



CORNELL COOPERATIVE EXTENSION - SUFFOLK COUNTY



INSECT AND PLANT DISEASE DIAGNOSTIC LABORATORY

EDUCATION CENTER
423 GRIFFING AVENUE
RIVERHEAD, NY 11901
HORT INFO LINE 631.727.4126



Cornell University
Cooperative Extension
of Suffolk County

BAYARD CUTTING ARBORETUM
MONTAUK HWY. PO BOX 463
OAKDALE, NY 11769
HORT INFO LINE 631.581.4223

Tree-Fruit Pest Management - Cultural Methods

Some important tree-fruit pests can be monitored by the home gardener. Monitoring is a way of assessing the presence of pests and the size of their population. It is a very useful part of integrated pest management (IPM). A [calendar of events for apples in the Lake Plains area of New York](http://ipmguidelines.org/Home/content/Book1/CH10.pdf) (<http://ipmguidelines.org/Home/content/Book1/CH10.pdf>) can give you an idea of the relationships between climate and biological phenomena (phenology) of the tree, the diseases, and the insects you may be faced with. Infection periods for diseases (primary and secondary) are included on the chart, as are estimates of activity for various life stages of the insect pests. Tracking growing degree days (GDD) is another method used for monitoring pest activity. Visit the Cornell Cooperative Extension – Suffolk County web site for [information on GDD](#) along with [updated accumulated GDD for locations on Long Island](#). This information, along with monitoring your specific situation for pests, will help you determine when activity begins, and in some cases, what the population levels are. From this information you can make decisions about what pests you need to manage in your fruit planting and where they can be most effectively controlled.

Visual traps, one monitoring tool, are available for some of these important tree-fruit pests. For example, both red sphere traps and yellow sticky-board traps are available to monitor the apple maggot fly. Visual traps are used to find out when adult flies are active near the apple tree.

Obviously, one must know what the adult apple maggot looks like to use these traps effectively. Monitoring will help in the development of specific pest management programs. In some cases, red sphere traps may be effective in controlling the apple maggot by trapping most of the females before they land on the real fruit and lay eggs. Synthetic apple volatile lures are now available, which greatly increase the efficiency of the traps. The emergence of black cherry fruit fly, cherry fruit fly, and blueberry maggot fly can also be monitored through the use of these traps. White rectangle traps are used to monitor the tarnished plant bug and European apple sawfly.

In addition to visual traps, pheromone traps are available. Pheromones are chemicals produced by insects and released into the environment to influence the behavior of other insects. Sex pheromones attract male insects, and the trap captures them. These traps are useful in determining the first emergence of males and the peak flight times.

The placement of traps for any of these monitoring tools is critical. Complete directions should be supplied by the manufacturer.

Effective pest management in home orchards depends on recognizing the pest problem, selecting appropriate pesticides, timing applications properly, and thoroughly covering the fruit and foliage with the spray.

If you are planting fruit trees, consider disease-resistant dwarf trees to minimize the need for fungicides.

Cultural pest management recommendations for tree-fruit follow (**Table 1**). For pesticide guidelines refer to [Tree-Fruit Pest Management Guidelines for a Limited Spray Program](#) or contact our office directly on how to order a copy.

Table 1. Tree-Fruit Cultural Pest Management

Apples

Bitter rot – Primarily a problem in Hudson Valley and Long Island, New York, particularly in warm wet summers. Prune in early spring to remove all dead wood and promote good air circulation. Remove and destroy infected fruit as they appear in summer.

Powdery mildew - Prune out infected terminals as they develop in late summer. Prune in early spring to thin the trees and allow air to circulate and fruit and leaves to dry quickly after rains. Highly susceptible varieties include Baldwin, Cortland, Idared, Jonathan, Monroe, Paulared, Rome and Ginger Gold.

Apples (*continued*)

Rust - Primarily a problem where red cedars (*Juniperus* spp.) grow. Eliminate red cedars in and around the orchard. Avoid highly susceptible varieties (Golden Delicious, Jonathan, Lodi, Prima, Roma, Summerred, 20-Ounce, York) where rust is a problem.

Apple scab - In autumn or as leaves or fruits drop in Summer, rake and dispose of all fallen or diseased leaves and fruit. Prune in early spring to thin the trees, which) allows air to circulate and fruit and leaves to dry quickly after rains. Plant resistant varieties (Redfree, Prima, Liberty, Freedom, Jonafree, Macfree, Sir Prize, Golrush, Williams' Pride, Nova Spy, Enterpriz, and traditional

Sooty blotch and fly speck – Prune in early spring to remove dead wood, and thin trees to allow air to circulate and fruit and leaves to dry quickly after rains. Thin out crowded branches in late June to maintain good air circulation throughout summer. Adequate control can often be obtained with good pruning practices alone. These diseases more frequently a problem in downstate New York and in sites with abundant brambles nearby.

Apple aphids - small often pear shaped, soft-bodied insects that frequently occur in large colonies. They cause leaves to become twisted and rolled, Aphids excrete honeydew on which sooty mold, a black fungus may grow. Rosy apple aphid may cause certain apple cultivars to become stunted and deformed and must be controlled early in growing season. . Washing leaves with a strong stream of water may remove many aphids from plants. Green apple aphids on terminals will rarely require controls.

Apple maggot - The most destructive of all insects that attack apples. Commonly called the railroad worm because of the brownish trails the larvae leave as they bore through the flesh of the fruit. Late, hard "keeper" varieties are more resistant. Infested fruit may drop prematurely. Pick up all drops in late August through September. Picking and destroying fallen apples at weekly intervals from early August through harvest destroys the larvae within the fruit and reduces potential for maggot injury the following year. This is most practical where trees are isolated and wild or abandoned trees are not nearby. Use visual traps for monitoring or control of one or a few dwarf trees. To help control flies un-baited red sphere traps in trees at a rate of one trap per 100 to 150 fruit.

Codling moth - the common "worm" found in apples. Pheromone traps can be used as monitoring tools. Band to trap. (To create substitute location for the codling moth larvae to spin their cocoons and pupate, band the tree trunks and large branches by tying 6-inch strips of burlap or cardboard around them. For central New York, band three times: May, mid-June, to early July, and August. Timing in other locations may vary slightly. Check for larvae and cocoons and kill those you find.) Pick up all drops in late August and September.

European apple sawfly (*eastern New York*) – Distribution limited to Hudson Valley, Champlain Valley, and Long Island, New York. Adults lay eggs in calyx cup during bloom; larvae tunnel under skin of developing fruit, causing a characteristic spiral tunnel and misshapen apple. Later larval feeding second- or even third-instar fruit may cause these fruit to drop. Pick up all drops in early June.

Lear rollers – Feed primarily on foliage, rolling and skeletonizing leaves, but may also feed on fruit, causing scarring. Sample frequently during July.

Mites – Cause bronzing of leaves. Predator mites usually keep them in check; if "soft" insecticides are used.

Plum curculio - 1/4-inch long roughened snout beetle that attacks all orchard fruit crops. Egg laying causes small crescent-shaped scar on the fruit. Larvae bore toward the center of the fruit and feed there. Adults may cause some injury by feeding either in the fall or spring. Pick up and remove all drops in early June and July. Jarring, a mechanical method of control is sometimes helpful; results may vary. If tree is suddenly jarred with a padded mallet, the plum curculio beetles loosen their hold, contract their legs, and fall to the ground. Jarring should be done in the early morning. Place sheets on the ground to collect the beetles and then destroy them. *Note:* Young trees can be severely damaged if hit too hard.

Redbanded leafroller – Caterpillars feed on leaves and occasionally on fruit. Two broods present each year in New York, No cultural control available.

Roundheaded apple tree borer – Larvae bore into trunk and feed in sapwood. Tunnels weaken tree and may cut off sap flow, cause dieback, or kill tree. Injury predisposes tree to other pests. The downy woodpecker is the only known natural enemy. Ring bottom 12-24 in. of trunks with oviposition barriers in May. Oviposition barriers include wire mosquito netting, hardware cloth, tar paper, or several layers of newspaper. Barriers should be loose except at bottom (cover with

Roundheaded apple tree borer (*continued*)

soil) and top (tie with cord). Remove barriers at end of season (September). Remove borers from trees with knife and piece of wire with hooked tip. Clear litter away from bases of trees to help locate borers. Young borers can usually be cut out; older ones can be probed for with flexible wire. Cut with caution, being sure not to remove more wood than necessary. If cut carefully, wounds usually close without noticeable injury to tree. Keeping trees healthy and vigorous by proper cultivation, fertilization, pest control, and watering will help infested trees overcome effects of borer injury.

San Jose scale – Feeds by sucking sap from all parts of the tree and fruit. Fruit spotting may occur and branch dieback may result. Prune infested branches.

Cherry

Black knot – Occurs on numerous cultivate and wild plums, prunes, and cherries (*Prunus* spp.). Disease is characterized by presence of warty, black gall and may vary in length from ½ in. to more than 1 ft. Remove wild choke cherries; remove and burn all cankers as soon as you notice them.

Brown rot - (See **Peach, Nectarine and Apricot**)

Fungal leaf spot - in autumn, rake and dispose of all fallen or diseased leaves and fruit. This will control leaf spot in addition to brown rot.

Cherry fruit flies – Maggots attack developing cherries, feeding on flesh. Adult emergence begins in early June and continues about one month. Sticky traps can be used to monitor adult activity.

Plum curculio - (see **Apple**)

Peach, Nectarine and Apricot (*Prunus* spp.)

Brown rot - Clean up fallen fruit before and during harvest; remove and dispose of all unharvested fruit from trees during the dormant period.

Cytospora canker - Delay annual pruning until bloom. Prune to thin the trees and allow air to circulate and fruit and leaves to dry quickly after rains. Remove all weak, gumming, or dead twigs and branches during pruning; do not leave pruning stubs. Train new trees to promote wide angles between the major scaffold branches and the trunk. Promote winter hardiness: fertilize only early in the season, withhold water late in the season, and paint tree trunks with interior (water-based) white latex paint before winter. Remove old cankered peach trees before planting new peach trees.

Peach leaf curl – Springtime disease of peach, nectarine, almond, and related ornamental species caused by *Taphrina deformans*. Disease not serious except in rainy years when it can cause defoliation of unsprayed trees early in the growing season. This weakens trees, making them more susceptible to winter injury. The varieties Clayton, Q 1-8, Five Star Curlless, Indian Blood Free, and other are reported to be resistant.

Lesser peachtree borer - The adult is a clear-winged moth that feeds on cambium or inner bark of tree, often causing individual limbs to die back. Keep trees in good vigor and avoid wounding.

Oriental fruit moth – First brood attacks young terminals of peach trees, causing death; second and third broods attack fruit. Plastic ties impregnated with sex pheromone are available commercially. Hang in trees (rate of 400/acre) after bloom to disrupt mating and prevent production of injurious larvae. Use in small orchard settings may not provide satisfactory control because mated females can move in from nearby alternate hosts.

Peachtree borer - Adult is a clear-winged moth that feeds on the cambium or inner bark of the tree, girdling it. Entire tree may be killed. Gummosis is often present but may be caused by other injuries. Keep trees in good vigor and avoid wounding. Painting lower 1 to 2 feet of trunk with white latex paint can help prevent bark splitting and may also deter egg laying by this pest.

Plum curculio - (see **Apple**)

Pear (*Pyrus* sp.)

Fabraea leaf spot – Primarily a problem in southern half of New York State. Use same control program as for scab.

Pear (*continued*)

Scab – In autumn, rake and dispose of all fallen leaves. Scab seldom a problem on Bartlett.

Aphids – see **Apple**.

Pear psyllas - Adults resemble tiny cicadas and may cause early defoliation of the tree and loss of the crop. Honeydew and sooty mold are often found, soiling leaves and fruit. Three to four generations occur each year. Entomopathogenic fungi are being investigated for control. Sucker trees regularly during the season to remove excess succulent leaf growth, which supports psylla populations.

Plum and Prune (*Prunus spp.*)

Black knots - Prune out and remove all knotted branches before budbreak. Rogue infected wild cherry trees in surrounding area.

Brown rot - (see **Peach, Nectarine and Apricot**)

Lecanium scales - Feed on branches and leaves, causing copious honeydew, sooty mold, and weakening or death of infested branches. Scales may predispose trees to other secondary pests. Prune out small infestations where practical.

Plum curculio - (see **Apple**)

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