



Home Fruit Spray Schedule

Disease and insect control measures suggested in this guide are recommended only for home fruit production. When this program is followed, trees and small fruit plants should be reasonably free from insect and disease injury. This spray schedule is developed for the average conditions existing in New Hampshire.

The weather will be the greatest variable related to pest control. Warm, wet weather in the spring favors the development of apple scab, cedar apple rust, fire blight, mildew, rots, and many other diseases. Under such conditions, it will be necessary to spray more often in order to prevent infection. Dry, hot weather is often more favorable for insect population buildup, so it may be more difficult to control insects during hot, dry weather. If surface blemishes on fruit do not bother you, you may follow a less intensive schedule. One such minimal schedule for apples is indicated in the chart.

General Purpose Spray Mixtures

General purpose spray mixtures are useful for the control of common pathogens and insects that attack fruit, except pathogens that cause black knot of plum, cedar apple rust, fire blight, peach leaf curl and peach tree borers. Some mixes are labeled for tree fruit only. Check the label before you buy. The ingredients usually include one or more insecticides (such as carbaryl, permethrin, malathion, methoxychlor) and one or more fungicides, usually captan.

Reliance on a mixture simplifies spraying fruit. Since all pests do not always threaten your crop in combination, use of the mixture results in some unnecessary spraying. The choice is yours — total reliance on general purpose mixtures is simple and convenient but can be wasteful at times, and may increase the risk of pests and pathogen developing resistance to pesticides. Combining insecticides and fungicides in your sprayer tank as needed is more complex, but uses only what is required.

Garden supply stores sell general purpose mixtures under a variety of names. The ingredient pesticides can also be purchased separately in 1- to 5- pound packages and mixed when used. Refer to the labels before mixing any pesticides.

Supplemental Spray Materials

The proper use of supplementary spray materials can increase the yield of usable fruit. *Bacillus thuringiensis* (Biobit, Dipel, Javelin, Sok-BT, B.t.) is effective on foliage-feeding caterpillars. Sevin is registered for all of the listed crops. It is effective for many pests, including apple and blueberry maggots, Japanese beetles, spittlebugs and tent caterpillars. Some backyard products contain permethrin. It can be somewhat effective on plum curculio (a major, serious tree fruit pest), but not in the concentrations available to backyard growers. To really control plum curculio, adding a

supplemental spray (like carbaryl) is necessary. Spray oil can help control certain aphids, mites, scales, and pear psyllas on fruit trees. Copper soap (copper octanoate) is effective for cedar apple rust, fire blight and peach leaf curl. Myclobutanil is effective against brown rot and cedar apple rust. *Bacillus subtilis* (Serenade) is registered for fire blight and gray mold, and potassium bicarbonate is effective for powdery mildew. The following paragraphs will give examples and situations where supplementary sprays or sanitation may be helpful.

Diseases

Black Knot of Plum and Cherry. This disease causes black knots on twigs and spurs. It is controlled by cutting out and burning the diseased twigs in the fall, winter, or early spring. All infected wild trees adjacent to the orchard should be destroyed, if possible, to prevent spread of the disease.

Brown rot of cherry, peach and plum. The fungus overwinters on mummified fruit hanging on the tree or on the ground. Clean up fallen fruit before, during and after harvest. Remove and destroy all unharvested fruit and mummified fruit from trees after harvest.

Cedar Apple Rust. The fungus causing this disease overwinters on red cedar trees growing nearby. These trees should be removed, where practical, or remove galls in late winter to reduce infection on apple leaves and fruit. Rust can be controlled by applying copper soap (copper octanoate) prior to pink bud, or myclobutanil from half-inch green through pink.

Fire Blight on Apple and Pear. This disease primarily affects spurs and twigs. It is controlled by cutting out and burning blighted branches as soon as they are seen. Cut at least 6-12 inches below any sign or symptom of the disease. After each cut, disinfect the pruning tools with a mixture of 1 part chlorine bleach and 9 parts water. If there is a history of fire blight, copper soap can be applied as a late dormant spray or *Bacillus subtilis* can be applied at bloom.

Gray Mold of Strawberry and Raspberry. This disease is also called botrytis rot. Cultural practices that promote air circulation can reduce infections. A 3 spray program (just before bloom, full bloom, petal fall) may eliminate the need for fungicides during harvest. Captan or *Bacillus subtilis* are registered.

Apple Scab. When growing scab resistant varieties, fungicides are rarely needed. Examples of resistant varieties are: Freedom, Jonafree, Liberty, MacFree, Nova Easygro, Prima and Redfree. If susceptible varieties are grown, rake and destroy fallen leaves in the autumn.

Peach Leaf Curl. Leaves become curled, crinkled, thickened, and red, pink or purple in color. The disease is controlled by applying copper soap after leaf drop in the autumn or before buds swell in the spring.

Powdery Mildew. Various formulations of wettable sulfur or potassium bicarbonate can aid in powdery mildew problems. Usually not a serious problem in NH.

Mummyberry of Blueberry. Fruit turn grayish, dry and drop off before ripening. Removal of affected fruit before they fall, adding 2" of mulch and spring cultivation will help reduce infections.

Insect pests

Aphids. Insecticidal soap or malathion may help in aphid outbreaks, but most aphids are held in check by predators.

Leaf-Feeding Caterpillars. Gypsy moth, tent caterpillars, fall webworms and others may be controlled by applying a spray with *Bacillus thuringiensis*. Trade names include Dipel, Sok-BT, Javelin, Biobit, and others. The material must be eaten by caterpillars in order to work. Read the label before buying! Some strains of *B.t.* do not work on caterpillars. The label will clearly indicate what pests are affected.

Japanese Beetle. This insect is sometimes a problem; add carbaryl (Sevin) to the spray mixture or use carbaryl alone.

Pear Psylla. Psyllas suck plant juices, and can stunt pears. Blackened leaves and twigs are signs of psyllas. High rates of nitrogen fertilizer often create psylla problems. Insecticidal soap may help with psyllas.

Peach Tree Borers. These insects attack the trunk and main limbs of the tree and are best controlled by spraying the trunk and the crotches thoroughly during July and August with an insecticide that lists peach tree borers on the label. Mechanical injury to the trunks greatly increases attractiveness to peach tree borers, to lay eggs.

Scale Insects. These are sometimes troublesome on backyard fruit plants. Apply a “superior” oil spray, 5-6 tbs. per gallon of water or 2 1/2 cups per 5 gallons of water, when buds begin to swell in the spring. Be sure to thoroughly wet the entire surface of all limbs and twigs, especially the top of plants and trees.

Soil Pests. Several soil insect pests such as white grubs may be troublesome in strawberry beds. To avoid such problems, don't locate the beds in areas where grass grew the previous year.

Spray Schedules for tree and small fruit can be found on pages 4 and 5 of this fact sheet.

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SPRAY SCHEDULE FOR TREE AND SMALL FRUITS

Use appropriate materials for the pests indicated (consult pesticide labels).

Watch for supplementary materials (time of application) and pests to be controlled.

All timing is geared to stages of development in *apples*.

Apple Tree Development & Approx. Dates	Apple	Minimal Spray Schedule - Apple	Pear	Peach	Plum
Half-Inch Green - 2 or 3 sepal leaves April 15-25	Spray with oil at least once every 3 years ~ Rust (mites)	Spray with oil at least once every 3 years ~ (mites)	Spray with oil ~ pear psylla) during swollen bud stage		
Tight Cluster –buds still in tight cluster May 1-10	Scab Rust Bud moth Plant bug	Scab (fungicide only)	Pear psylla Aphids		
Pink -blossom buds separated & stems elongated some May 10-20	Scab Sawfly Tent caterpillars	Scab Sawfly Tent caterpillars	Scab	Blossom buds showing pink (captan only)	
Bloom -flowers open May 15-30	Scab (fungicide only)	Scab (fungicide only)		Petal fall Tarnished plant bug Brown rot	Petal fall Brown Rot (fungicide only)
Petal fall -75-90 % of petals off May 25-June 8	Scab Curculio	Scab Curculio	Pear psylla Curculio Scab Leaf spot	Shucks splitting Plant bugs Curculio Brown rot	7 days after petal fall Curculio Leaf spot Brown rot
1st Cover -1 week after petal fall June 7-14	Scab Curculio Leafrollers Mites	Scab Curculio	Pear psylla Curculio Scab Leaf spot	Plant Bugs Curculio Brown rot Scab	Shucks splitting Curculio Leaf spot
2nd Cover -1 week after 1stcover June 15-21	Scab Curculio Codling moth		Pear psylla Plant bugs Codling moth Leaf spot	Plant bugs	Curculio Leaf spot Plant bugs
3rd Cover -2 weeks after 2ndcover July 1-10	Scab ! Apple maggot • Codling moth	Scab ! Apple maggot *		Peach tree borers +	Leafhoppers Plant bugs Mites
4th Cover -2 weeks after 3rd cover July 14-20	Scab ! Apple maggot •	Scab! Apple maggot *	Codling moth		
5th Cover -2 weeks after 4thcover July 28-August 5	Scab ! Apple maggot •	Scab ! Apple maggot *		Peach tree borers +	
6th Cover -2 weeks after 5thcover August 14-August 21	Apple maggot •	Apple maggot *	Codling moth	Brown rot (captan only)	3 weeks before ripening Brown rot (fungicide only)
7th Cover -2 weeks after 6thcover August 28-Sept. 4				Brown rot (captan only)	10 days before ripening Brown rot (fungicide only)

~ Spray oil (60-70 Second)

+Treat trunk and main limbs

! Spray for Scab only if scab lesions are visible on leaves or fruit.

SPRAY SCHEDULE FOR TREE AND SMALL FRUITS

Use appropriate materials for the pests indicated (consult pesticide labels).

Watch for supplementary materials (time of application) and pests to be controlled.

All timing is geared to stages of development in *apples*.

Apple Tree Development & Approx. Dates	Sour & Sweet Cherry	Strawberry	Grape	Raspberry	Blueberry
Half Inch Green -2 or 3 sepal leaves April 15-25					Loose bud scales Mummy-berry
Tight Cluster -buds still in tight cluster May 1-10				When leaf buds begin to swell Anthracnose (lime sulfur)	Mummyberry
Pink -blossom buds separated & stems elongated some May 10-20		Just before bloom Fruit rots, Tarnished Plant Bug, Strawberry weevil	Shoots 6-8 inches long Berry moth, Black rot Mildew		Pink bud Mummyberry
Bloom -flowers open May 15-30	Petal fall Curculio, Leaf spot Brown rot	Bloom Fruit rots		New canes or suckers 6-12 inches long Anthracnose	Just after bloom Fruitworms
Petal fall -75-90 % of petals off May 25-June 8	Shucks splitting Curculio, Cherry maggot, Brown rot	Berries 1/3 grown Tarnished Plant Bug Fruit rots	Just before bloom Berry moth, Black rot, Grape flea beetle		
1st Cover -1 week after petal fall June 7-14	Leaf Spot		Immediately after bloom Black rot, Mildew, Leafhopper, Rose chafer, Grape flea beetle	Just before bloom Fruitworm Strawberry weevil gray mold	
2nd Cover -1 week after 1st cover June 15-21	Fruit turning color Maggot, Leaf spot, Brown rot	When first berry turns pink (fungicide only)	Grape flea beetle Rose chafer	After bloom gray mold	
3rd Cover -2 weeks after 2nd cover July 1-10			Grapes - pea size Black rot, Mildew Berry moth, Rose chafer		When first berries turn blue Maggot •
4th Cover -2 weeks after 3rd cover July 14-20	After harvest Leaf spot Mites		Grapes touch in bunch Black rot, Mildew, Berry moth, Rose chafer, Japanese beetle		
5th Cover -2 weeks after 4th cover July 28-August 5		(Renovate patch) after harvest Cyclamen mites	Japanese beetle		Repeat of last spray may be necessary
6th Cover -2 weeks after 5th cover August 14-August 21			When grapes are turning color (Veraison) Berry moth, Mildew, Rots		
7th Cover -2 weeks after 6th cover August 28-Sept. 4					

•Add carbaryl (Sevin) to mix. *Treat every 10 days with Sevin, starting when adults appear on traps. Stop when no more maggot flies are trapped.