

ROSE (*Rosa 'Tropicana'*)
 Black spot; *Diplocarpon rosae*
 Powdery mildew, *Sphaerotheca pannosa*

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Evaluation of fungicides for the control of black spot and powdery mildew of rose, 2003.

This field trial was conducted at the University of Delaware Botanic Garden in Newark, DE. Bare root hybrid tea roses were planted in the spring of 2001 in a Matapeake silt loam soil, 4 ft apart on center. Each plot consisted of two plants; pairs were 8 ft apart on center and rows were spaced 10 ft apart. Experimental design was a randomized complete block with four replications per treatment. Weeds were controlled with glyphosate and Surflan as needed, and the beds were mulched with composted woodchips for additional weed control and water conservation. No supplemental irrigation was used. Each rose plant was fertilized three times during the season with 0.25 cup of 10-6-4 dry fertilizer. The fungicides were applied to run-off with a CO₂-powered backpack sprayer equipped with a single-hollow cone nozzle (D4 and D-45 core). Fungicide applications were initiated on 28 Apr before any symptoms were observed and were applied every 2 weeks thereafter, ending on 28 Aug. Latron B-1956 spreader-sticker (4.0 fl oz/100 gal) was added to Insignia 20DG and Eagle 40WP at each application. The plots were rated on 21 Jul, 7 Aug, and 25 Aug.

The entire growing season was wetter than normal, and Apr and May were cooler than normal. Black spot developed slowly early in the season. Insignia 20 DG at both rates and Eagle 40WP performed very well at the first two ratings. Insignia 20 DG at the 4 oz rate by 25 Aug was not performing as well as the higher 8 oz rate or Eagle 40WP. Sunspray UF and Jerry Baker Fungus Fighter Tonic provided no control and were no different than the non-treated control. The best control was achieved with the conventional fungicide Eagle 40 WP (myclobutanil) and the 8 oz rate of Insignia 20DG. The highest level of powdery mildew was observed 7 Aug on the terminals, but disease incidence was low so differences among treatments were slight. The ratings were made at the end of the 2-week spray interval. Eagle 40WP and Fungus Fighter Tonic were significantly better than the control, but no treatment was significantly better than any other. No phytotoxicity or objectionable residue was observed on any treatment in this test. The Sunspray UF oil did produce a glossy shine on the foliage that was not present two weeks later.

Treatment and rate/100 gal	Black spot rating ^z			Powdery mildew rating ^z
	21 Jul ^y	7 Aug ^y	25 Aug ^y	7 Aug ^y
Insignia 20 DG 4 oz	1.3 a	2.4 b	5.2 b	1.9 ab
Insignia 20 DG 8 oz	1.5 a	2.4 b	3.4 a	1.8 ab
Eagle 40 WP 6 oz	1.0 a	1.4 a	2.1 a	1.3 a
Sunspray UF oil 1.0 gal	3.4 b	4.9 c	7.2 c	2.0 ab
Fungus Fighter Tonic ^x	4.6 b	6.3 d	9.1 d	1.4 a
Non-treated control	3.4 b	5.5 cd	8.5 cd	2.6 b

^zBlack spot and powdery mildew ratings were based on the on the Horsfall-Barratt Rating System where 1=0%, 2=0-3%, 3=3-6%, 4=6-12%, 5=12-25%, 6=25-50%, 7=50-75%, 8=75-87%, 9=87-94%, 10=94-97%, 11=97-100%, 12=100% of leaves infected or defoliated.

^yMeans within a column followed by the same letter are not significantly different, Duncan-Waller *k*-ratio *t* test, *k*=100.

^x Jerry Baker's Fungus Fighter Tonic= 1 cup dry powdered milk, 1 cup molasses, 1 tsp baking soda/ gal of water.