

Controlling powdery mildew in field roses

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Powdery mildew of rose, caused by the fungus *Sphaerotheca pannosa*, results in unsightly and frequently malformed leaves and flowers, and may reduce growth. Several new fungicides were evaluated for the control of powdery mildew in southern California commercial rose fields.

1976 Trial

Rose plants for the test were used through the courtesy of Howard Rose Company, Hemet. The variety Sunny Granada was used for two replicates in the trial; Double Delight was used for the other two replicates. Powdery mildew was present before application of the first spray. Twenty plants were used per replicate.

Fungicide treatments with rates of materials per 100 gallons of water were: Bloc 12.5 percent, 75ppm; Benlate 50W, 8 ounces; Benlate 50W 8 ounces + Sunspray 7E oil, 1000cc; Bayleton 25W, 8 ounces; Funginex 20 percent, 12 ounces; Nimrod 25 percent EC, 28 ounces; and the check or no treatment. Sprays were applied to runoff with a 2 gallon CO₂ Hudson sprayer at 30 psi. Applications were made on May 5, 14, 24 and June 3, 1976. Four ounces of B-1956 spreader sticker per 100 gallons of water were used in all plots except the Benlate-oil and check treatments. Disease was rated on a scale of 0 to 4 on June 10—an O rating indicating no disease, a 4 rating indicating mildew completely covering both sides of the leaves and numerous mildew colonies on petioles and stems. Results of this trial are shown in table 1.

Bloc provided excellent control of rose powdery mildew and was significantly better than any of the other materials. Control with benomyl was not enhanced by the addition of Sunspray 7E oil. All fungicide treatments were significantly better than no treatment.

1977 Trials

Several new fungicides became available and a powdery mildew control plot was established in a rose field of the Howard Rose Company near Hemet. Each plot was 15 feet long and each treatment replicated five times. Fifteen plants were used per replicate. Treatments and rates per 100 gallons of water

were: Ciba Geigy 105 21W, 6.3 ounces; Bayleton 25W, 8 ounces; DuPont 4423 EC (1 lb gal), 1 quart; Boots 7711 25W, 40 ounces; Rohm-Haas 2161 EC (2 lb gal), 1 pint; and no treatment. Four ounces of B-1956 spreader sticker per 100 gallons of water were used in all plots. Sprays were applied to runoff as in the previous trial and sprayed on May 3, 13, and 23, 1977. Disease ratings were made as before and the results are shown in table 2.

Ciba Geigy 105 controlled powdery mildew of rose significantly better than any other materials while DuPont 4423 and Bayleton gave intermediate control. Results with Rohm and Haas 2161 and Boots 7711 suggest higher rates of materials might be necessary if adequate control is to be achieved with either material.

Rust caused by the fungus *Phragmidium mucronatum* infected rose leaves during the powdery mildew experiment. The fungicides were also rated as to their efficiency in controlling the rust fungus. The infection was rated on a scale of 0 to 4. Rust infection was rated 0.4 where Ciba Geigy 105 was applied and was significantly better than any other treatment; Bayleton provided intermediate control at 0.8; while DuPont 4423 and RH 2161 were not significantly different from no treatment with a rating of 1.4.

South Coast Field Station trial

An additional plot was located at University of California South Coast Field Station near Santa Ana to evaluate the powdery mildew fungicides in a coastal environment. The susceptible Mary DeVor variety was used with three plants per replicate and replicated three times. Applications began before appearance of powdery mildew. Fungicide treatments with rates of materials per 100 gallons of water were: Boots 7711 25W, 40 ounces; Rohm-Haas 2161 EC(2 lb), 1 quart; Bayleton 25W, 8 ounces; DuPont 4423 EC(2lb), 1 pint; Ciba Geigy 105 21W, 8.5 ounces for the first two applications—4.23 ounces for the last three applications; and no treatment. Because excellent control was obtained with the 8.5 ounce Ciba Geigy application, the rate of material was reduced. Sprays were applied to run off with a 2 gallon CO₂ Hudson sprayer at 30 psi. Applications were made on April 29, May 11, 20, 31, and June 9. Four ounces of

B-1956 spreader sticker per 100 gallons of water were used in all plots. Disease ratings were made on June 20 and are shown in table 3.

Ciba Geigy 105, Bayleton, Rohm-Haas 2161, and DuPont 4423 gave good control of rose powdery mildew. Boots 7711 controlled powdery mildew significantly better than no treatment but adequate commercial control was not obtained.

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TABLE 1. Comparison of Fungicides For the Control of Rose Powdery Mildew, Howard Rose Company, Hemet, 1976

Treatment	Disease Rating June 10
Bloc 12.5%, 75 ppm	0.5 a*
Benlate 50W, 8 oz	1.5 b
Benlate 50W, 8 oz + Sunspray 7E oil, 1000cc	1.8 b
Bayleton 25W, 8 oz	1.9 b
Funginex 20%, 12 oz	2.2 b
Nimrod 25% EC, 28 oz	2.4 b
Check or no treatment	3.2 c

*Significant 5% level. Treatments with same letter are not significantly different from each other.

TABLE 2. Comparison of Fungicides For the Control of Rose Powdery Mildew, Howard Rose Company, Hemet, 1977

Treatment*	Disease Rating June 3
Ciba Geigy 105 21W, 6.3 oz	0.4 a
DuPont 4423 EC (1 lb gal), 1 qt	0.9 b
Bayleton 25W, 8 oz	1.3 b
Rohm-Haas 2161 EC (2 lb gal), 1 pt	1.9 c
Boots 7711 25W, 40 oz	2.0 c
No treatment	3.4 d

*Significant 5% level. Treatments with same letter are not significantly different from each other.

TABLE 3. Comparison of Fungicides For the Control of Rose Powdery Mildew, South Coast Field Station, Santa Ana

Treatment*	Disease Rating June 20
Ciba Geigy 105 21W 8.5 oz (1st-2nd sprays) 4.2 oz (last 3 sprays)	1.0 a
Bayleton 25W, 8 oz	1.4 ab
Rohm-Haas 2161 EC (2lb), 1 qt	1.7 ab
DuPont 4423 EC(2 lb), 1 pt	1.9 b
Boots 7711 25W, 40 oz	2.8 c
No treatment	3.9 d

*Significant 5% level.