



Cantaloupe leaf, left photo, covered with fungus colonies of the Cantaloupe Powdery Mildew was from untreated check plots as reported in these studies—in contrast with leaf below, from plot treated with wettable-powder Karathane.



Excellent control of powdery mildew of cantaloupe was obtained by using the recommended rate of $\frac{3}{4}$ pound Karathane wettable powder (25%) per acre applied as a spray, in Palo Verde Valley tests, Riverside County, in 1961.

Control of CANTALOUPE POWDERY MILDEW

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POWDERY MILDEW, caused by the fungus *Erysiphe cichoracearum*, is a disease of economic importance on cantaloupes in the desert valleys of California. When present, this disease usually causes near crop failure. Infected vines become defoliated, resulting in sunburn injury to the exposed fruit and a generally inferior melon quality and decline in yield. In the Palo Verde Valley, growers usually control powdery mildew by dusting with 1% Karathane, using 30 to 40 pounds of material per acre, depending on plant size. Fungicidal spray applications have been used with good success by a minority of growers, but equipment for application has been limited.

Fungicidal tests were made to determine the effectiveness of several materials

as sprays for the control of powdery mildew of cantaloupe. Karathane wettable powder (25%) was used at the rate of $\frac{3}{4}$ pound per acre. Liquid Karathane (48%) was used at the rate of $1\frac{1}{2}$ pints per acre. This dosage—about four times the amount recommended—was used to see if any toxicity developed at this excessive rate when applied during high desert temperatures, and to determine if control could be significantly improved over the standard recommended dosage. Ortho V-G fungicide, containing Phaltan and Zinc Coposil, was used at 4 pounds per acre.

Fungicides were applied to the cantaloupe plants by using a commercial spray rig with nozzles set approximately 16 inches apart. One hundred gallons of ma-

terial were used per acre, at a pressure of 400 pounds per square inch. Four ounces of Triton B-1956 were added to each 100 gallons as a surfactant. Plots, four beds wide and 450 feet long, were replicated four times.

Treatments, which began as soon as the powdery mildew colonies appeared on the underside of the leaves, were applied on June 1, 7, and 14. Evaluation of the disease control was made on June 15 and 26. Results were obtained by sampling 20 leaves per plot at random, scoring them on a scale of 1 to 5, and averaging for each plot. A "1" rating indicated at least one colony of powdery mildew fungus per leaf. A "5" rating indicated a leaf with a lower surface completely covered by mildew colonies. Control of powdery mildew in the plot, with fungicide tested, is listed in the table.

All materials gave significant disease control. Liquid Karathane and wettable-powder Karathane were significantly better than the Ortho V-G treatment. Liquid Karathane (at four times standard dosage) was significantly better than the

MATERIAL	RATE PER ACRE	ACTIVE INGREDIENT PER ACRE	POWDERY MILDEW RATING	
			June 15	June 26
Liquid Karathane (48%)	$1\frac{1}{2}$ pints	12 oz.	0.3	0.4
Karathane wettable powder (25%)	$\frac{3}{4}$ pound	3 oz.	0.7	1.1
Ortho V-G—Phaltan, 6.25%; Zinc Coposil, 18.75%	4 pounds	0.25 lb.	1.2	2.1
		0.75 lb.		
No treatment			2.9	4.2

wettable-powder Karathane (standard rate dosage) at the 5% level, but not at the 1% level of significance.

Temperatures as high as 106°F occurred during the application of materials. A slight toxicity developed on the plants treated with the high dosage of liquid Karathane. Affected plants showed some browning, but it was only severe where plants were weak and unthrifty. No toxicity was noted where the standard dosage, wettable-powder Karathane was used.

Plants in untreated plots had many dead leaves, and were collapsing by June 26. These plots could be easily identified by their brown appearance. Karathane-treated plots still had an overall green appearance on this date, with very little mildew.

Samples of cantaloupes were obtained on June 20 from the standard Karathane wettable powder and Ortho V-G plots for analysis of fungicide residues. No residues were found in the fruit rind or pulp from plants treated with these materials.

This test indicates that $\frac{3}{4}$ pound of 25% wettable powder Karathane per acre applied as a spray on three successive occasions, at intervals of seven days after mildew first appears, gives excellent control of powdery mildew of cantaloupe. Using an excessive dosage of liquid Karathane did not appreciably improve control from a practical economic standpoint.

The remainder of the test plot field was treated by the grower with 1% Karathane dust, using 30 to 40 pounds per acre. The dust formulation was applied by a ground duster. Notes taken in this part of the field indicated that Karathane dust, applied by a ground rig, appeared to be equal in mildew control to the spray application of Karathane. It should be emphasized, however, that this was not a replicated plot, but only a rating of leaf samples in a randomly selected area of the grower's field.

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Valley Sprayer and Duster Service, Inc., Glendale, Arizona, assisted by applying the materials; John Norton Farms, Inc., cooperated by supplying land and melon plants for spraying; California Chemical Company supplied the V-G fungicide; and Rohm and Haas Company supplied the Karathane fungicide.



Overall quality of poinsettia plants fertilized with liquid fertilizer, Magamp, or a combination of both (center). Note clay pot on the right, fertilized with Magamp, has no algae, whereas pot on left (liquid fertilizer only) is almost completely covered with algae. Center pot supplied with both fertilizers showed only a moderate amount of algae.

SLOW RELEASE FERTILIZERS

for Poinsettia Pot Plants

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POINSETTIA pot plants must be grown under relatively moist conditions and with a relatively high supply of nutrients to produce a quality flower. Growers start plants in July or August for sale during the Christmas season. During this four- or five-month period, the plants may be irrigated with as much as 100 inches of water, making the maintenance of fertility levels difficult. Irrigation water is sometimes used to maintain fertility, but not all growers have liquid fertilizer equipment. Newly developed slow-release fertilizers are especially adaptable for high value ornamental crops, such as poinsettias, to provide the mineral nutrients over a prolonged period of time.

In experiments with two slow-release fertilizers, a single application at planting supplied the total nutrient requirements for poinsettia plants. The two fertilizers used were magnesium ammonium phosphate and coated, granulated fertilizers—both discussed in previous issues of *California Agriculture*. Results of the experiments, conducted simultaneously at University of California, Los Angeles, and at commercial flower establishments in the San Francisco area, were essentially the same and are reported together.

In the experiment where magnesium ammonium phosphate, "Magamp" (8-40-0), was used, highest quality plants were those given between 2 and 3.5 grams of nitrogen on the soil surface. The bracts

were larger, the leaves greener and the plants better proportioned than those grown entirely on a liquid fertilizer program (see photograph). If one gram of nitrogen from Magamp was surface applied, and used in combination with the liquid feed program, the plants which resulted were also of very high quality. When Magamp was incorporated into the soil prior to planting, the amounts necessary for good growth were less than when the materials were surface applied. One to two grams incorporated into the soil gave good results, but plant quality was not quite equal to those surfaced dressed with 3 to 3.5 grams of nitrogen. When 3 grams of nitrogen were mixed into the soil prior to planting, injury to the plant resulted, whereas up to 5.5 grams N could be safely applied to the surface before the first signs of plant injury were evident. The margin of safety is greater when Magamp is surface dressed than when it is mixed into the soil. In all cases where "Magamp" was applied, four grams of heavy coated muriate of potash was used to supply the necessary potassium.

Coated fertilizers like Magamp are also a very effective means of supplying nutrients to poinsettia pot plants over long periods of time, as results in the table indicate. A split application of 3 grams at planting and a similar amount as a top dressing at a later date resulted in plants equal to or better than those on a liquid