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Tree Fruit Pest Management Guidelines for a Limited Spray Program

Insects and diseases do not take vacations, so be on the lookout for them. Sprays should be based on need and not applied according to a schedule. Scouting and monitoring, taking into account weather conditions, will help determine need. Thoroughly spray the trunk, limbs, fruit, and both sides of the leaves just to the point of runoff. For information on controlling pests without pesticides refer to [Tree Fruit Pest Management – Cultural Methods](#) on the Cornell Cooperative Extension – Suffolk County web site or contact our office for information on how to order a copy.

Concentrate on spraying the top half of the tree; the lower half will usually be adequately covered. Sprays should be applied when there is little or no wind so as to assure thorough coverage and to minimize spray drift. Do not apply sprays during rain or when rain is expected within a couple of hours. If heavy rain does occur shortly after spraying, sprays that are not rainfast (consult label) should be reapplied after the rain stops.

Proper pruning greatly facilitates spraying. Keep trees short, well shaped, and properly thinned. If you are planning new plantings, consider planting dwarf trees.

Spraying Equipment

The kind of spraying equipment to use depends on the size and number of trees to be sprayed. The sprayer must be capable of wetting the entire leaf canopy to the point of runoff. For spraying two or three trees under 8 feet in height, an inexpensive, 2-gallon, hand-pumped compressed-air sprayer is satisfactory. For more trees or for trees up to about 10 feet tall, a hand-pumped knapsack sprayer or slide-pump sprayer would be better. For trees more than 10 feet tall or for a large number of smaller trees, a power sprayer with a tank capacity of 10 to 30 gallons may be necessary. It pays to purchase a sprayer that is large enough to do the job quickly and easily.

Sprayers used for applying weed killers should never be used to apply fungicides or insecticides.

Commercially prepared multipurpose fruit spray mixtures are available and convenient to use but are generally more expensive than spray mixtures you prepare yourself.

Multipurpose spray mixture contains captan, malathion, and carbaryl.

Application and Timing

Early spray applications are timed according to the development of the fruit buds. The key bud stages are

- Dormant: just before buds begin to swell in spring.
- Green tip: buds are open at tips and exposing green tissue.
- Half-inch green: one-half inch of green tissue is projecting from bud.
- Tight cluster: blossom buds are exposed but tightly appressed; stems are short.
- Pink: all blossom buds are pink, stems are fully extended.
- Bloom: from the time the blossoms first open until the petal-fall stage is reached. (Do not use insecticides during the bloom period.)
- Petal-fall: petals have fallen.

Height (Feet)	Early Spring	Summer
	Gallons Per Tree	
4 – 6	¼ – ½	1 – 1 ½
6 – 8	½ – 1	1 ½ - 2
8 – 10	1 – 2	2 – 3
10 – 15	2 – 3	3 – 5
15 – 20	3 – 5	5 – 10
20 - 25	5 - 10	10 - 15

Further Reading

The Cornell Guide to Growing Fruit at Home Eames-Sheavly, M., and M. P. Pritts. 2003.. Cornell Cooperative Extension Information Bulletin 156. Ithaca, N.Y. 104 pp. This may be ordered from [Cornell Cooperative Extension – Suffolk County publication order form](#) on its web site or contact the office directly.

Compendium of Apple and Pear Diseases. Jones, A. L., and A. S. Aldwinkle. 1990. American Phytopathological Society, St. Paul, Minn. 100 pp.

Compendium of Stone Fruit Diseases Oyawa, J. M., E. I. Zehr, G. W. Bird, et al. 1995.. American Phytopathological Society, St. Paul, Minn. 122 pp.

Fireblight—Its Nature, Prevention and Control. van der Zwet, T., and S. V. Beer. 1992. USDA Agricultural Information Bulletin 631. 83 pp

Pest Management Practices and Pesticide Options For Tree-Fruit Pests

Plant	Pest/Disease	Pest management practices
Apples	Apple scab	Plant resistant varieties. For susceptible varieties apply captan, or myclobutanil per label directions. Copper, lime sulfur, or sulfur may help to suppress disease, but do not apply copper products after “pink bud” stage or it may russet the fruit. Do not apply captan with or near an oil spray early in the season because leaves may be injured. The most critical time for fungicide applications to prevent scab infection is from tight cluster (when flower buds first show in the cluster) until about 2-3 weeks after petal fall. Removal of all fallen flowers before bud break and good pruning will reduce the number of sprays needed. Moderately susceptible varieties will also require fewer sprays than highly susceptible ones (Cortland, Jerseymac, and McIntosh).
	Cedar-apple rust	Especially a problem during wet seasons. If wet weather prevails, apply myclobutanil according to label directions.
	Plum curculio	Make applications at petal fall and 10 days later: Surround or multipurpose mixture. In eastern New York a third application is needed 10 days after the second. These applications also control first-generation codling moth and oblique banded leafroller.

Plant	Pest/Disease	Pest management practices
Apples (<i>continued</i>)	Aphids	Monitor: if one colony is found per 10 terminals at pink, apply multipurpose mixture. After bloom, if 30 percent of terminals are found to be infected, treat with malathion, insecticidal soap, or multipurpose mixture.
	Apple maggot	Treat the first week of August with Surround (earlier for eastern New York). For apple maggot, use red sphere sticky traps, three to four per tree. Place traps in mid-July (in eastern New York) to late July. Scrape off flies and resurface with stickum one to two times per week.
	Codling moth	The multipurpose spray at petal fall and 10 to 14 days later (same timing as for plum curculio) will control first-generation codling moth. For second-generation codling moth treat in early to mid-August with Surround, a Bt product or multipurpose mixture.
	Mites	If overwintering eggs are noticed, use oil: 2 percent at dormant or 1 percent at tight cluster.
Pears	Plum curculio, aphids, and mites	Same as for apples.
	Fire blight	Use cultural and plant sanitation practices. Cut off and destroy infected branches as soon as disease is noticed.
	Pear psylla	Apply oil as adults are emerging but before egg laying has occurred (as soon as adults are present and temperatures exceed 50° F). Apply at green tip in most years, but monitor to determine timing each season. Apply multipurpose spray mixture or insecticidal soap at white bud, at petal fall, and as needed based on monitoring during the growing season.
Peaches, nectarines, apricots, cherries, plums, and prunes (stone fruit)	Plum curculio	Treat at petal fall and 10 days later. Use Surround or multipurpose mixture.
	Brown rot (fruit rot)	Treat at petal fall, shuck split, and 10 days later. Use chlorothalonil or multipurpose mixture. Practice plant sanitation. Remove dropped fruit and mummies.
	Cherry leaf spot	Treat at petal fall, shuck split, and 10 days later. Use chlorothalonil. Raking and destroying leaves may be sufficient for home gardens.
	Cherry maggot	Use yellow sticky cards to monitor after bloom. As soon as adult flies are present, spray with multipurpose mixture. A second application may be needed 10 days later if flies are still active.

Plant	Pest/Disease	Pest management practices
Peaches, nectarines, apricots, cherries, plums, and prunes (stone fruit) (continued)	Peachtree borer and lesser peach tree borer	If the planting has a history of this pest, spray the first week of June, the first week of July, and the first week of August (trunk and scaffold branches) with multipurpose fruit-tree spray containing malathion from mid-June through mid-August. Alternatively, hang Isomate-L pheromone ties in early June at 100 per acre or one per tree.
	Black knot	Practice plant sanitation. Prune out infected branches.
	Peach leaf curl	If the planting has a history of this disease, spray when dormant chlorothalonil, Hi-Yield Lime Sulfur, or copper.
	Aphids	Treat when 30 percent of terminals are infected. On cherries, plums, and prunes use malathion. On peaches, nectarines, or apricots use malathion or insecticidal soap.

Reprinted from and pesticide recommendations obtained from: *Part II Guide to Pest Management around the Home – 2005-2006 Pesticide Guidelines*, Cornell Misc. Bulletin S74II, 04/05.

The Pesticide Management Education Program (PMEP), in cooperation with the New York State Department of Environmental Conservation (NYSDEC), maintains a web site with a searchable database for pesticide products currently registered in New York State. Homeowners who have Internet access can locate currently registered products at <http://pmep.cce.cornell.edu/pims/current>. Several different queries are available that will produce a summary for the product(s) that the system locates. If the system fails to locate the product in question, then that product is not currently registered in New York State. The database also provides a summary of important information related to every product currently registered. Two data fields “Status” and “Expiration Date” are provided in each summary. Products with a status of “Registered - Discontinued” are currently registered but will probably be discontinued for use, sale, and distribution in New York State after the date noted in the “Expiration Date” field.

This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (NYSDEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional NYSDEC office. Read the label before applying any pesticide.

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