids that have been parasitized ("mummies"). Exit holes can be seen where the parasitoid adult has emerged from the aphid mummy. ❖❖

ECB

European Corn Borer

❖❖ Infestations of ECB in orchards are not very common, but when they appear, 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 NY. Also, early fruit feeding on apple has been seen in past years in the Hudson Valley. Infestations of this pest on apple are spotty and unpredictable; incidence in an orchard one year has no correlation with its likelihood to occur the next season. The ECB occurs in NY 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

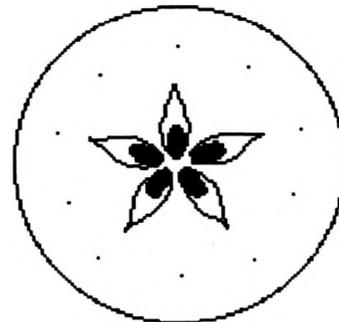
feeding will kill the terminal and disfigure the tree. Non-bearing, newly planted orchards normally do not receive the intensive cover spray program bearing orchards do; therefore, corn borer infestations can build up more easily in young orchards. Corn borer attack on young trees can occur from June 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 larvae, provided application is made before the caterpillars become concealed in the plant tissue. ❖❖

CORRECTION

GUTHION 3F

❖❖ Dick Ackerman with Miles Agriculture Division has informed me of an error in the labeling of Guthion 3F. The pre-harvest interval (PHI) for cherries is 21 days. However, the package inserts for product sold in our area incorrectly gave the PHI as 14 days. Contact your dealer or distributor for a copy of the correct label. ❖❖



PHEROMONE TRAP CATCHES

Number/Trap/Day, Geneva NY

	6/11	6/15	6/18	6/22
Redbanded Leafroller	0.2	0	0	0
Spotted Tentiform Leafminer	2.3	2.0	4.7	22.8
Oriental Fruit Moth (apple)	0.2	0.2	0.5	0
Oriental Fruit Moth (peach)	0.8	0.9	0	0
Lesser Appleworm	0	0.3	0.3	0
Codling Moth	25.7	18.9	25.0	10.5
San Jose Scale	0	0	0	0
Lesser Peachtree Borer (cherry)	7.2	8.9	0.7	1.1
Lesser Peachtree Borer (peach)	0.2	1.6	0.5	0.1
Peachtree Borer	3.3	12.0	0	0
Obliquebanded Leafroller	0	10.5	8.5	4.5
Apple Maggot	0	0	0	0

PEST FOCUS

222 DD (base 43°F) have accumulated since the first catch of second brood OBLR. Sampling is recommended after 600 DD (base 43°F) have accumulated.

The spotted tentiform leafminer second brood flight began today, 6/22. Sampling for STLM sap-feeding larvae should commence in 500-700 DD (base 43°F) from this date.

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1 - 6/8):	990	584
Coming Events:		Ranges:
Apple maggot 1st adult catch	1045-1662	629-1062
Lesser peachtree borer peak flight	1099-2330	667-1526
Obliquebanded leafroller summer larvae hatch	1076-1513	630-980

Note: For current information in your area of the state, check PEST STATUS under FRUIT on CENET.

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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