



# FRUITS & VEGETABLES

## Backyard Orchard: Stone Fruits

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### Quick Facts...

The best control for peach twig borer on peach, nectarine, apricot and plum trees is a dormant or delayed dormant spray (shortly before bloom).

Cytospora canker is a fungus problem that results in bark damage with an amber to brown gum on trunk or branches.

Peach twig borer and Oriental fruit moth can cause severe twig dieback and damage to fruit if not controlled.

Treat peach, apricot, nectarine and plum trees in July and August to control peach tree borer (crown borer).

Cherries need insecticide sprays from mid-May through harvest where Western cherry fruit fly occurs.

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Insect control on fruit trees should begin with prebloom sprays (dormant or delayed dormant) for scale insects, aphids and mites. Applications of a horticulture oil in combination with an appropriate insecticide will control these insects if applied during late winter or early spring before buds open. Do not apply dormant oil if a heavy freeze is expected; damage to the tree could occur.

Oil sprays need at least 10 to 12 hours to dry before temperatures drop below freezing. In addition, oil sprays darken tree bark and buds, speed up spring bud development, and reduce the ability of buds to withstand cold temperatures. It is therefore best to delay dormant oil sprays until the buds start to break. Make certain that branches in the center of the tree receive adequate spray; inadequate spray coverage, improper spray timing, and selection of improper spray materials are primary causes of poor control. Base the amount of spray on the size of the tree (except when mentioned otherwise). A poorly pruned tree may need up to double the amounts shown below.

<u>Tree Diameter x Height</u>	<u>Amount of Prepared Spray</u>
20 x 20	4 gallons
15 x 15	3 gallons
10 x 10	2 gallons
5 x 5	1 gallon

### Pesticides

Homeowner pesticides are sold under many trade names. Common names of active ingredients are mentioned in this publication. These names are listed on the ingredient list of the label of any pesticide. Similar products from different companies may have different crops included on their labels. For example, several different permethrin products are available: some allow use on apples or cherries, others do not. The percent of active ingredient varies from one formulation to the next. For this reason, recommended rates vary. It is essential to always read and follow the label directions for each product used.

The best control for peach twig borer is a dormant or delayed dormant spray shortly before bloom. Avoid summer applications of insecticides unless peach twig borer is a problem. Sprays are most effective if applied in late May or early June, when the pits of peaches are beginning to harden. Make a second application in mid-July for the second generation.

Protect stone fruit trees from peach tree borer (crown borer) with two spray applications, one during early July and the other during early August. Direct these sprays at the base of the tree. Check stone fruit trees for the peach tree borer as soon as the soil thaws in the spring if the July and August treatments were not made the preceding year (see August 1-10). Treat with para-dichlorobenzene crystals (PDB) if peach tree borer damage is noted. Avoid use of carbaryl (Sevin) if possible because of increased risk of spider mite problems.

## Late March: Delayed Dormant

Mites, aphids, twig borer, cytospora canker.

What: Prune trees, then apply Superior or Supreme dormant oil plus malathion or endosulfan for control of twig borer, aphids and mites. Thorough coverage of twigs is essential for control of overwintering eggs.

Cytospora canker is a fungus problem that damages bark and underlying wood tissue and results in an amber- to brown-colored gum on trunk or branches. Do not confuse this disease problem with peach tree borer, an insect that results in a clear to black ooze containing wood or sawdust chips at or below the ground.

Few, if any, options are available for control of Cytospora canker currently with the loss of benomyl several years ago. Solar heating of south and southwest-facing bark tissues on the tree trunk and north and northeast pointing branches induces sun-scald (Southwest injury) during winter months. Sun-scald increases severity of Cytospora canker, so one way to minimize the impact of Cytospora canker is to paint the bark of the trunk and affected branches with a diluted white interior latex paint (diluted 1-to-1 or 1-to-2 with water). Also, avoid improper, flush pruning cuts and avoid leaving pruning stubs longer than 0.5 to 0.75 inches.

Dates indicated are approximate. They vary with elevation, exposure and variety. Stage of bud development (i.e., pink stage) is a more dependable way to schedule needed sprays.

## Early April: Pink Stage

Aphids, mites, Oriental fruit moth<sup>2</sup>, twig borer.

What: Pink stage is when the flower buds start to show pink, before the tree blooms. If you missed the delayed dormant spray, apply Superior or Supreme oil plus endosulfan or malathion for twig borer, aphids and mites. If you applied a dormant spray and need to treat only for twig borer or Oriental fruit moth, apply Bacillus thuringiensis, Bt, (aizawai or kurstaki strain).

## Mid-April: Petal Fall

Aphids, powdery mildew, rusty spot, Coryneum blight, Oriental fruit moth, twig borer.

What: If aphids are present, make another application of malathion to which a surfactant (e.g., liquid dishwashing soap) has been added. Coverage inside the leaf curls is very difficult but necessary for control. Apply a spray of Bt (aizawai or kurstaki) strain if Oriental fruit moth or twig borer are a problem.

The apple powdery mildew fungus can infect peach, apricot, and nectarine and cause a "rusty spot" on peach. The term "rusty spot" is used because dark-reddish or rusty-brown spots are present on the fruit as it begins to mature. It infects only the immature peach and nectarine fruit until the pits have hardened, in late June or early July. This problem is particularly severe when high humidity and showers occur during spring and early summer. Its incidence invariably is highest in apricot, peach, and nectarine plantings within one-fourth mile of highly mildew-susceptible apple varieties. Apply a fungicide (micronized wettable sulfur, myclobutanil, potassium bicarbonate, or thioallophanate) on a 7 to 10 day interval from bloom through pit hardening to control powdery mildew on apricot, peach, or nectarine fruit if this has been a problem in the past (do not use sulfur on apricots).

A second powdery mildew disease, Sphaerotheca mildew, has been found in western Colorado. It differs from rusty spot in affecting the shoots and leaves as well as the fruit of peach, nectarine and apricot. Rusty spot rarely affects the shoots and leaves of these hosts, and it is responsible for the red spider-web discolorations on apricot fruit, not a white felt-like fungal mat on the fruit surface that Sphaerotheca produces. Sphaerotheca overwinters in infected buds on rose, peach, nectarine and apricot. Control is essential when it is observed. Infections typically appear on fruit beginning in early June and on shoots in late June to mid-July. These become most obvious by mid- to late August, just around

This fact sheet contains up-to-date information for homeowner control of insect and disease problems on tree fruits. Insect and disease controls have been combined in an easy-to-follow format. Recommended chemicals usually are readily available to homeowners. In some cases, the concentration of the product listed and what is available locally may differ.

Always read the label directions. Labels often are updated yearly or more often. If there is a conflict between recommendations in this fact sheet and the product label, always follow the product label.

## References

For additional information, see the following fact sheets:

- 2.800, Backyard Orchard: Apples and Pears.
- 2.914, Coryneum Blight.
- 5.507, Spider Mites.
- 5.520, Stone Fruit Insects.
- 5.560, Pear Slugs.
- 5.566, Peach Tree Borer.
- 5.569, Insect Control: Horticultural Oils.

harvest. Damage to the fruit is much more severe than that caused by rusty spot. Warm, humid summer weather is particularly favorable for development of this disease. For control, apply the same materials on the same intervals as above for the rusty spot from early June through July.

Cherries (especially sweet cherries) are susceptible to another powdery mildew that affects shoots, foliage, and (if infection comes early enough) fruit. Infections between bloom and pit hardening can cause severe skin scarring; later season infections (after pit hardening) can result in severe infections on new shoots and leaves that reduce winter hardiness for those shoots and their buds. For control, apply the same fungicides listed above for rusty spot beginning at bloom (if wet weather occurs then) and continuing until pit hardening (usually around early June).

Coryneum blight appears on young peach, nectarine and apricot leaves and twigs (occasionally on sweet cherries) as small purple-red spots that enlarge and become purple with a whitish-tan center. These spots eventually drop out of the leaf blade, hence the name "shothole disease."

On fruit, spots may first appear at or just following shuck split (when the flower base covering the young fruit splits and falls off the enlarging fruit, roughly 10 to 12 weeks prior to harvest) and can continue to appear through pit hardening (late June). Infections that occur on fruit two to three weeks before harvest can develop rapidly to produce sunken rot spots up to 1/2 inch in diameter and depth. This fungus disease is most severe in years when frequent showers occur in late spring and summer. Treat with a fungicide (captan, chlorothalonil, myclobutanil, or copper hydroxide) at petal fall and just before wet weather periods through June. Watch cut-off dates on the fungicide labels as some cannot be applied after shuckfall (loss of the flower part covering the young fruit). Chlorothalonil can be applied until shuck fall on all stone fruit; it can provide season-long control with one spray.

Sweet cherry leaves are similarly affected with a disease called cherry leaf spot caused by the fungus *Coccomyces*. This causes small purple spots on the upper leaf surface. Tissue in the center of the spot dies and sometimes falls out, leaving a shothole appearance. This problem is more common during moist conditions. Treatment rarely is needed in western Colorado.

## Early to mid-May

Western cherry fruit fly.

What: Apply spinosad, carbaryl, esfenvalerate, or permethrin to protect cherries from this insect. Apply every 10 to 14 days until harvest (note the pre-harvest interval for the product used). Some carbaryl products allow use on cherry for this pest and have a 1 to 3 day waiting period; limit use of carbaryl to one spray because it can lead to mite problems.

## Early to mid-June

Twig borer, Oriental fruit moth, Western cherry fruit fly.

What: Apply permethrin, esfenvalerate, or spinosad to help prevent twig borer damage to apricot, plum, nectarine and peach fruit. Young larvae feed on shoot terminals and the stem end of fruit. Treat for Western cherry fruit fly as noted above.

## June - August

Peach tree borer (crown borer), Western cherry fruit fly, twig borer, Oriental fruit moth, pear or cherry slug, *Sphaerotheca* mildew.

What: Apply permethrin, esfenvalerate, or carbaryl to control peach tree borer. This insect bores into the lower trunk (usually near ground level) of peach, apricot, cherry, nectarine and plum trees. Its feeding injury can kill the

tree. Applying these materials at the time recommended may not comply with the recommended pre-harvest interval (PHI) prior to harvest of the crop. If this is the case, apply the treatments early to allow for the proper number of days. Peach tree borer sprays are applied only to the trunk and soil around the base of the tree.

Apply an insecticide to help control twig borer and Oriental fruit moth on apricot and peach, and Western cherry fruit fly on cherry (see June). This treatment also helps control pear and cherry slug, the larval stage of a large-bodied sawfly. The larvae resemble slugs and feed on leaves, stripping the green tissue leaving only the veins.

Where *Sphaerotheca* mildew occurs, protect peaches, nectarines and apricots with weekly mildew sprays as described earlier.

## Harvest Period

Coryneum blight.

What: If coryneum blight spots are present and showers occur just before harvest, spray with captan. Note the required four-day re-entry period between captan applications and re-entering the orchard.

## August 1 -10

Peach tree borer.

What: Second treatment for peach tree borer (crown borer).

How: See June-August application. If July and August treatments were missed or inadequate, masses of clear to black gum with minute sawdust-like bark chips may exude from around the base of the tree. The damage usually occurs from 6 inches above, to 2 to 6 inches below the soil surface. Check for borer larvae if this occurs. These white worms with brown heads feed on living tissue as they tunnel beneath the bark. If larvae are noted, apply paradichlorobenzene (PDB) to fumigate the root system. You can use PDB in the spring, but early fall treatments are preferred. Apply the crystals in a ring completely encircling the trunk, not closer to the bark than 1 inch or farther away than 3 inches. Cover the crystals with soil to confine the PDB gas. Do not apply the treatment when soil temperature is below 60 degrees F. Follow label directions for the amount of material to use per tree.

A treatment for peach tree borers in July and August as indicated previously should prevent root damage and eliminate need for PDB treatment.

## Fall treatment

Coryneum blight.

What: If coryneum blight was severe, spray after leaves drop.

How: Use chlorothalonil or copper hydroxide fungicides. Follow the directions when diluting with water.

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<sup>2</sup>Oriental fruit moth is limited mainly to the Palisade and East Orchard Mesa areas of Mesa County.

Table 1. Pesticides for use in stone fruits. Not all trade names may be mentioned. Always read and follow label directions before using any pesticide.

Common name	Trade name(s)	Crops	Pests	Comments
<u>Insecticides:</u>				
Bacillus thuringiensis	Dipel, Thuricide, many others	peach, apricot, cherry, plum, nectarine	Moth larvae only.	A biological (bacterium) control, short residual.
carbaryl	Sevin Concentrate (GardenTech), Sevin Redy-To-Spray (GardenTech)	peach, apricot, cherry, plum, nectarine	Aphids, scale, moths, fruit flies	May cause mite problems if overused.
endosulfan	Thiodan Endocide	peach, apricot, cherry, plum, nectarine	Aphids, peach tree borer	Toxic. Label varies greatly depending on use.
Esfenvalerate	Bug-B-Gone RTU (Ortho)	All stone fruits	Aphids, peach tree borer (crown borer), peach twig borer, oriental fruit moth, pear slug, W. cherry fruit fly	REI: when dry. Apply on 7-day intervals.
malathion	Malathion Mal-A-Cide Malathion Plus	peach, apricot, cherry, plum, nectarine	Aphids, scale, some moths	May be phytotoxic to some sweet cherry and nectarine varieties
permethrin	Bug-Stop Multi-Purpose Insect Control, plus many others	Peach, nectarine only	Aphids, moths, beetles, fruit flies	Sold under many names and formulations for many uses.
Petroleum oil (97%)	Volk Oil Spray	All stone fruits.	San Jose scale, mites, and aphid and mite eggs	Allow 10 to 12 hours drying time before freezing temperatures.
spinosad	Ferti-Lome Borer, Bagworm & Caterpillar Spray	peach, apricot, cherry, plum, nectarine	Moths, fruit flies	Relatively non toxic to mammals, A byproduct of bacterial fermentation.
<u>Fungicides:</u>				
captan	Captan Fungicide, 50% (Bonide, Hi-Yield)	peach, nectarine	Coryneum blight, peach scab	Can be hard to find.
chlorothalonil	Daconil 2787 (Dragon), Fung-onil (Bonide), Garden Disease Control (Ortho)	Apricot, cherry, peach, nectarine, plum cherry	Coryneum blight, brown rot, leaf spot	Watch pre-harvest intervals (waiting periods between last spray and harvest).
potassium bicarbonate	Remedy (Bonide)	All stone fruits.	Powdery mildew, leafspots	
sulfur	Dusting sulfur 90W (Ferti-Lome), Wettable Dusting Sulfur (90W) (Ferti-Lome), and Sulfur Plant Fungicide (90W) (Bonide)	Cherry, peach, nectarine, plum (Do NOT Use on apricot)	Powdery mildews	Apricots are highly sensitive to injury from sulfur.
thiophante methyl	Benomyl Turf & Ornamental (Bonide), Halt (Ferti-Lome)	All stone fruits.	Powdery mildew	Repeat at 7 to 10 day intervals; One day PHI. Note: the Benomyl material is NOT the same as the former Benlate material which is no longer available.