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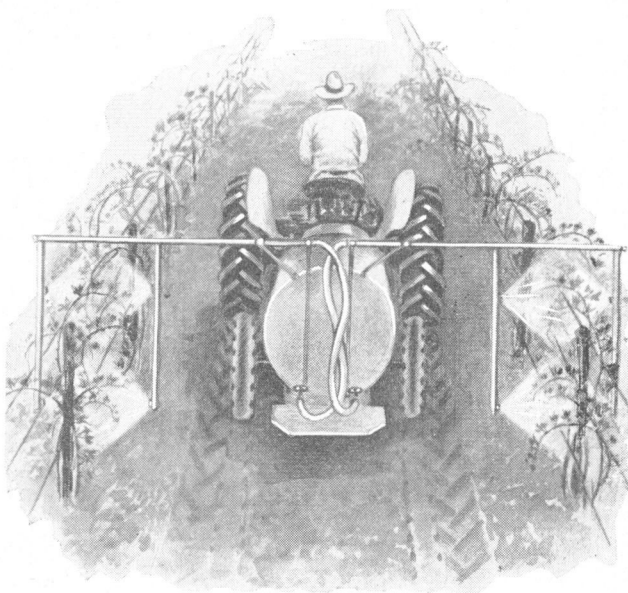
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*Spray Schedule*

*for*

AUG 18 1959

# Diseases and Insects of Cane Fruits



~~DISCARD~~

Federal Cooperative Extension Service  
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**D**ISEASE AND INSECT CONTROL increases yield and improves quality of cane fruits. Oregon cane fruits are subject to insect and disease damage, most of which can be controlled with a planned spray program.

A dormant spray of lime sulfur, preferably in February or early in March, is the first step in a spray program for all cane fruits. All dead or diseased canes should be removed and destroyed.

Some of the more common insects and diseases of cane fruits in Oregon are discussed in this leaflet.

## INSECTS

### Oblique-banded Leafroller

Active, green larvae with black heads. Control with DDT in early May before blossoming. If later sprays are needed, do not apply within 21 days of harvest. TDE is not effective against leafroller.

### Orange Tortrix

Active, yellow-green larvae with brown heads. Control with TDE (DDD). Apply May 1 to 10 when larvae are present. If later applications are needed, do not apply within 21 days of harvest.

### Strawberry Root Weevils

Of the cane fruits, red raspberries are most susceptible to damage by root weevils. New plantings can be protected for several years by application of aldrin or heptachlor, 5 pounds actual per acre, or chlordane, 10 pounds actual per acre, to the soil before planting. See Station Circular of Information 546, "Strawberry Root Weevil Control," for details of this treatment. To control adults while fruit is present use malathion 5% dust at 50 pounds per acre, or 2 pounds malathion 25% wettable powder per 100 gallons of water, or use weevil bait. Do not apply malathion within 7 days of harvest. Before fruit sets or after harvest use either 2½% heptachlor, 2½% aldrin, or 5% chlordane dust at 50 pounds per acre, or use 2 pounds 50% aldrin, or 2 pounds 25% heptachlor, or 2 pounds 40% chlordane wettable powders per 100 gallons of water. All treatments should be directed at the lower part of the canes and the crown area. These treatments kill adult weevils which are most numerous from early June to July.

### Raspberry Cane Maggot

An occasional pest of red and black raspberries. Pres-

## Spray and Dust Program for Cane Fruits

Time of application	Insect or disease	Material and strength*
Spring .....	Anthrachnose	New canes 10" to 12" high: Lime sulfur 2½ gallons.
	Leaf and cane spot	March 10 to 15: Lime sulfur 8 gallons or ferbam 1½ pounds. Two weeks later: Captan 1½ pounds or ferbam 1½ pounds. Add 2 ounces spreader sticker to all sprays. If lime sulfur used in first spray it will control moderate infestations of blackberry mite.
	Powdery Mildew	Control not known. Above sulfur sprays help. Sulfur injures plants in warm weather.
	Yellow rust	Green tip stage: Lime sulfur 4 gallons. Two weeks later: Lime sulfur 2½ gallons or ferbam 1½ pounds. If weather continues humid, 1½ pounds ferbam just before blossoming.
Late spring and summer .....	Oblique-banded leafroller	5% DDT dust, 40 pounds per acre; or 2 pounds 50% DDT wettable powder. Apply early May before blossoming. Do not apply within 21 days of harvest.
	Orange tortrix	5% TDE dust, 40 pounds per acre; or 2 pounds 50% TDE wettable powder. Apply May 1 to 10. Do not apply within 21 days of harvest.
	Strawberry root weevils	Use chlordane or malathion dusts or sprays or use weevil bait. Adults most numerous June and July.
	Spider mites	Treat soon after harvest if mites present on 10% or more of old leaves. Treat in early August if 20% or more of old leaves infested. Use 1½ pounds 18½% Kelthane or 2 pounds 25% malathion wettable powder or 1½ pints demeton. Do not use Kelthane within 2 days, or malathion within 7 days of harvest. Use demeton only as post harvest spray. Demeton very poisonous to humans. Follow manufacturers precautions closely.
Fall .....	Blackberry mite	Summer oil emulsion 3 gallons. Apply after old canes removed. Needed only in case of severe red berry condition. Can be added to Bordeaux spray.
	Leaf and cane spot	Remove and burn affected canes after harvest. Bordeaux 8-8-100 about September 15.
	Raspberry root borer	4 pounds 50% DDT wettable powder. Make second application same rate, 1 to 2 weeks later.
Winter (dormant) .....	Blackberry mite and scale, anthracnose, powdery mildew, cane blights, leaf and cane spot	Lime sulfur 10 gallons.

\* Amounts of spray chemicals recommended are to be mixed with sufficient water to make up 100 gallons of spray. Example: The 3 gallons of summer oil emulsion for blackberry mite control in the fall should be mixed with 97 gallons of water.

ence of insect indicated by canes which wilt and droop in "Limberneck" fashion. Cut off wilted canes close to ground and burn.

### **Spider Mites**

Small 8-legged mites about 1/50 inch long. Their feeding reduces plant vigor and causes leaves to turn yellow and drop prematurely. Found on all cane fruits but do most damage to red raspberries.

### **Strawberry Crown Moth**

Black raspberries are most susceptible. Whitish larvae tunnel in crown and larger roots. No control recommended at present.

### **Raspberry Root Borer**

Cut off wilted canes close to the crown and burn. DDT sprays applied in late September and again 1 week later to lower canes and crowns, have shown promise of control in experimental trials.

### **Blackberry Mite**

Attacks Himalaya and Evergreen blackberries. Presence of this pest indicated by berries which do not ripen normally and remain red and hard after harvest.

### **Scale**

Rose scale most common. Appears as small white scaly spots on canes. Usually held in check by lime sulfur spray in the winter or spring.

## **DISEASES**

### **Anthracnose** (black and red raspberry)

On canes, small, 1/8-inch or more, purplish sunken spots, later turn gray. Older spots are deeper with raised purplish margins. The disease is not always severe enough to warrant the cost of spraying.

### **Cane Gall**

Small, rough ridges of warty growth on fruiting canes. Affects the red, black, and purple raspberry, Himalaya, Boysenberry, Loganberry, and Youngberry. Best control is by setting out disease-free plants from healthy plantings, in soil free from the causal bacterium. Remove and burn severely diseased plants. Remove the contaminated soil about these plants and replace with clean soil. When the disease is not severe, cut out the affected canes and burn. Avoid injury to the plants. The causal bacterium will persist in soil for 5 or 6 years after the susceptible plants are removed.

### **Crown Gall**

Irregular, warty galls on the base of canes or on the roots. Affects all cane fruits as well as many woody

shrubs and fruit trees. Use control practices recommended for cane gall.

### **Leaf and Cane Spot** (trailing berries)

Small, light to dark brown spots on both leaves and canes. Later, spots have whitish center, brownish border. Severe on Loganberry, Boysenberry, Youngberry, Santiam, Chehalem, and the common wild trailing blackberry. Where the disease is particularly severe, the fall spray of Bordeaux should be applied in addition to the dormant and spring sprays.

### **Mushroom Root Rot** (all cane berries)

Decline and dieback of the plant—eventual killing. Autumn: honey colored mushrooms in crown of plants. White, felt-like masses of fungus between the bark and wood in crown of plant. Dark brown or black thread-like strands are often found on plants at ground level or just below. Remove and destroy plants (small roots as well). Do not replant in affected spots. The fungus can live in the soil for many years.

### **Powdery Mildew** (red, black, and purple raspberry and some blackberries)

Whitish-gray powdery mass on leaves, fruit, young canes, fruit spurs, and buds.

### **Verticillium Wilt** (most cane berries)

Yellowing and wilting of foliage. Bluish strips of infected tissue usually extend up the canes from ground level. Himalaya, Evergreen, and wild trailing blackberries seem to be highly resistant.

Plant healthy stock from disease-free plantings. Roguing, and rotations of nonsusceptible grasses and cereals help. Avoid planting where susceptible crops—potatoes, tomatoes, eggplants, peppers, strawberries, and peaches—have been grown previously.

### **Virus Diseases**

To control virus diseases (1) use disease-free planting stock, (2) rogue out and destroy suspicious or diseased plants. When more than 5 percent of the plants in the field are diseased, the value of roguing is doubtful.

### **Yellow Rust** (red raspberry—some varieties)

Yellow pustules on both surfaces of leaves in spring and summer. Also on canes. Black pustles on underside of leaves in autumn. Two spring sprays of lime sulfur, or ferbam usually give control—see spray program.