

# Oregon Agricultural College

## Extension Service

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### SPRAYING CHERRIES

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#### INTRODUCTION.

The object of this bulletin is to give the fruit grower, in condensed form, such information as will assist him to combat the pests and diseases in his orchard with the right materials, at the right time, and in the right way. The recommendations are based upon the most recent available results of experiments and studies carried out in Oregon or of those conducted by reliable workers elsewhere and adapted to Oregon conditions.

The purpose of spraying is not to cure a tree from the effects of a disease or pest by which it has already been attacked, but instead to kill the pest or parasite by hitting it with the proper solution at a stage when it is unprotected or to coat all the susceptible parts of the tree or fruit with a fungicide or insecticide so that the fungus or insect can make its attack at no spot that is not already protected with a layer of fatally poisonous material.

It is evident that spraying cannot be effective unless adapted to the life-habits of the parasite and the conditions of the tree and fruit. Yet many growers apply sprays uselessly at times when the parasite cannot be destroyed or when protection is of no value, while at the critical periods of active infection or attack, spraying is omitted. Other growers fail to do the work thoroughly enough to reach all insects or coat all susceptible parts of the tree. Still others use wrong materials.

Not all orchard troubles are amenable to sprays. There are plant diseases and insect pests which must be combated in other ways. There are also orchard troubles for which no definite control is yet known.

#### GENERAL HINTS.

**Care of the Young Orchard.** If free from disease and insect pests when planted, young orchards seldom require any regular schedule of sprays. Thorough inspections should be made, however, at frequent intervals. All kinds of fruits should be watched for the presence of San Jose scale or other scale insects, aphids, borers, bud weevils, fruit caterpillars and Armillaria root rot. In apple orchards look also for mildew, anthracnose, fire blight, and woolly aphis; in pears, for fire blight, slug, and blister mite; in peaches, for leaf curl, mildew, blight, and twig

miner; in prunes and plums, for leaf spot; in cherries, for bacterial gummosis, leaf spot, slug, and shot-hole borer. When any of the troubles are found, follow out the recommendations outlined for them in the regular spray schedule.

**Pruning.** Pruning should be conducted in such a way as to let light and air into the interior of the tree. This favors rapid evaporation of moisture from leaf and fruit, and thus tends materially to hinder fungus infections. While pruning, inspect the trees for San Jose scale, woolly aphis, and other pests and diseases. In fire blight districts, orchardists should be most careful to sterilize pruning instruments when passing from one tree to the next in apple and pear orchards.

### SPRAY PROGRAM FOR CHERRIES.

Application.	Time Applied.	Pest or disease and materials to use.
1. Dormant Spray.	Just as the winter buds are beginning to open.	For San Jose Scale: Use lime-sulfur, 1-3. For Aphids and Red Spider Mite: Add nicotine, 1-1200 and apply Tanglefoot in band around trunk to prevent ants carrying aphids up the tree.
2. Pre-blossom Spray.	When blossom buds show white just before they open.	For Brown Rot Blossom Blight*: Use Bordeaux, 4-4-50 or lime-sulfur, 1-30. For Bud Moth and Syneta: Add neutral or triplumbic lead arsenate, 7-100.
3. First Fruit Spray.	As soon as most of the "shucks" or calyx parts have fallen.	For Leaf Spot* and Brown Rot: Use Bordeaux, 4-4-50 or lime-sulfur, 1-50, or self-boiled lime-sulfur, 8-8-50. For Syneta: Add neutral or triplumbic lead arsenate, 7-100.
4. Second Fruit Spray.	Apply a month before picking time.	For Brown Rot and Leaf Spot: Use Bordeaux 4-4-50, or self-boiled lime-sulfur, 8-8-50, or Burgundy mixture, 2-3-100. For Slug: Add neutral or triplumbic lead arsenate, 6-100.
5. July Spray.	After the fruit is picked or about first of July.	For Leaf Spot: Use Bordeaux, 4-4-50 or self-boiled lime-sulfur, 8-8-50
6. August Spray.	About the first week in August.	For Cherry Slug and Bud Moth: Use lead arsenate, 3-100.

\*See special discussion on this particular pest or disease.

### POINTERS ON SPRAY MATERIALS.

There are a great variety of commercial spray materials on the market, some of them for general use, many of them for special purposes. Most of these materials are very good when properly used; some are of questionable value when price and purpose are considered, and a few are really dangerous. As a rule the commercial preparations of the various spray materials recommended in this bulletin are standard-

ized, are more convenient to use, and often as cheap as the home-made sprays when the labor and equipment necessary for home preparation are considered. It is important that the material, if a commercial product, be pure and fresh. It should be in the original unopened container and should not have been allowed to dry out or to freeze.

**Arsenate of Lead** is prepared in the paste form and as a powder. Both are equally effective in the control of insects. The proportions recommended in this bulletin are figured on a basis of the paste form. For example, "lead arsenate 4-100" means lead arsenate paste, four pounds to 100 gallons of the dilute spray solution. In case the powdered arsenate is employed, use only one-half as much as recommended.

Two types of lead arsenate occur, known respectively as the basic lead arsenate, (neutral arsenate) or triplumbic and lead hydrogen arsenate, (acid arsenate) or diplumbic. The neutral or triplumbic arsenate of lead is a more stable compound and is safer to use on tender foliage or in combination sprays where there is a tendency to burn. It is recommended for use when combined with lime-sulfur for application on stone fruits after blossoming time. The diplumbic material has much to render it superior for most poison spray work and is considered safe in combination with lime-sulfur on apple and pear. Commercial lead arsenates are generally the acid or diplumbic unless otherwise branded.

**Nicotine** as recommended in this bulletin refers to the concentrated nicotine sulphate, 40 percent solution. A strength of 1-1200, which is equal to one pint in 150 gallons, is sufficiently strong for most troubles; frequently higher dilutions are possible. Soap or lime-sulfur improves the spreading and killing powers of the nicotine solution.

#### IMPORTANT POINTS ON PARTICULAR PESTS AND DISEASES.

**NOTE:** Do not waste poison by spraying for pests or diseases not present in your orchard.

**Brown Rot.** This disease is exceedingly serious in some seasons. Great damage is frequently caused by the blossom blight, but the worst consequence is the rot developing as the fruit matures. It would be well in very severely affected orchards to give a spray just as soon as the petals fall in addition to the regular program. In spraying, cover everything completely. In No. 4 the surface of every fruit should be covered. Only good pressure and a mist nozzle will do adequate work. Resin-oil-soap spreader added to Bordeaux or self-boiled lime-sulfur will increase the covering power. Send for circular.

**Leaf Spot or Yellow Leaf Disease.** This is caused by a fungus known in its summer stage as *Cylindrosporium*. It is the cause of serious defoliation in some sections and the quality of the fruit is affected as well as the vitality of the trees. Spray to keep the foliage covered as it develops in the spring. Use good pressure and cover both upper and under sides. Add resin-oil-soap spreader with Bordeaux or self-boiled lime-sulfur to get better covering power. Send for circular.

**Bacterial Gummosis.** This disease is common and destructive on young sweet cherries in Western Oregon, but is apparently unknown

east of the Cascades. It cannot be controlled by spraying. Send for circular.

**San Jose Scale.** Small ash-gray or blackish, pimple-like scales clustered on the bark. Removing the scale discloses the flattened, oily, lemon-yellow insect beneath. The tree becomes bark bound, devitalized, the cambium layer thin and stained with purple; frequently the bark cracks and excessive gumming occurs, terminal twigs die and retain their foliage in the fall.

Use Spray No. 1. Application advisable only when reasonably sure of presence of pest. Thoroughness essential; drive spray under buds. Oil emulsions just as effective as lime-sulfur; probably advisable to substitute occasionally for beneficial effect on trees. Send for circular.

**Red Spider Mite.** Use Spray No. 1. Application advisable only when reasonably sure that pest is present.

**Aphids or Plant Lice.** The addition of nicotine sulfate, 40 percent, to Spray No. 2 at the rate of two-thirds pint to 100 gallons of the dilute spray is the standard application for plant lice. As aphids are nearly always present in the orchard, this application is generally advisable. Ants carry aphids up to reinfest the tree. Band the tree with tanglefoot or other material to prevent this.

**Fruit Tree Leaf Syneta.** Small, elongate, active, creamy white beetles. Feed on buds, unfolding leaves, blossom petals, and developing fruit, eating out unsightly holes. Use the neutral or triplumbic arsenate of lead, 7-100, in Sprays No. 2 and 3.

**Bud Moth.** Chocolate-brown worm one-third inch long found in mass of webbed leaves at tip of twig.

Add neutral lead arsenate, 7-100 to Spray No. 2. Application advisable only where pest has done injury past season. Send for circular.

**Cherry Slug.** Greenish-brown, slimy, slug-like larvae, which skeletonize foliage of cherry and pear. Use Spray No. 4, adding neutral or triplumbic arsenate of lead, 6-100. Road dust, air-slaked lime, sulfur, or any finely divided powder applied as a dust is also very effective. Send for circular.

**Fruit Maggot.** Small, white, cylindrical maggots found feeding inside the fruit. If lead arsenate sprays are applied for control of the slug, this treatment will ordinarily control the maggot. If special spray is applied, use lead arsenite, 3-50, plus 2 gallons of cheap syrup. Apply with a syringe, 1 pint to the tree as a fine mist. Treat the trees just as fruit begins to color well. Write for circular.

**Borers.** Do not attack healthy trees. Not controlled by sprays. They require special treatment. Send for circular.

#### NOTICE.

More Complete Information on particular pests and diseases and also directions for making any particular spray material may be secured by writing to the Oregon Agricultural College at Corvallis. If information is desired regarding the identity of any insect or disease, send a complete description accompanied, if possible, with specimens of insect or disease and of the affected plants. Wrap the material in a container which will not be crushed in the mails. Put your name and address somewhere on the package.