

# Evaluation of Fungicides for Control of Gray Leaf Spot on Perennial Ryegrass, 2005

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## Introduction

Gray leaf spot (*Pyricularia grisea*) is an important disease on perennial ryegrass (*Lolium perenne*) golf course fairways and roughs in the Mid-Atlantic, Mid-West, and New England regions of the United States. This study was located at the Pennsylvania State University on perennial ryegrass. The objective of the study was to evaluate various fungicides, rates, and fungicide combinations for their effectiveness in suppressing gray leaf spot.

## Materials and Methods

The study was conducted on perennial ryegrass at the Valentine Turfgrass Research Center, University Park, PA. The site was maintained under golf course fairway management conditions; mowed three times per week at 1.0-inch cutting height. The soil was Hagerstown silt loam, pH 6.8. The experimental area was fertilized with 1.0 lb nitrogen respectively on 9 May (29-5-10) and 10 May (31-0-0), 0.5 lb nitrogen (9-18-17) per 1000 sq ft on 6 Jun, and 1.0 lb nitrogen (18-9-18) per 1000 sq ft on 10 Aug. Chaser Ultra 4.68L was applied 18 May at the rate of 1.0 fl oz per 1000 sq ft for control of broadleaf weeds. Treatment plots, 3 ft x 6 ft, were arranged in a randomized complete block design with three replications. Treatments were applied with a CO<sub>2</sub>-powered sprayer using a TeeJet 11008E nozzle at 40 psi, in water equivalent to 2 gal per 1000 sq ft. Treatments were applied on 6 and 20 Jul, and 11 Aug, unless otherwise noted in the table. The experimental turf area was inoculated with *M. grisea* 28 Jul. After inoculation, the turf was maintained at a 2.0-inch cutting height; mowed once per week. Disease severity was evaluated on 15 and 22 Aug. Data were subjected to analysis of variance and multiple comparisons of the mean values were made using the Waller-Duncan k-ratio test.

## Results and Discussion

Disease severity was high in the experiment. In the 22 Aug evaluation nearly 80% of the untreated check plots was symptomatic. Twenty-three treatments were significantly different from the untreated check. Excellent control of gray leaf spot was accomplished with Daconil Ultrex, both rates of rates of Headway, both rates Heritage 50WG, the high rate of Heritage TL, both rates of Tartan, Insignia, the high rate mixture of Heritage TL + Banner MAXX, and Compass. Complete control of gray leaf spot was attained with the Insignia + Manicure tank mixture, and the combination of Heritage TL + Daconil Ultrex + Banner MAXX. No phytotoxicity was observed in the experiment.

**Table.** Evaluation of fungicides for control of gray leaf spot on perennial ryegrass, 2005.

Treatment, formulation, and rate per 1000 sq ft	Gray leaf spot severity <sup>z</sup>			
	15 Aug	22 Aug	15 Aug	22 Aug
Banner MAXX 1.3ME 1.0 fl oz.....	3.0	ab <sup>y</sup>	8.0	a <sup>y</sup>
Ecoguard L 20.0 fl oz alternate 3336 4F 4.0 fl oz <sup>x</sup> .....	3.7	ab	7.7	a
Untreated Check.....	3.7	ab	7.7	a
Ecoguard L 20.0 fl oz.....	4.3	a	7.3	ab
Propensity 1.3ME 2.0 fl oz .....	2.7	abc	6.7	abc
Lynx 45WP 0.6 oz .....	3.3	ab	5.7	bcd
Lynx Flo 2SC 1.0 fl oz.....	2.3	bcd	5.0	cd
Instrata 3.61SC 2.75 fl oz .....	1.0	c-f	4.7	de
Instrata 3.61SC 4.15 fl oz <sup>w</sup> .....	0.7	def	4.7	de
Ecoguard L 20.0 fl oz + 3336 4F 4.0 fl oz.....	3.3	ab	4.7	de
Cyazofamid 3.34SC 0.9 fl oz.....	2.0	b-e	4.3	de
3336 4F 4.0 fl oz.....	2.3	bcd	3.0	ef
Heritage TL 0.8ME 1.0 fl oz.....	0.7	def	2.3	fg
Ecoguard L 20.0 fl oz alternate Daconil Ultrex 82.5WG 3.2 oz <sup>v</sup> .....	0.3	ef	2.3	fg
Heritage TL 0.8ME 1.0 fl oz + Banner MAXX 1.3ME 1.0 fl oz .....	0.7	def	2.0	fgh
Headway 1.4ME 1.5 fl oz .....	2.0	b-e	1.7	f-i
Tartan 2.4SC 1.0 fl oz.....	0.3	ef	1.7	f-i
Heritage 50WG 0.2 oz .....	0.3	ef	1.3	f-i
Heritage TL 0.8ME 2.0 fl oz <sup>u</sup> .....	1.0	c-f	1.3	f-i
Compass 50WG 0.2 oz .....	0.3	ef	1.3	f-i
Heritage TL 0.8ME 2.0 fl oz + Banner MAXX 1.3ME 2.0 fl oz <sup>u</sup> .....	0.0	f	0.7	ghi
Insignia 20WG 0.9 oz <sup>u</sup> .....	0.0	f	0.7	ghi
Tartan 2.4SC 2.0 fl oz.....	0.3	ef	0.7	ghi
Heritage 50WG 0.4 oz <sup>u</sup> .....	0.0	f	0.3	hi
Headway 1.4ME 3.0 fl oz <sup>u</sup> .....	0.0	f	0.3	hi
Daconil Ultrex 82.5WG 3.2 oz .....	0.3	ef	0.3	hi
Heritage TL 1.0 fl oz + Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz .....	0.0	f	0.0	i
Insignia 20WG 0.9 oz + Manicure 82.5WG 3.2 oz <sup>u</sup> .....	0.0	f	0.0	i

<sup>z</sup>Disease severity index 0-10; 0=asymptomatic, and 10=>90% turf area symptomatic, mean of three replications.

<sup>y</sup>Within column, means followed by different letters are significantly different ( $P \leq 0.05$ ) according to the Waller-Duncan k-ratio test.

<sup>x</sup>Treatment applications were alternated (Ecoguard 6 Jul and 11 Aug; 3336 20 Jul).

<sup>w</sup>Treatment applied 29 Jun, 20 Jul, and 11 Aug.

<sup>v</sup>Treatment applications were alternated (Ecoguard 6 Jul and 11 Aug, Daconil Ultrex 20 Jul).

<sup>u</sup>Treatment applied 22 Jun, 20 Jul, and 11 Aug.