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Update on Pest Management
and Crop Development

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

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VOLUME 4

Geneva, NY

BE
READY

PETAL FALL
PENCHANTS
(Art Agnello &
Harvey Reissig,
Entomology, Geneva)



❖❖ The effort to circumvent insect pest problems starts its most active phase at this time. Following are a few points to keep in mind for your petal fall insecticide sprays:

1) To minimize the hazard to honey bees, apply pesticides only after ALL petals have fallen in the block and when no bees are actively foraging on blooming weeds (evening is better than early morning).

2) Do not use Lannate on early McIntosh, Wealthy, or Dutchess because of possible injury to fruit and foliage.

3) Postbloom use of any synthetic pyrethroid insecticide has on occasion encouraged the build-up of mites and woolly apple aphid. If a pyrethroid (Asana, Ambush, Pounce) was used in any of the prebloom sprays, do not apply another pyrethroid at petal fall. Try to limit use of these materials to one application per season to delay resistance development and extend their useful field life.

4) When choosing an insecticide for this application, keep in mind its range of activity, both adverse and beneficial. For example, if Sevin is applied for thinning, it will also help to control plum curculio and white apple leafhopper (even at the 1 lb rate). Carzol acts not only against European red mite, but will also control white apple leafhopper; however, it is not kind to predatory mites.

5) Be aware of the destructive effects of any spray materials on beneficial mites and insects (refer to Tables 8 and 12 on pp. 37 and 42-44 in

the 1995 Recommends.)

6) Do not use Vydate or Sevin during the first 30 days after bloom without taking into account their thinning effects.

MITES

We have seen some impressive overwintered European red mite egg populations this spring, even in blocks that had few mites last year. The weather patterns from last fall through the winter and continuing even now seem calculated to have set us up for a potentially historic mite year. Egg hatch began in earnest last week in most apple blocks around the state; some bona fide treatable populations may have already been noted. Now is the time to keep one eye on the thermometer and the other on mite numbers, because a little warm weather can quickly boost numbers into the problem category. Until June 30, we recommend a threshold of 2.5 motile stages (anything except eggs) per leaf. You can determine the mite densities on the foliage by actually counting them if you want to, but this is more effort than is required. Your time is probably better spent using the presence/absence technique:



Examine intermediate-aged leaves (from the middle of the fruit cluster) for motile stages. Check at least 50 leaves (5 per tree), for the presence of any number of mites; no treatment is recommended if <62% of the leaves examined are infested. A sequential sampling table (p. 84) and chart (p. 91) are provided in the Recommends.

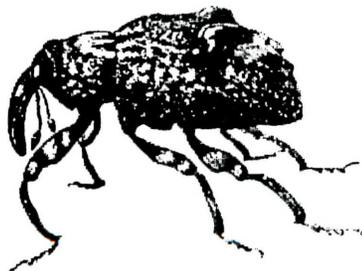
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WHITE APPLE LEAFHOPPER

WALH nymphs can be numerous in some blocks, especially in the eastern part of the state; growers using Sevin in their thinning sprays will get some control at the 1 lb rate. Alternative choices for control include Thiodan and Lannate; Carzol used for mites now will also do the job, but will be harmful to your predator mites; this first generation is generally not worth the trade-off.

PLUM CURCULIO

Plum curculio adults move into orchards from overwintering sites in hedgerows or the edges of woods and are present in the trees from late pink to early bloom before the fruit is susceptible to damage. Adults are active in the spring when temperatures exceed 60°F. Adult females oviposit in fruit during both day and night but feed mostly at night. Depending on temperature, overwintering adults remain active for two to six weeks after petal fall. Although adults may feed on blossoms, apples are not susceptible to damage until petal fall, at which time adults damage fruit by both feeding and ovipositing. Unlike fruit injured by other pests, many apples damaged by plum curculio will remain on the tree until harvest. Because adults are not highly mobile, orchards near overwintering sites, woodlands, and hedgerows are most susceptible to attack. Fruit damage is usually most common in border rows next to sites where adults overwinter.



Monitoring for plum curculio is not currently recommended in New York because of the amount of time and labor involved and because plum curculio is generally assumed to be present in every orchard.

Various techniques have been used in other areas to monitor plum curculio damage:

- Clubs or shakers can be used to jar adults from limbs into catching frames or cloths for counting.
- Polyethylene funnels hung under branches can be used to capture adult plum curculio.
- Immature "scout apples" hung in trees near the edges of orchards serve to measure oviposition scars before petal fall so potential damage can be estimated before control sprays are applied.
- Oviposition scars on immature fruit can be counted in orchards starting at petal fall to estimate damage from plum curculio. Because substantial oviposition and damage can occur even after a single warm day and night, frequent scouting for damaged fruit is necessary after petal fall. The economic threshold for plum curculio damage after petal fall in Massachusetts has been set at 1 feeding or oviposition scar among 60 apples, 6 from each of 10 trees per block.

Several species of wasps parasitize eggs and larvae of plum curculio. Ants, lacewings, and

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scaffolds FRUIT JOURNAL

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<http://aruba.nysaes.cornell.edu:8000>
under Station Publications.

ground beetles prey on larvae in the soil, and some fungi kill larvae. These organisms are not usually sufficient to regulate populations of plum curculio in commercial orchards. Plum curculio is difficult to control completely with insecticides. Relatively high rates and persistent applications are important because adults may be active for two to six weeks after petal fall depending on temperatures. In normal orchards that are not near woodlots or hedgerows and have not suffered previous damage, a single application at petal fall will provide seasonal control. In problem orchards, a petal fall application followed by a second spray 10 to 14 days later will provide adequate control. In orchards with chronic problems, or in seasons when adult activity is prolonged by unusually cool and wet weather, two cover sprays applied 10 to 14 days apart after petal fall may be necessary to prevent late damage. Guthion, Imidan, Lorsban, and all pyrethroid insecticides are effective at controlling plum curculio. These materials will also control codling moth later on.

The current control strategy is treatment with an organophosphate insecticide at petal fall and the first cover spray in western N.Y., and at petal fall plus the first and second cover sprays in eastern N.Y. Harvey Reissig and Jan Nyrop conducted field tests on oviposition for several years, to find out whether the egg-laying period can be defined in terms of the always variable postbloom weather patterns, especially regarding degree-day accumulations. Their results reinforced a few points we generally try to make each season:

- 1) Although plum curculio adults may be in the trees during bloom, they generally do not begin to do any bud-cutting or egg-laying until some time (i.e., 80 degree days, base 50°F, or at least a few days) after petal fall.

- 2) Unless weather conditions cause an inordinately extended progression from bloom to petal fall to fruit set, perfectly adequate control can be achieved with a timely spray at petal fall and another at first cover (population pressure in the research check plots gave 10% fruit damage).

- 3) Application of a pyrethroid at pink does not

reduce fruit damage compared with the above post-bloom schedule.

GREEN FRUITWORM (GFW)

This is a collective common name used in New York to refer to a number of Lepidoptera, but one of the more common members of this group is the speckled green fruitworm, *Orthosia hibisci*. Traditionally, orchards in eastern N.Y., particularly the Hudson Valley, have had greater problems with GFW than those in the western part of the state. The GFW has a single generation per year and overwinters in the pupal stage in the soil. Adult emergence begins at about green tip and is complete by the pink stage of McIntosh apples. The adults are about 2/3 of an inch long, and are grayish-pink in color with two purplish-gray spots on the forewings. Egg laying begins at about half-inch green. Eggs are laid singly or in pairs. They are white to grayish in color and have ridges radiating from the center. GFW larvae begin hatching between tight cluster and pink. The larvae feed on new leaves, flowers, and developing fruit. Fruit feeding is normally restricted to larger larvae. The larvae mature between late May and late June, at which time they drop to the ground and pupate in the soil at a depth of 2 to 4 inches. In the past, sprays were applied at pink and petal fall to control the GFW. However, research has indicated that a single spray at petal fall provides comparable control to the two-spray program. Monitoring for the GFW is the same as monitoring for the obliquebanded leafroller, which should take



place during the late bloom stage, and both species may be considered together in making a control decision. Pesticides recommended for control of

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this caterpillar include: Lorsban, Thiodan, Lannate, and the pyrethroids Asana, Ambush, or Pounce.

EUROPEAN APPLE SAWFLY (EAS)

EAS is an introduced pest and its natural enemies have been little studied. It overwinters in a puparium in the soil, and adults emerge at the beginning of bloom. Eggs are laid in blossoms at the base of the stamens and hatch in one to two weeks. Larvae feed below the skin near the apple calyx in a spiral pattern that will cause scarring around the circumference of the fruit at harvest. The larvae then molt and feed deeper inside the apple, causing the fruit to abort. Sawfly damage can be distinguished from that of internally feeding lepidopterous larvae because sawfly exit holes are covered with reddish-brown frass pushed out by the feeding larva. This insect is generally a pest only in Eastern New York. Because adults are visually attracted to apple blossoms, sticky-coated white rectangles that are non-UV-reflecting can be used to monitor adults. In Massachusetts, a spray is recommended at petal fall if more than an average of 6–9 EAS per trap are captured by petal fall in an orchard that received prebloom insecticide, or 4–5 in an orchard that did not receive prebloom insecticide. We do not recommend monitoring for this pest in New York because it is normally controlled by the initial spray applied at petal fall to control the plum curculio. ❖❖

SILVER
AND
GOLD

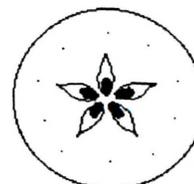
MITE AS WELL BE
SPRING
(Art Agnello, Entomology,
Geneva)

❖❖ Deb Breth reported some high populations of eriophyids (rust mites) on fruit cluster leaves in a Wayne Co. peach planting, and, not having seen anything like this in our region before, I put the question to some of our col-

leagues in Michigan and Virginia. Apparently, these fit the description of peach silver mite (PSM), *Aculus cornutus*. The following is taken from a Mid-Atlantic States orchard monitoring guide due out next month, courtesy of Doug Pfeiffer at VPI:

"The peach silver mite (PSM) is a member of the rust mite family, with a worldwide distribution, that was first described from peach in Washington, D.C. in 1905. Its hosts are peach, nectarine, and almond. Full grown PSM are light amber to yellow, wedge-shaped, and about 7/1000 inch (0.2 mm) in length. Females overwinter on the tree in the buds and bud scales as specialized hibernating forms called deutogynes, which are incapable of reproducing during the season they are formed. Early in the spring, mites will invade the tender growing tips to feed. Feeding and reproduction, resulting in numerous generations, occurs on the leaf surface until hibernating females are again produced in the fall. PSM cause two types of injury to foliage depending upon the age of the leaf upon which feeding occurs. Mite feeding on young leaves results in injury referred to as "yellow spot", which is characterized by yellow spotting and chlorosis along the veins, with an upward longitudinal folding of the leaf margin. The spots are circular and may be pinpoint to more than 1/16 inch (1.5 mm) in diameter. In severe infestations, spots coalesce resulting in leaves with a mottled appearance. Prolonged summer feeding on mature leaves results in a silvery or reflective appearance that develops late in the season just before leaf drop. This injury has been reported to reduce fruit size and cause premature fruit drop."

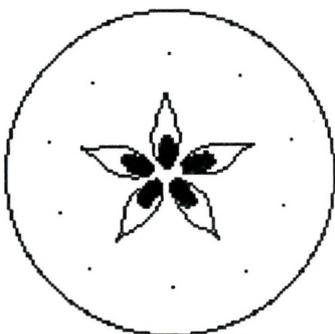
A check of the tree-fruit miticides reveals that Omite 30WP has a label for this pest on peaches, at a rate of 5–15 lb/acre. Presumably, a petal fall application should be sufficient to remedy the problem. ❖❖



SCAB

APPLE SCAB
ASCOSPORE MATURITY
(Dave Rosenberger, Plant
Pathology, Hudson Valley Lab)

	<u>Imm</u>	<u>Mature</u>	<u>Discharged</u>	<u>Tower shoot</u>
Highland:				
5/2	44%	40%	16%	<2000 spores



FROM THE BOOKSHELF

NEW PREDATOR
MITE FACT
SHEET AVAILABLE

❖❖ A new fact sheet on predatory mites, published by the New York State IPM Program, is now available. The fact sheet gives physical descriptions (with photographs) and describes the biology, effectiveness as biocontrol agents, and management of the three most important predator mite species in New York State: *Typhlodromus pyri*, *Amblyseius fallacis*, and *Zetzellia mali*. It is available from Cornell Media Services in Ithaca (Resource Center-GP, 7 Business and Technology Park, Cornell University, Ithaca, NY 14850. Fax: 607-255-9946) for \$1.20 per copy. Quantity discounts are available. Request Insect Identification Sheet No. I23. ❖❖



UPCOMING PEST EVENTS		
	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1 - 5/15):	406	196
(Highland 3/1 - 5/14):	408	172
<u>Coming Events:</u>	<u>Ranges:</u>	
Green fruitworm subsiding	170-448	75-251
Redbanded leafroller 1st flight peak	180-455	65-221
Spotted tentiform leafminer 1st flight peak	180-420	65-217
STLM sap-feeders present	295-628	146-325
European red mite egg hatch complete	361-484	183-298
Tarnished plant bug adults active	71-536	34-299
White apple leafhopper nymphs present	236-708	123-404
San Jose scale 1st catch	189-704	69-385
Codling moth 1st catch	273-805	141-491
Oriental fruit moth 1st flight peak	323-606	138-298
McIntosh at petal fall	418-561	210-317
Pear at petal fall	343-539	144-275
Tart cherry at petal fall	385-518	185-287

PEST FOCUS

Geneva: **San Jose scale** and **American plum borer** 1st catch.
 Highland: 1st **codling moth** catch. 1st **European apple sawfly**.



PHENOLOGIES

Geneva:
 McIntosh @ bloom
 Sweet cherry (Windsor) @ early petal fall
 Tart cherry (Montmorency) @ bloom
 Pear @ bloom
 Peach @ 90% petal fall
 Plum @ 50% petal fall
Highland: McIntosh, @ 80% petal fall
 Red Delicious @ full bloom
 Bartlett pear @ petal fall

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva NY

HVL, Highland NY

	5/8	5/11	5/15		5/1	5/8	5/15
Green fruitworm	0.8	0	0.3	Green fruitworm	0	0	0
Redbanded leafroller	1.3	1.3	2.0	Redbanded Leafroller	8.7	0.8	0.7
Spotted tentiform leafminer	349	447	492	Spotted tentiform leafminer	45.6	6.0	8.2
Oriental fruit moth (apple)	8.9	8.0	57.0	Oriental fruit moth	9.3	0.8	1.0
Lesser appleworm	7.5	28.3	28.9	Fruittree leafroller	0	0.1*	0.2
San Jose scale	-	-	0.1*	Rose leafhopper nymphs	-	1.2	20.3
American plum borer(cherry)	-	-	0.1*	White apple leafhopper nymphs	-	0.1	<0.1
				Codling moth	-	-	<0.1*

* = 1st catch

(Dick Straub, Peter Jentsch)

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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