

**P**owdery mildew caused by the fungus *Sphaerotheca fuliginea* (Schlecht.) Poll. is responsible for reduced cantaloupe, cucumber, and squash yields in many production areas. Trials were initiated to test several new materials for control of the fungus.

### Cantaloupe (*Cucumis melo* L.)

A cooperative trial using the Top Mark cantaloupe was established at the USDA Horticulture Field Station, La Jolla, in the summer of 1973. Table 1 gives materials and rates. Treatments were

# Fungicides for control of cucurbit powdery mildew

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replicated four times. All materials were applied to the point of runoff with a Hudson 2-gallon CO<sub>2</sub> pressurized sprayer at 30 psi. Applications were made on July 26, August 9, and August 23.

Benlate, Bay 18654, and RH 3928 gave excellent control of the fungus throughout the growing season and were significantly better than other treatments. The check plots supported luxuriant growth of the fungus, which resulted in yellowing and senescence of cantaloupe leaves.

Afugan and sulfur provided intermediate control and were significantly better than no treatment. Sulfur gave excellent control on the top surfaces of leaves but relatively poor control on undersurfaces; this suggests that good coverage is necessary for control with nonsystemic fungicides.

### Cucumber (*Cucumis sativa* L.)—1973

Cucumber plants 12 inches high were selected for a 1973 trial near

Oxnard. Table 2 shows materials and rates. Sprays were applied as in the La Jolla trial, and treatments were replicated six times. Applications, to the point of runoff, were made on July 31, August 14, and August 28.

Benlate and RH 3928, applied on the 14-day schedule, again gave excellent control of powdery mildew on cucumber. Afugan and Bay 18654 gave intermediate control. Relatively poor control with sulfur again demonstrates the necessity for complete coverage and suggests the use of sulfur dust for better coverage.

Triforine also gave relatively poor control, but all chemical treatments were significantly better than no treatment.

### Squash (*Cucurbita pepo* L.)

Two plots about 10 miles apart were established near Oxnard in 1974 for control of powdery mildew on zucchini squash. Inoculum pressure was severe in one location and light at the other, which enabled us to compare fungicides under these conditions.

Identical materials and application rates were used at both locations (see table 3). Sprays were applied to the point of runoff using the Hudson pressurized sprayer. Plots were 15 feet long and were replicated four times. Application dates were August 5 and 19 and September 3.

In plot 1, which had high inoculum pressure, Bay 6447 at 8 ounces gave significantly better control than did any other treatment. RH 3928, DPX 10, and Afugan gave intermediate control under these severe disease conditions. All treatments were significantly better than no

treatment. In plot 2, which had light inoculum pressure, all treatments were significantly better than no treatment.

### Cucumber (*Cucumis sativa* L.)—1975

Cucumber plants at the eight-leaf stage were selected for a 1975 trial near Oxnard. Table 4 gives materials and rates. Sprays were applied as in the previous trials, and treatments were replicated five times. Spray applications, to the point of runoff, were made on July 29, August 12, and August 27.

Bay 6447 provided excellent control of cucumber powdery mildew and was significantly better than all other materials tested. El 222 at either 20 or 40 ppm provided intermediate control. Rhodia 26019 was not significantly different from no treatment.

### Discussion

A comparison of 1972 data with those obtained in 1973 suggests that Benlate was not as consistently effective as when introduced in 1967-68. This in turn suggests that strains of the fungus more tolerant to Benlate are now present. RH 3928 performed in a similar manner.

Bay 6447 provided excellent control of powdery mildew in the 1974 and 1975 trials. El 222 gave intermediate control in 1975 and merits further consideration.

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TABLE 1. FOLIAGE SPRAYS FOR POWDERY MILDEW CONTROL IN TOP MARK CANTALOUPE, LA JOLLA, 1973

Material and rate/ 100 gal. water	Disease rating* Aug. 31
Benlate 50W, 8 oz.	0.0 a <sup>†</sup>
Bay 18654 50W, 8 oz.	0.25 a
RH 3928 50W, 8 oz.	0.5 a
Afugan, 7 fl. oz.	1.12 b
Sulfur (Collier), 3 lb.	1.62 b
Check (no treatment)	3.12 c

\* Plots rated on a scale of 0 to 4. 1 = plants with at least one colony of mildew; 4 = dead plants.

<sup>†</sup> Duncan's multiple range test used at 5 percent level. Treatment means followed by same letter are not significantly different.

TABLE 2. FOLIAGE SPRAYS FOR POWDERY MILDEW CONTROL IN CUCUMBER, OXNARD, 1973

Material and rate/ 100 gal. water	Disease rating* Sept. 5
Benlate 50W, 8 oz.	2.1 a <sup>†</sup>
RH 3928 50W, 8 oz.	2.3 ab
Afugan, 7 fl. oz.	2.4 b
Bay 18654 50W, 8 oz.	2.5 b
Triforine, 10 fl. oz.	2.8 c
Sulfur (Collier), 3 lb.	3.3 d
Check (no treatment)	3.6 e

\* See table 1.

<sup>†</sup> See table 1.

TABLE 3. FOLIAGE SPRAYS FOR POWDERY MILDEW CONTROL IN ZUCCHINI SQUASH, OXNARD, 1974

Material and rate/ 100 gal. water	Disease rating* Sept. 16	
	Plot 1	Plot 2
Bay 6447 25W, 8 oz.	1.2 a <sup>†</sup>	0.0 a <sup>†</sup>
Bay 6447 25W, 4 oz.	1.9 b	0.1 a
RH 3928 50W, 8 oz.	2.8 c	0.1 a
DPX 10 50W, 8 oz.	2.9 c	0.8 a
Afugan, 8 fl. oz.	3.2 c	0.6 a
Check (no treatment)	3.8 d	2.5 b

\* See table 1.

<sup>†</sup> See table 1.

TABLE 4. FOLIAGE SPRAYS FOR POWDERY MILDEW CONTROL IN CUCUMBER, OXNARD, 1975

Material and rate/ 100 gal. water	Disease rating* Sept. 5
Bay 6447 25W, 8 oz.	0.05 a <sup>†</sup>
El 222 12.5%, 20 ppm	1.7 b
El 222 12.5%, 40 ppm	1.75 b
Rhodia 26019 50W, 2 lb.	2.8 c
Check (no treatment)	2.95 c

\* See table 1.

<sup>†</sup> Duncan's multiple range test used at 1 percent level. Treatment means followed by same letter are not significantly different.