

# Fungicides Evaluated for Control of Powdery Mildew of Cantaloupe in 1991 Field Trial

*M.E. Matheron and J.C. Matejka*

## **Abstract**

*Powdery mildew of cantaloupe, which is caused by the plant pathogenic fungus Sphaerotheca fuliginea, usually can be found in melon fields every year. Low relative humidity, moderate temperatures, and succulent plant growth favor disease development. In the spring of 1991, fungicides were evaluated for disease control in a field trial. All tested materials provided significant control when compared to untreated plants. Bayleton is the only tested material that is currently registered for use on cantaloupe for control of powdery mildew.*

## **Introduction**

Powdery mildew of cantaloupe often leads to economic loss in the desert southwest. Usually, beginning in mid-May, as the first cantaloupe plantings are approaching maturity, the initial symptoms of powdery mildew become evident. The first signs of the disease are small, white, superficial spots on stems and leaves. As these lesions enlarge, they become powdery in appearance, increase in number, and coalesce, eventually covering stems and both surfaces of leaves. The powdery material contains massive quantities of spores of the plant pathogenic fungus Sphaerotheca fuliginea, the causal agent of the disease. Infection on young leaves can lead to yellowing and eventual death of leaves. Cantaloupe fruit are free of visible infection; however, severely infected plants produce prematurely ripened fruit of inferior quality. Reduction of yield depends upon the duration and severity of disease development.

Environmental factors greatly influence the development of powdery mildew on cantaloupe. The disease is favored by low rainfall, low relative humidity, dry soil conditions, moderate temperatures, reduced light intensity, and succulent plant growth.

Disease control can be achieved by planting cultivars that are tolerant or resistant to the disease. If susceptible cultivars of cantaloupe are grown, it is extremely important to have a fungicide in place when environmental conditions become favorable for disease development.

## **Materials and Methods**

In 1991, a fungicide trial was established at the Yuma Agricultural Center to evaluate new fungicides for control of powdery mildew of cantaloupe in Arizona. Cantaloupe (Topmark) was seeded March 1 on beds 80 in. between row centers. Treatments were replicated four times in a randomized complete block design. Each replicate consisted of 50 ft. 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 on May 21 and June 5. Furrow irrigation was used for the duration of the study. Disease incidence and severity was determined June 17 by collecting 25 leaves at random 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 low throughout the test plot. All tested fungicides significantly reduced the level of powdery mildew. Bayleton is the only tested product that is registered for use on cantaloupe for control of powdery mildew. No symptoms of phytotoxicity were observed. Disease development occurred close to crop maturity, so no yield differences among treatments were detected.

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.

Table 1.

### Results of 1991 Powdery Mildew of Cantaloupe Fungicide Trial

---

Treatment	Rate of Product per acre	Average Number of Lesions per 25 Leaves
Control	---	15.5 a*
Bayleton 50DF	3.0 oz.	3.5 b
ASC-66792 F	3.0 pt.	3.0 b
ASC-66792 F	4.25 pt.	2.8 b
Rally 40W	0.31 lb.	2.3 b

---

\* Numbers followed by the same letter are not significantly different at the 0.05 level according to Duncan's Multiple Range Test.