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FUNGICIDE TESTS FOR BLACK SPOT CONTROL ON ROSES - 1997

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Background. Azoxystrobin is currently being tested for efficacy on fungal diseases affecting many ornamental crops in a commercially available product known as Heritage. It is a strobilurin, compounds consisting of analogs derived from strobilurin A which was originally isolated from naturally occurring fungi. Black spot (*Diplocarpon rosae* Wolf) is one of the most destructive diseases on rose worldwide. Control in disease prone areas requires frequent spraying with an effective fungicide. The objective of this study was to test the efficacy of azoxystrobin for black spot control and to assess phytotoxicity to rose plants. Two studies were conducted.

Phytotoxicity Study

Eleven commercial rose cultivars were treated 3 times on 14-day intervals with Heritage. The rate was 1 lb/100 gal of water. Latron B-1956, a surfactant, was added at 0.06% V/V. All control plots were treated with the surfactant and water mixture. Treatments were applied with a Birchmeier backpack sprayer pressurized by hand to approximately 50 psi. All plots were sprayed to near runoff. The application dates were 27 August, 10 September and 24 September 1997. Plots were evaluated on 1 October 1997. There were 3 replicates (treated and control) for each cultivar and the plots were approximately 6 feet long. All standard fungicide applications made by the grower to control black spot continued on the entire crop throughout the test period. The following *Rosa* cultivars were treated: Medallion, Gold Glow, Poinsettia, Paradise, Yankee Doodle, Christian Dior, Camelot, Mister Lincoln, Perfume Delight, Peace, and Queen Elizabeth.

Black Spot Control Study

The same equipment and treatment procedures used in the phytotoxicity study were used in the black spot control test. The test was established on two *Rosa* cultivars - Lady X and Gold Glow. Plots were approximately 10 feet long. The treatments on each cultivar are in Tables 1 and 2. A treatment interval comparison was done on Lady X and a rate comparison on Gold Glow. These cultivars were grown at the Texas A&M University Agricultural Research and Extension Center at Overton, TX.

Treatment dates for both studies were: (14-day treatments) 20 August; 3 September; 18 September, 1 October; 15 October; and 31 October 1997, and (7-day treatments) 20 August; 28 August; 3 September; 10 September; 18 September; 24 September; 1 October; 15 October; 22 October; 31 October 1997. Weather and other factors prevented treatment on 8 October. Black spot control ratings were made 3 November 1997.

Research Findings.

Phytotoxicity Study. No phytotoxicity symptoms were observed on the final evaluation date (1 October 1997). Blooming characteristics, leaf size and development and leaf color were not affected.

Black Spot Control Study

Rate Comparison - Gold Glow. There was no significant difference in black spot control between the two rates tested (Table 1). Both gave acceptable control.

Interval Comparison - Lady X. Like the rate study, there were no significant differences between the 7 and 14-day interval treatments (Table 2).

In both the rate and interval comparisons, Heritage gave significantly better control than the nontreated plots. At the end of the test, black spot was developing rapidly and causing noticeable defoliation in the checks. However, the control achieved with Heritage may not prove acceptable if tested over a full season. Although black spot developed, disease pressure had not reached the plateau we normally encounter with season-long tests. For example, on Lady X, two of the three replicates in treatment 3 rated 3 for black spot (data not shown), and the check averaged 7.5 (Table 2). When the check averages 9-10, which is normal at the end of a season with no treatment, the Heritage rating would likely be higher. The 2.7 average rating for treatment 3 (Table 2) and the fact the 7-day interval was not significantly better (treatment 4) indicates that control with Heritage at these rates was slowly being overpowered by the increased disease pressure. It should be noted that black spot had been controlled on the test plants through August prior to establishing the study.

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Table 1. Blackspot control ratings of Heritage on Gold Glow roses - TAMU, Overton, 1997.

Treatment	Rate/100 gal	Interval/Days	Black spot*	Defoliation*
1. Control (water)	--	--	5.2	2.2
2. Sentinel 40 WG	1.76 oz	14	1.0	1.0
3. Heritage 50 WG	1/4 lb	14	1.7	1.0
4. Heritage 50 WG	1/2 lb	14	2.0	1.0

* Avg of 3 replications. Black spot rating 1-10, 1 = no black spot, 10 = all leaves infected and heavy defoliation. Defoliation rating 1-10, 1 = 0-10%, 10 = 91-100% defoliation.

Table 2. Black spot control ratings of Heritage on Lady X roses - TAMU, Overton, 1997.

Treatment	Rate/100 gal	Interval/Days	Black spot*	Defoliation*
1. Control (water)	--	--	7.5	4.3
2. Sentinel 40 WG	1.76 oz	14	1.2	1.3
3. Heritage 50 WG	½ lb	14	2.7	1.8
4. Heritage 50 WG	½ lb	7	2.3	1.2

* Avg of 3 replications. Black spot rating 1-10, 1 = no black spot, 10 = all leaves infected and heavy defoliation. Defoliation rating 1-10, 1 = 0-10%, 10 = 91-100% defoliation.