

FIELD DAY REPORT - 1992

**Texas A&M University Agricultural Research and
Extension Center
at Overton**

**Texas Agricultural Experiment Station
Texas Agricultural Extension Service**

Overton, Texas

April 30, 1992

Research Center Technical Report 92-1

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BLACK SPOT AND POWDERY MILDEW CONTROL ON ROSES WITH CYPROCONAZOLE 1991

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Background. Cyproconazole (Sandoz Crop Protection Corporation) is a new experimental systemic fungicide which has reported activity against two major rose diseases, black spot (*Diplocarpon rosae*) and powdery mildew (*Sphaerotheca pannosa* var. *rosae*). Currently, rose crops must be sprayed weekly for disease control. This new compound shows promise for control with biweekly or less frequent applications which would represent a significant cost savings over current practices.

Research Findings. Plants of *Rosa* cvs. Peace and Perfume Delight were planted in late March. 'Peace' was chosen because of its susceptibility to black spot. 'Perfume Delight' is susceptible to black spot as well, but also shows sensitivity to powdery mildew.

Fungicide treatments were initiated on 17 May after black spot had developed on the plants. Cyproconazole was sprayed biweekly at 0.088, 0.176 and 0.352 lb ai/ac. Mancozeb (Dithane® M-45) was sprayed weekly at 1.5 lbs ai/ac as a comparison to an industry standard. A non-sprayed control treatment was also included.

Data were taken on 3 September. A percent defoliation rating of 1-10 (0-100%) was assigned to indicate loss of foliage due to black spot infection. A black spot rating of 1-10 corresponding to 0-100% remaining leaves infected was also assigned and plants were counted to determine plant survival. No powdery mildew symptoms were noted. Conditions were evidently not favorable for disease development.

Cyproconazole treatment resulted in significantly lower defoliation ratings when compared to the ratings for the Mancozeb treated and non-sprayed plants (Figure 1). Mancozeb was only slightly better than the control treatment. The approximately 30% defoliation on the cyproconazole treated plants was no doubt due to infection prior to the treatments which were started in May. 'Peace' plants exhibited higher defoliation ratings than 'Perfume Delight' plants (Figure 1).

In addition to less defoliation, the foliage on the cyproconazole treated plants did not show any black spot symptoms when rated on 3 September. However, the Mancozeb treated and non-sprayed plants were heavily infected (Figure 1). The black spot rating for the Mancozeb treated plants (6.4) was not significantly different from that for the non-sprayed plants (8.1). The only plots with a reduced stand count contained non-sprayed 'Peace' plants where 61% of the plants

died.

Application. Cyproconazole shows activity against black spot when sprayed on a biweekly schedule. Cyproconazole treated plants had significantly less defoliation and remaining foliage had less black spot infection than the Mancozeb treated and non-sprayed plants. Further investigation of disease control with cyproconazole on roses is warranted as its commercial availability could result in a significant cost reduction over current practices for disease control. A study is in progress for evaluating disease control efficacy using various rates of cyproconazole applied at 14 and 28 day intervals.

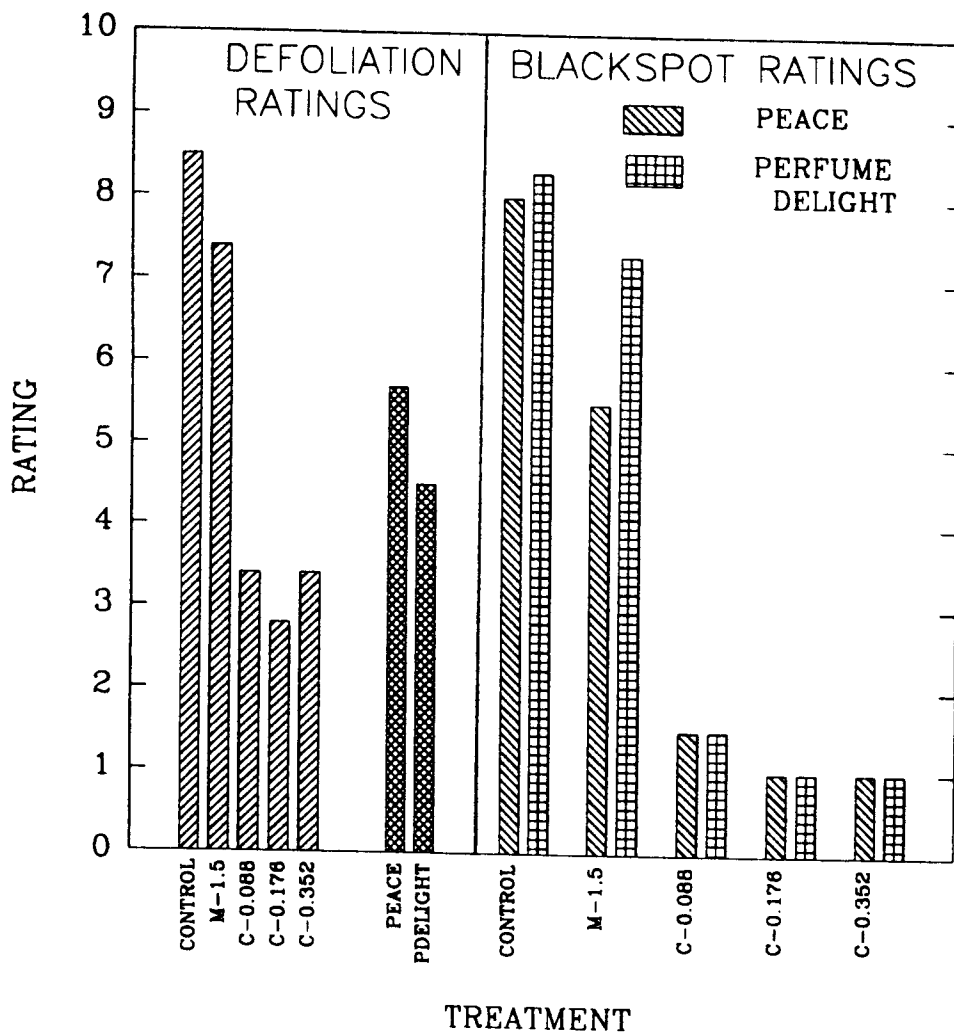


Figure 1. Defoliation and black spot ratings assigned on 3 September 1991 for fungicide treated plants of 'Peace' and 'Perfume Delight'. Defoliation was rated on a scale of 1-10 with 1 = 0-10% defoliation and 10 = 91-100% defoliation. Black spot on remaining foliage was rated on a scale of 1-10 with 1 = 0-10% infected leaves and 10 = 91-100% infected leaves. Treatments included unsprayed controls (control), mancozeb at 1.5 lbs ai/ac (M-1.5), and cyproconazole at 0.088 (C-0.088), 0.176 (C-0.176), or 0.352 (C-0.352) lbs ai/ac. Only main effects were significant for defoliation ratings. The fungicide treatment x cultivar interaction was significant for black spot ratings.