

Control of Pythium Foliar Blight on Perennial Ryegrass, 2005

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Introduction

Pythium foliar blight is a potentially devastating disease on fine turf. The use of fungicides plays a crucial role in controlling Pythium foliar blight on golf courses. The study was conducted at the Valentine Turfgrass Research Center, University Park, PA, on perennial ryegrass (*Lolium perenne*, 'Legacy II'). The objective of the study was to evaluate various fungicides, rates, and mixtures to determine their effectiveness in suppressing the disease.

Materials and Methods

The study was conducted at the Valentine Turfgrass Research Center, University Park, PA, on perennial ryegrass maintained under golf course fairway management conditions, and mowed three times per week at 1.0-in. cutting height. The soil was Hagerstown silt loam with pH 6.8. The experimental area was fertilized 9 and 10 May with 1.0 lb nitrogen (29-5-10 and 31-0-0 respectively) per 1000 sq ft, and 6 and 15 Jun with 0.5 lb nitrogen (9-18-17 and 18-9-18 respectively) per 1000 sq ft. Treatment plots, 3 ft x 3.5 ft, were arranged in a randomized complete block design with three replications. Treatments were applied 23 Jun and 5 Jul with a CO₂-powered sprayer using a TeeJet 11008E nozzle. Applications were made at 40 psi, in water equivalent to 2 gal per 1000 sq ft. On 6 Jul the experiment was enclosed in a 30 ft x 48 ft polyethylene greenhouse to reduce radiational cooling. The experiment was inoculated 7 Jul with a mycelial suspension of a five-isolate pool of *Pythium aphanidermatum*. An internal intermittent misting system provided high relative humidity and leaf surface wetness during the course of the study. The greenhouse was vented during daylight hours to maintain a temperature range of 85° to 95°F. Vents were closed during the evenings and nights. Test plots were not mowed between the time of treatment applications on 5 Jul and disease assessments. Disease severity was assessed 14 and 15 Jul. 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

Pythium blight severity was very high in the experiment. On 15 Jul 14 treatments provided disease control that was significantly different from the untreated check. Excellent control of Pythium foliar blight was achieved from the two Heritage + Subdue MAXX mixtures, the Cyazofamid combinations with Alude or Insignia, the two formulations of Subdue applied alone, the low and high rates of Cyazofamid, and the Insignia + Signature mixture. No phytotoxicity was observed in the experiment.

Table. Control of Pythium foliar blight on perennial ryegrass, 2005.

Treatment, formulation, and rate per 1000 sq ft	Pythium blight severity*			
	14 Jul		15 Jul	
Untreated Check.....	9.7	a**	10.0	a**
Banol 6SL 2.0 fl oz.....	5.3	b	8.0	ab
Signature 80WG 4.0 oz.....	6.0	b	8.0	ab
Insignia 20WG 0.9 oz.....	4.3	bc	7.0	bc
Heritage TL 0.8ME 2.0 fl oz.....	4.7	bc	6.7	bc
Alude L 5.5 fl oz.....	2.7	cd	6.7	bc
Heritage 50WG 0.4 oz.....	4.0	bc	6.3	bc
Signature 80WG 6.0 oz.....	2.7	cd	4.7	cd
Cyazofamid 3.34SC 0.45 fl oz.....	1.0	de	2.0	de
Insignia 20WG 0.9 oz + Signature 80WG 4.0 oz.....	0.7	de	1.7	e
Subdue WSP 45WP 0.56 oz.....	0.7	de	1.3	e
Cyazofamid 3.34SC 0.45 fl oz + Insignia 20WG 0.9 oz.....	0.7	de	1.3	e
Cyazofamid 3.34SC 0.9 fl oz.....	0.7	de	1.1	e
Subdue MAXX 2ME 1.0 fl oz.....	0.3	e	0.7	e
Heritage 50WG 0.2 oz + Subdue MAXX 2ME 0.5 fl oz.....	0.3	e	0.3	e
Cyazofamid 3.34SC 0.45 fl oz + Alude L 10.0 fl oz.....	0.0	e	0.3	e
Heritage 50WG 0.2 oz + Subdue MAXX 2ME 1.0 fl oz.....	0.0	e	0.3	e

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

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