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# 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 you can expect an abundance of unblemished fruit. Trees and small fruit plants will 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 build-up, so it may be more difficult to control insects during dry weather. If surface blemishes on fruit do not bother 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, and peach leaf curl, and peach tree borers. Some mixes are labelled for tree fruit only. Check before you buy. The ingredients usually include one or more insecticides (carbaryl, imidan, malathion, methoxychlor) and one or more fungicides, usually captan.

Reliance on a mixture simplifies spraying fruit. Since 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. Combining insecticides and fungicides as needed is much 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.

A general purpose dust containing captan, malathion, and methoxychlor may be used instead of spray. It may be less effective for some pests and is more likely to drift. It should be applied at more frequent intervals during rainy weather to obtain control equal to sprays. Generally, dusts are more toxic to honeybees than other formulations.

## 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. Imidan is registered for use on many fruit crops for control of many insects listed in the schedule, and gypsy moth, Japanese beetle, apple and blueberry maggots. 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. Products containing rotenone or pyrethrum may be useful for some insects.

Spray oil can help control certain aphids, mites, scales, and pear psyllas on fruit trees. Ferbam can control peach leaf curl, black rot of grape and other diseases. Thiram is registered for brown rot of peach, gray mold of strawberries, apple scab and other diseases. It is also a taste repellent for deer and rabbits. The following paragraphs will give examples and situations where supplementary sprays 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.

**Cedar Apple Rust** The fungus causing this disease overwinters on red cedar trees growing nearby. These trees should be removed, where practical, or the galls removed in late winter to reduce infection on apple leaves and fruit. Rust can be controlled by applying ferbam or thiram before or during wet periods from petal fall through first cover.

**Fire Blight on Apple and Pear** This disease 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.

**Gray Mold of Strawberry and Raspberry** Rovral, Ronilan, and Folpet are effective. This disease is also called *botrytis* rot. A 3 spray program (just before bloom, full bloom, petal fall) may eliminate the need for fungicides during harvest.

**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.

**Peach Leaf Curl** Leaves become curled, crinkled, thickened, and red or purple in color. The disease is controlled by applying ferbam (Fermate) at the rate of 1 1/2 tbs./gal. or 6 oz./25 gals. of water during the dormant season, before buds swell in the spring.

**Powdery Mildew** Various formulations of wettable sulfur can aid in powdery mildew problems. Usually not a problem in NH.

**Mummyberry of Blueberry** Fruit turn grayish, dry and drop off before ripening. Removal of affected fruit before they fall, and use of Funginex at tight cluster and pink bud stages will help.

## Insect pests

**Aphids** Use of insecticidal soap or malathion may help in aphid outbreaks.

**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.

**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 worsen 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 a general purpose spray mixture.

**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 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
<b>Half-Inch Green</b> - 2 or 3 sepal leaves April 15-25	Spray with oil at least once every 3 years ~ (mites)	Spray with oil at least once every 3 years ~ (mites)	Spray with oil ~ (pear psylla) during swollen bud stage		
<b>Tight Cluster</b> - buds still in tight cluster May 1-10	Scab Bud moth Plant bug	Scab (fungicide only)	Pear psylla Aphids		
<b>Pink</b> - blossom buds separated & stems elongated some May 10-20	Scab Sawfly Tent caterpillars	Scab Sawfly Tent caterpillars		<b>Blossom buds showing pink</b> (captan only)	
<b>Bloom</b> - flowers open May 15-30	Scab (fungicide only)	Scab (fungicide only)		<b>Petal fall</b> Tarnished plant bug Brown rot	<b>Petal fall</b> Brown Rot (fungicide only)
<b>Petal fall</b> - 75-90 % of petals off May 25-June 8	Scab Curculio	Scab Curculio	Pear psylla Curculio Scab Leaf spot	<b>Shucks splitting</b> Plant bugs Curculio Brown rot	<b>7 days after petal fall</b> Curculio Leaf spot Brown rot
<b>1st Cover</b> - 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	<b>Shucks splitting</b> Curculio Leaf spot
<b>2nd Cover</b> - 1 week after 1st cover June 15-21	Scab Curculio Codling moth		Pear psylla Plant bugs Codling moth Leaf spot	Plant bugs	Curculio Leaf spot Plant bugs
<b>3rd Cover</b> - 2 weeks after 2nd cover July 1-10	Scab ! Apple maggot • Codling moth	Scab ! Apple maggot *		Peach tree borers +	Leafhoppers Plant bugs Mites
<b>4th Cover</b> - 2 weeks after 3rd cover July 14-20	Scab ! Apple maggot •	Scab! Apple maggot *	Codling moth		
<b>5th Cover</b> - 2 weeks after 4th cover July 28-August 5	Scab ! Apple maggot •	Scab ! Apple maggot *		Peach tree borers +	
<b>6th Cover</b> - 2 weeks after 5th cover August 14-August 21	Apple maggot •	Apple maggot *	Codling moth	Brown rot (captan only)	<b>3 weeks before ripening</b> Brown rot (fungicide only)
<b>7th Cover</b> - 2 weeks after 6th cover August 28-Sept. 4				Brown rot (captan only)	<b>10 days before ripening</b> 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
<b>Half-Inch Green</b> - 2 or 3 sepal leaves April 15-25					<b>Loose bud scales</b> Mummyberry (funginex)
<b>Tight Cluster</b> - buds still in tight cluster May 1-10				<b>When leaf buds begin to swell</b> Anthracnose (lime sulfur)	Mummyberry (funginex)
<b>Pink</b> - blossom buds separated & stems elongated some May 10-20		<b>Just before bloom</b> Fruit rots Tarnished Plant Bug Strawberry weevil	<b>Shoots 6-8 inches long</b> Berry moth Black rot Mildew		<b>Pink bud</b> Mummyberry (funginex)
<b>Bloom</b> - flowers open May 15-30	<b>Petal fall</b> Curculio Leaf spot	<b>Bloom</b> Fruit rots		<b>New canes or suckers 6-12 inches long</b> Anthracnose	<b>Just after bloom</b> Fruitworms
<b>Petal fall</b> - 75-90 % of petals off May 25-June 8	<b>Shucks splitting</b> Curculio Cherry maggot Brown rot	<b>Berries 1/3 grown</b> Tarnished Plant Bug Fruit rots	<b>Just before bloom</b> Berry moth Black rot Grape flea beetle		
<b>1st Cover</b> - 1 week after petal fall June 7-14			<b>Immediately after bloom</b> Black rot, Mildew Leafhopper Rose chafer Grape flea beetle	<b>Just before bloom</b> Fruitworm Strawberry weevil gray mold	
<b>2nd Cover</b> - 1 week after 1st cover June 15-21	<b>Fruit turning color</b> Maggot Leaf spot Brown rot	<b>When first berry turns pink</b> (fungicide only)	Grape flea beetle Rose chafer	<b>After bloom</b> gray mold	
<b>3rd Cover</b> - 2 weeks after 2nd cover July 1-10			<b>Grapes - pea size</b> Black rot, Mildew Berry moth, Rose chafer		<b>When first berries turn blue</b> Maggot •
<b>4th Cover</b> - 2 weeks after 3rd cover July 14-20	<b>After harvest</b> Leaf spot Mites		<b>Grapes touch in bunch</b> Black rot, Mildew Berry moth, Rose chafer Japanese beetle		
<b>5th Cover</b> - 2 weeks after 4th cover July 28-August 5		<b>(Renovate patch)</b> after harvest Cyclamen mites	Japanese beetle		Repeat of last spray may be necessary
<b>6th Cover</b> - 2 weeks after 5th cover August 14-August 21			<b>When grapes are turning color (Veraison)</b> Berry moth, Mildew, Rots		
<b>7th Cover</b> - 2 weeks after 6th cover August 28-Sept. 4					

•Add carbaryl (Sevin) to mix.

\*Treat every 10 days with Imidan or Sevin, starting when adults appear on traps. Stop when no more maggot flies are trapped.

**Waiting Period in Days Before Harvest, Following the Last Application**

	Apples	Blueberries	Cherries	Grapes	Peaches	Pears	Plums	Raspberries	Strawberries
<i>Bacillus Thuringiensis</i>	0	0	0	0	0	0	0	0	0
Captan	14	**0	**0	**0	**0	NR	**0	NR	**0
Carbaryl	1	0	1	7	1	1	1	7	1
Ferbam	7	NR	0	7	21	7	NR	NR	NR
Folpet	0	0	*0	0	NR	NR	NR	0	0
Imidan	7	3	*7	14	14	7	7	NR	NR
Insecticidal Soap	0	0	0	0	0	0	0	0	0
Kelthane	7	NR	NR	7	NR	7	NR	NR	2
Malathion	3	1	3	3	7	1	3	1	3
Methoxychlor	7	14	7	14	21	7	7	14	14
Ronilan	NR	NR	3	NR	3	NR	3	9	0
Rovral	NR	NR	0	0	0	NR	0	0	0
Thiram	0	NR	NR	NR	7	NR	NR	NR	3

NR = Not recommended for use on this crop.

\* = Tart cherries only. \*\* = If applying within 4 days of harvest, wear protective clothing & chemical resistant gloves during picking.

*original fact sheet by Alan T. Eaton, William G. Lord, William E. McHardy and Cheryl A. Smith, reformatted 3/01*

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