

Home Fruit Orchard Sprays

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Fruit trees around the house are damaged by a large number of different insects and diseases. You can control or prevent this damage by well-timed sprays applied properly to the trees.

SPRAY MATERIALS – General purpose spray mixtures are available at your local supply store. These usually contain insecticides to control both insects and mites and fungicides to control a wide range of diseases. Ordinarily, general purpose sprays contain three to four different materials, and the dosage depends upon the percentage of each material present in the mixture. Follow the directions on the package for dosage. These sprays are designed to take care of only the average condition. Additional materials may be needed to control special conditions.

A good general purpose spray may contain the ingredients listed below.

General purpose fruit sprays are those that have been on the market for a period of time and are considered to be commonly available in both large and small supply stores throughout Arkansas. Measure the materials and thoroughly mix in the sprayer immediately before use. Home-mixed sprays are more economical and allow a choice of pesticides, but they require more time to measure and mix. Sprays are best applied when wind is not blowing and trees not in bloom. Thoroughly cover all foliage and fruit with the spray. The fruit tree and grape spray schedules are based on the above mixtures.

FRUIT WORM CONTROL – Three pests feed as larvae inside tree fruits. **Plum curculio** adults begin

		Amount/1 gal
Insecticides:		
Sevin (carbaryl)*	50% wettable powder	3 tablespoons
PLUS		
Malathion	25% wettable powder	3 tablespoons
PLUS		
Sulfur	80-90% wettable powder	3 tablespoons
PLUS		
Fungicides:		
Captan	50% wettable powder	6 tablespoons
PLUS		
Benomyl (Benlate)	50% wettable powder	3 tablespoons
* Do not use Sevin on apples before the second cover spray. The use of Sevin on apples before the second cover spray may cause serious fruit drop.		

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Figure 1. Level ground around tree with a hoe.

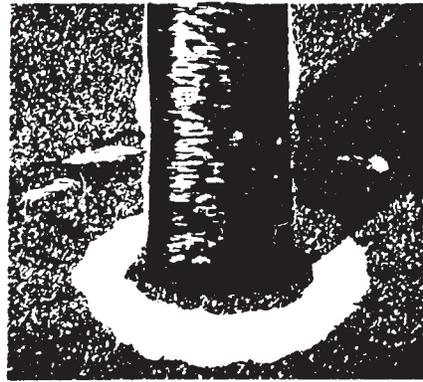


Figure 2. Place Paradichlorobenzene in a continuous band around the tree.



Figure 3. To mound the tree, cover the PDB with three or four inches of soil and then tamp the dirt down with a shovel.

emerging after petal fall, feeding on fruit and laying eggs under skin. Legless larvae then feed on the fruit pulp of apple and prunus fruit. Damage occurs from early April to early May and reoccurs from early June through mid-August. **Oriental fruit moth** attacks apple and prunus fruit. Eggs hatch into white-pinkish, legged larvae that damage fruit in early May and again from mid-June to early October. **Codling moth** attacks only apple. Damage is caused by the white-pinkish, legged larvae. It has an emergence pattern similar to the oriental fruit moth but stops laying eggs in early September. **Grape berry moth** attacks only grape berries. White to greenish, legged larvae attack early grapes in late May, and later generations attack from late June through mid-September.

SAN JOSE SCALE – Occurs on limbs and fruit. Tree limbs and the tree itself may be killed by this scale. It is important to apply dormant oil each mid-March. The general purpose fruit spray should be applied to infested limbs when you detect yellow scale crawlers (legged) on the limbs. Weekly in May, use a hand lens (10x magnification) to check sticky tape wrapped around scaly limbs for the presence of yellow crawlers. The second generation of crawlers emerges during July.

SPIDER MITES – Apply a dormant oil (2% solution) to tree limbs just as buds begin to open in March. Make sure temperatures are above 60°F to ensure oil suffocates mite eggs and young mites on limbs and below 90°F so oil does not burn foliage. In June or July, check leaves weekly for mites. If there are more than 5 mites per leaf, apply a miticide such as Kelthane, sulfur or Vendex. Diazinon will also

suppress mites and can be purchased in small quantities at most supply stores. Mites are very damaging and prevalent during hot, dry weather, causing loss of green leaf color, a yellowish or bronze tinge and webbing under the leaf surface. They are very small spider-like creatures, yellow to red in color and readily visible with a hand lens. Damage becomes severe if there are more than 3 to 5 mites per leaf. Mites are poorly controlled by Malathion and sometimes are made worse by repeated Sevin applications because mite predators are killed by these materials.

BORERS – This pest girdles the trunk at or below the soil line and will eventually kill the tree. To control peach tree borers in peaches, plums, cherries or nectarines, wet the lower 12 inches of the trunk and the ground around the trunk with a spray of materials containing permethrin or esfenvalerate as the active ingredient.

Nursery stock and fast-growing young trees should be re-treated in August to keep new trunk growth covered.

Another control for borers in the tree is to remove the gum from the base of the tree and dig out and remove larva. You can also spray the trunk with dormant oil (1/2 cup dormant oil per gallon of water).

Fumigation for Control

Where spraying is delayed until borers have entered the tree trunk, use Paradichlorobenzene (PDB) moth balls to fumigate borers. PDB may be purchased as peach tree borer crystals. Apply in October. When properly used, PDB is effective and inexpensive.

How to Fumigate a Tree

In preparation for fumigation, level the ground around a tree with a hoe (Figure 1). Apply PDB (purchased at supply store as peach tree borer crystals) on the soil around the tree trunk in a continuous band not more than 2 inches wide and about 1 inch from the trunk of the tree (Figure 2).

Table for Use of PDB for Peach Borer		
Age of Trees (Years)	Amount per Tree	
	Heaping Teaspoons	Ounces
1 to 3 years	1 to 2	1/4 to 1/2
4 and 5 years	3	3/4
6 and over	4	1
Very large trees	6	1 1/2

Distribute the fumigant evenly. It should not touch the bark of the tree. (For recommended amounts to apply per tree see the Table for Use of PDB on previous page.) The tree is then mounded with soil (Figure 3). Remove the mound of soil the next spring by bud swell to prevent trunk from being injured by PDB fumes.

BROWN ROT – Brown rot is a fungal disease that is most damaging during the period 2 to 3 weeks before harvest. If weather conditions are wet and brown rot has been a problem in the past, make 2 to 3 applications of myclobutanil (Immunox or Kgro 1.55%) at 1/2 fl oz per gallon of water (5 fl oz per 10 gallons). Applications should be started approximately 3 weeks before anticipated harvest. Use the formulation labeled for bearing fruit trees that does NOT contain an insecticide. Sulfur may also be used for brown rot control. If sulfur is used, spray every 5 to 7 days starting 3 weeks before anticipated harvest when weather conditions are wet.

General Information

To place all trees on the same cover spray schedule, apply the recommended general spray mix to each tree at its petal fall. Spray that tree again on the next established spray date.

Make certain that all surfaces (fruit or foliage) requiring protection are covered with spray. When using a garden hose sprayer, clean the jets frequently with a wire and be sure enough spray material is used each time. A curdling effect resulting from incompatibility of chemicals may occur in the spray tank if wettable powder (WP) and liquid (EC) are mixed in the same tank. Use only WP formulations

alone or only EC formulations alone in the tank at the same time.

Many wettable powder spray materials are lumpy and may plug spray nozzles. Strain the water suspension through a fine brass mesh sieve or nylon hose and/or make sure the intake for the sprayer has a fine brass wire screen. *Thorough*, constant agitation of wettable powders in the spray is essential.

TO CONSERVE HONEYBEES, AVOID MAKING SPRAY APPLICATIONS DURING BLOOM. HONEYBEES ARE EXTREMELY IMPORTANT POLLINATORS OF FRUIT TREES.

Don't save extra spray solution. It is usually better to apply it on the crop than to try to save it. Never pour leftover spray on the ground or down the drain. Refer to pesticide label for proper disposal.

Always use caution when applying pesticides. **READ THE LABEL.** Avoid inhaling the dust when mixing or the mist when spraying. Wear the proper protective clothing (rubber gloves, dust mask) shown on the pesticide label. Wash spilled materials from skin or clothing. Wash clothes soiled with heavy concentrations of spray separately. **ALWAYS FOLLOW PESTICIDE LABEL RESTRICTIONS AND PRECAUTIONS.**

Minimum Time Between Last Spray and Harvest (Consumption)	
Benlate, Captan	14 days
Malathion, Sevin	3 days
Other (check label for restrictions)	

Spray Schedule for Grapes		
Time to Spray	Pests	Material
When new shoots are 3-4 and 8-12 inches long	Black rot	General purpose mix
Pre-bloom – just as first blooms open	Black rot Downy mildew	General purpose mix
10-12 days after pre-bloom	Black rot Downy mildew Grape berry moth	General purpose mix
When berries reach buckshot size*	Black rot Downy mildew Grape berry moth	General purpose mix
Apply spray mix suggested in this fact sheet or a commercial general purpose spray with Folpet or Benlate added at 1 teaspoon per gallon.		
*Repeat at 2-week or weekly intervals if black rot or berry moths are destroying berries. These can be especially severe just prior to harvest.		
Use Benlate in the mixture if powdery mildew is evident on vine or fruit.		

Spray Schedule for Fruit Trees

Time to Spray	Pests	Material/3 gal	Trees to Receive the Application
Dormant – when leaves are off and before buds break (in February)	Peach leaf curl and plum pockets	Bordeaux mixture (2 oz bluestone and 3 oz hydrated lime) or 6 Tb 76% Ferbam	Peach and plum
On a warmish day before new green growth over 1/4" long	Scale	Dormant oil 6 oz Superior summer oil 6 oz	All tree fruits*
Pink – just before blossoms open; include material in each spray for 6 weeks	Apple scab Cedar apple rust	3 Tb 50% Captan or 1 Tb 50% Benlate	Apples and pears
Pink or White – just before blossoms open	Fire blight	Streptomycin – at 5-day intervals till flowers are all gone, 1 tsp 21% Agri-Strep/gal	Pears and susceptible apple varieties
Petal Fall – when most of petals are off and every 7-14 days till harvest: 7 days at beginning and during wet weather and extend to 14 days during dryer, later season	Brown rot Scab Codling moth Plum curculio Plant bugs/Stink bugs	General purpose mix†	All tree fruits*

Mark spray dates, materials used and amounts on a calendar for future reference.

†Most “general purpose” commercial spray materials contain only Captan as a fungicide. Should fruit rot problems become noticeable, switch to myclobutanil or add Benlate at the recommended rate to the commercial mixture. Benlate or wettable sulfur are effective on powdery mildew (causes crinkly leaves with a dusty surface) and may be added to the mixture.

NOTE: Cherry tree leaves are badly damaged by a leaf spot which may cause early leaf loss and fruit set the next year. Extend the regular fungicide spray schedule, making one application after harvest, to reduce this problem. Benlate is effective and may be used alone in the postharvest application.

*“All tree fruits” includes apples, pears, plums, cherries, nectarines, peaches. If a severe plum curculio problem occurs, Imidan could be added to the spray on peaches or plums.

Spray Benlate on the fruit just before harvest (but not within 14 days of harvest) to prevent fruit rot after picking.

READ INSECTICIDE CONTAINER LABELS CAREFULLY

Dr. J. K. Mitchell, former Extension plant pathologist, was one of the original authors of this fact sheet.

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