

### Chlorothalonil Versus Horticultural Oil: Phytotoxicity to Rose Foliage

In their article on management of black-spot disease of rose in Alabama (2), the authors stated that "phytotoxicity may result when horticultural oils are applied during prolonged periods of high temperatures" and implied that there is a greater incidence of phytotoxicity associated with foliar spray application of horticultural oil vis-à-vis chlorothalonil in an elevated ambient temperature setting. I take exception to their implication. Based on my own personal experience and that of countless other rose exhibitors in Zones 8 to 10, chlorothalonil is the chief phytotoxic of-

fender in our fungicide armamentarium. In fact, chlorothalonil has fallen into disfavor among rosarians for this very reason.

I am curious how the authors were able to conduct weekly sprayings of chlorothalonil during the summer months, yet not encounter phytotoxicity.

As a result of my experience with chlorothalonil-induced phytotoxicity and the manufacturer's (ISK Biosciences) subsequent investigation, a company bulletin (1) was issued warning of the product's potential for phytotoxicity toward some rose varieties.

#### LITERATURE CITED

1. Anonymous. 1994. How to improve your rose disease control with Daconil fungicides, AG-011594. UPDATE for Golf Course Superintendents & Turf Managers. ISK Biosciences, Turf and Specialty Products Division, Marietta, GA.
2. Bowen, K. L., Young, B., and Behe, B. K. 1995. Management of blackspot of rose in the landscape in Alabama. *Plant Dis.* 79:250-253.

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### Comment on Letter from Schulman on Phytotoxicity of Roses due to Chlorothalonil

In his letter to the editor, Schulman questions the observations presented in our article on management of blackspot disease of rose in Alabama (2). Specifically, Schulman questions how we did not encounter phytotoxicity on roses with weekly applications of chlorothalonil. While Schulman states that "chlorothalonil is the chief phytotoxic offender" among fungicides used on roses, we did not observe obvious discoloration due to our fungicide applications.

There are many reasons why Schulman and others may be observing phytotoxicity with fungicide applications while we do not. One of these reasons may be that the location at which our study was conducted receives fairly regular rainfall. In 1993, for example (one of the two study years in our previous article), in all but six of the 22 weeks of our study, more than 0.25 cm of rain fell during at least one 24-h period between fungicide applications. In addition, our foliar treatments were never applied later than 11 A.M. CST. Rainfall and

intensity of solar radiation may be contributing to the phytotoxicity that others are observing (1). Another reason that we did not observe phytotoxicity may have been that the rose varieties in our study were not susceptible to damage (1).

Chlorothalonil is among the most commonly used fungicides on roses. While we were not aware of the company bulletin that Schulman mentions in his letter, we had been following their instructions. When applying this fungicide, we did not add anything (wetting agents or other pesticides) to our spray solutions.

Our experiment was designed to assess the effectiveness of alternatives to fungicide treatments. We chose chlorothalonil because of its frequency of recommendation and use by rose enthusiasts. Researchers at Cornell experienced different results from ours, most likely due to environmental factors (3). Our results may also differ from Schulman's for similar reasons, and should not be discounted on that basis. Our results are applicable to rose growers

in a similar growing zone and under similar rainfall and sunlight conditions.

#### LITERATURE CITED

1. Anonymous. 1994. How to improve your rose disease control with Daconil fungicides, AG-011594. UPDATE for Golf Course Superintendents & Turf Managers. ISK Biosciences, Turf and Specialty Products Division, Marietta, GA.
2. Bowen, K. L., Young, B., and Behe, B. K. 1995. Management of blackspot of rose in the landscape in Alabama. *Plant Dis.* 79:250-253.
3. Horst, R. K., Kawamoto, S. O., and Porter, L. L. 1992. Effect of sodium bicarbonate and oils on the control of powdery mildew and black spot of roses. *Plant Dis.* 76:247-251.

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