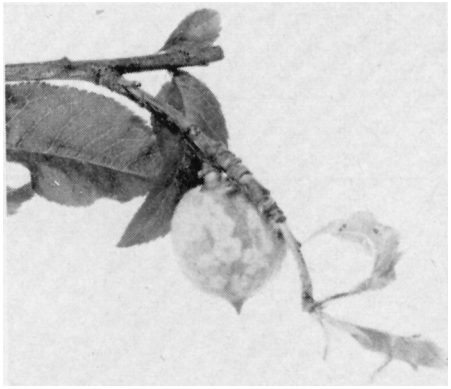
Powdery Mildew on Peach Trees

comparative effectiveness of sulfur and other chemicals for control of peach powdery mildew in tests near Linden

Joseph M. Ogawa and Fred M. Charles



Defoliation from powdery mildew on shoot. Sign of the disease on fruit.

Peach powdery mildew—a fungus disease incited by *Sphaerotheca pannosa* (Wallr.) Lev.—attacks leaves, twigs, and fruit of peach trees.

Susceptibility to the powdery mildew disease varies with the peach varieties. The nonglandular varieties, Peak and Paloro, are known to be the least resistant as compared to the glandular varieties such as Walton, Johnson, Halford, and Stuart.

When infected by the fungus, young leaves may drop or fail to elongate and unfold in a normal fashion, while mature leaves are apparently very resistant to infection. Affected current year's twigs are stunted in growth, and the lateral buds which differentiate into blossom buds may be destroyed. These infected shoots harbor the powdery mildew organism over the winter and provide a source of spores for new infection the following spring.

Immature fruit are highly susceptible to infection, and when infected, develop large roughened lesions. Such lesions interfere with the removal of the skins during canning operations and when present to any great extent, the fruit must be sorted by hand.

Present control programs have not given satisfactory control in many orchards. Consequently, research was directed toward the comparative effectiveness of sulfur and other promising materials in the control of peach powdery mildew.

The trees used in the study were in an orchard located near the town of Linden in San Joaquin County. Heavy losses from powdery mildew have occurred in this orchard in past years. The plots consisted of five replications of two trees of Paloro peach.

The chemicals used in the trials were Karathane WD—dintro (1-methyl heptyl) phenyl crotonate—Acti-dione-cycloheximide—wettable sulfur, and liquid lime-sulfur.

On peach, Karathane WD is available for experimental work only, and pending further studies—to determine the safe dosage and best spreader combinations—it will not be registered. Either of the sulfur treatments may be used since sulfur is not considered a poisonous or deleterious substance and is therefore not subject to a tolerance by the newly established regulations of the Miller Amendment—Public Law No. 518.

Treatments

The trees were given three protective applications; the first on March 24, 1955, when the petals were shedding and the largest leaves were about 1½″ long; the second on April 7 when the floral tube—shuck—had dehisced but had not fallen off and the largest leaves were about 2″ long—occasional diseased shoot tips were observed on this date. The third application was on April 28 when the new shoots were about 2″ long and fruits about 1″ in length. New infections were observed on leaves and shoots at that time. Applications of five gallons of spray per tree were made with the handgun in the first and second applications and seven gallons per tree in the third.

Fungicides for Peach Mildew

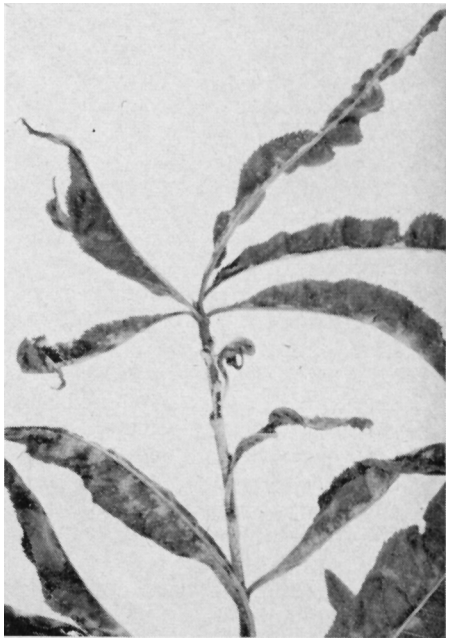
Chemical (per 100 gals. Spray)	Diseased Shoots	Marketable Fruits
	%	%
None	81	31
Liquid lime-sulphur[1]	34	48
Liquid lime-sulphur plus wettable sulfur[2]	43	50
Karathane WD[3]	29	53
Acti-dione[4]	—[5]	—[5]
Difference required for significance	12	9

1st Application

[1] 1 gal. liquid lime-sulfur plus 4 oz. duPont Spreader Sticker.
[2] ¾ gal. liquid lime-sulfur plus 5 lbs. Flotox Wettable Sulfur.
[3] 1 lb. Karathane WD plus 6 oz. Triton B 1956.
[4] 4 ppm Acti-dione plus 2 oz. Triton X 100.

2nd and 3rd Applications

[1] 1 gal. liquid lime-sulfur plus 4 oz. duPont Spreader Sticker.
[2] 5 lbs. Flotox Wettable Sulfur.
[3] 1 lb. Karathane WD plus 8 oz. Triton B 1956.
[4] 4 ppm. Acti-dione plus 4 oz. Triton X 100.
[5] Due to phytotoxicity data were not collected.



Powdery mildew on Paloro peach shoot showing diseased leaves and shoot. Note the killing of the leaves and abundance of fungus growth on shoot.

According to observations on June 16, as given in the table, three materials reduced shoot—five apical leaves—infection.

Data on infection of green fruit were taken on May 18 and May 24. On those dates, sprayed trees had 25% to 30% more disease-free fruit than unsprayed trees. At harvest time the amount of marketable fruit in sprayed trees was about 20% greater than that on unsprayed trees, which had 31% marketable fruit. On May 18, the trees showed numerous old and apparently new infections on the fruits, leaves, and twigs. Since liquid lime-sulfur and Karathane WD are said to exert eradicative fungicidal action, both of these materials as well as wettable sulfur were applied the following day. The concentrations of the chemical were the same as those used in the second and third applications. Data taken four days later and again at harvest time failed to show any visible eradication of the powdery mildew from these treatments.

Concluded on page 16

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MILDEW

Continued from page 7

Karathane WD and sulfur treatments equally reduced the incidence of powdery mildew on peach fruits.

As foliage sprays, Karathane WD and liquid lime-sulfur were found to be equally effective.

The use of a liquid lime-sulfur, wettable sulfur combination in the first application, followed by wettable sulfur applications, was equally effective as liquid lime-sulfur but less effective than Karathane WD.

Karathane WD, although an effective mildew fungicide, produced slight phytotoxicity to the foliage.

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California Avocado Society $400.00
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