

Powdery Mildew of Cantaloupe - Testing New Fungicides For Disease Control

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ABSTRACT

Powdery mildew of cantaloupe, caused by the fungus Sphaerotheca fuliginea, is a perennial and often serious disease in Arizona. In 1989, potential new fungicides were evaluated for disease control in a field trial. All tested materials provided significant control when compared to untreated plants. Of the compounds tested, only Bayleton currently is registered for use on cantaloupe. Rally, which performed extremely well in this test, should be available for use on cantaloupe in the near future.

INTRODUCTION

Powdery mildew of cantaloupe is usually not difficult to find in Arizona. Disease symptoms first appear as small, white, superficial spots on stems and leaves of cantaloupe. When these lesions enlarge, they become powdery in appearance, increase in number and coalesce, eventually covering stems and both surfaces of leaves. Infection on young leaves can lead to general chlorosis and eventual death of infected leaves. Severely infected leaves become brown and desiccated with resultant premature defoliation. Cantaloupe fruit are free of visible infection; however, severely infected plants produce prematurely ripened fruit that lack flavor. Yield reduction is dependent upon the duration and severity of disease development.

Disease development is favored by low relative humidity, dry soil conditions, moderate temperatures, reduced light intensity, and succulent plant growth. Spores of the fungus can germinate in the absence of free water and in relative humidity of less than 20 percent.

MATERIALS AND METHODS

In 1989 a fungicide trial was established at the Yuma Valley Agricultural Center to evaluate new fungicides for control of powdery mildew of cantaloupe in Arizona. Cantaloupe (Topmark) was seeded February 27 on 80-inch beds. Treatments were replicated four times in a randomized complete block design. Each replicate consisted of 50 feet of row with a plant spacing of 12 inches. Treatment beds were separated by single nontreated beds. Fungicide treatments were applied with a tractor-mounted boom sprayer that delivered 100 gallons/acre at 100 psi to nozzles spaced 12 inches apart. Fungicides were applied May 17 and 31. Furrow irrigation was used for the duration of the study. Disease incidence and severity was determined June 12 by collecting 25 leaves from each replicate of each treatment and counting the number of powdery mildew lesions.

RESULTS AND DISCUSSION

Results of this field test are summarized in Table 1. Disease incidence was high throughout the test plot. All tested fungicides reduced the level of powdery mildew, with Rally performing extremely well. No symptoms of phytotoxicity were observed.

Two different genera of fungi can cause powdery mildew on cantaloupe in the desert southwest, Erysiphe cichoracearum and Sphaerotheca fuliginea. Microscopic examination of spores from diseased cantaloupe leaves revealed well-developed fibrosin bodies, which suggests that we were dealing with Sphaerotheca fuliginea in this field study.

When this report was written, only Bayleton was registered for use on cantaloupe; however, Rally was close to registration. Check the current status of Rally when considering control measures for powdery mildew of cantaloupe.

Table 1. Effect of fungicide treatments on development of powdery mildew on cantaloupe in 1989 field trial.

Treatment	Rate of active ingredient/acre	Number of lesions *
Control	--	205 a **
Folicur 3.6 FL	1.8 oz.	62 b
Bayleton 50DF	2.0 oz.	52 bc
Rally 40W	4.0 oz.	9 bc
Rubigan EC	2.0 oz.	8 bc
Rally 40W	2.0 oz.	1 c
Rally 40W	3.0 oz.	0 c

* Each value is the average number of lesions recorded from 25 leaves collected at random from each replicate plot in a treatment.

** Values followed by the same letter are not significantly different ($P = 0.05$) according to Duncan's Multiple Range Test.