Pythium Blight Management on Perennial Ryegrass

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OBJECTIVE

To determine the efficacy of experimental and standard preventative fungicide treatments for the management of Pythium blight (*Pythium aphanidermatum*) on perennial ryegrass.

MATERIALS AND METHODS

The study was conducted at the O. J. Noer Turfgrass Research and Education Facility in Madison, WI on a juvenile stand of perennial ryegrass (*Lolium perenne*) maintained at a cutting height of 2.0 inches. Individual plots measured 3 ft by 5 ft and were arranged in a randomized complete block design with four replications. Individual treatments were applied at a nozzle pressure of 40 p.s.i. using a CO_2 pressurized boom sprayer equipped with two Teejet AI8004 nozzles. The study was initiated on August 18th and all fungicides were agitated by hand and applied in the equivalent of 2 gallons of water per 1000 ft^2. One day following fungicide applications, individual plots were inoculated with *Pythium aphanidermatum*, covered with an evergreen cover, and irrigated three times daily to produce optimal Pythium blight conditions. Disease severity was visually estimated as percent area affected and turfgrass quality was rated on a 1-9 scale with 1 being bare soil, 6 being acceptable, and 9 being exceptional. Disease severity and turf quality were subjected to an analysis of variance and means were separated using the Waller-Duncan test (P = 0.05). Results of the disease severity and turfgrass quality ratings can be found in table 1.

RESULTS AND DISCUSSION

Pythium blight severity was very high during the trial, with non-treated controls averaging nearly 75% disease one week following the fungicide application on August 18th. All fungicide treatments reduced Pythium blight relative to the non-treated control, and there were no statistical differences between the fungicide treatments. However, Subdue MAXX, the 12.0 fl oz rate of Mildicut, and the tank mixture of Segway (at 0.65 fl oz) plus Secure provided the most effective suppression of Pythium blight one week following the application. Turfgrass quality general mirrored disease severity, but only Subdue Maxx, Mildicut, and Segway plus Secure provided acceptable turf quality on the August 25th rating date. Phytotoxicity was not observed with any treatment.

Table 1. Mean Pythium blight severity and turfgrass quality on perennial ryegrass at the OJ Noer Turfgrass Research Facility in Madison, WI during 2014.

	Treatment	Rate	Application Timing	Disease Severity[a]		Turfgrass Quality[b]	
				Aug 22	Aug 25	Aug 22	Aug 25
1	Non-treated control			37.5a	73.8a	4.3b	1.8c
2	Subdue MAXX	1.0 FL OZ/1000 FT2	Aug 18	0.0b	1.3b	7.0a	6.8a
3	Stellar	1.2 FL OZ/1000 FT2	Aug 18	0.0b	12.5b	7.0a	5.3b
4	Segway	0.45 FL OZ/1000 FT2	Aug 18	1.8b	16.3b	6.5a	5.3b
5	Segway	0.75 FL OZ/1000 FT2	Aug 18	1.3b	12.5b	6.8a	5.8ab
6	Mildicut	7.16 FL OZ/1000 FT2	Aug 18	1.3b	8.8b	6.8a	6.0ab
7	Mildicut	12.0 FL OZ/1000 FT2	Aug 18	0.0b	6.0b	7.0a	5.8ab
8	Segway Secure	0.45 FL OZ/1000 FT2 0.5 FL OZ/1000 FT2	Aug 18	0.0b	1.5b	7.0a	6.3ab
9	Segway Secure	0.65 FL OZ/1000 FT2 0.5 FL OZ/1000 FT2	Aug 18	0.0b	2.3b	7.0a	6.3ab
10	Segway	0.75 FL OZ/1000 FT2	Aug 18	0.0b	11.3b	7.0a	5.5ab

[a]Pythium blight severity was visually estimated as the percentage of affected area within each plot. Means followed by the same letter do not significantly differ (P=.05, Waller-Duncan).

[b]Turfgrass quality was rated visually on a 1 – 9 scale with 1 being bare dirt, 6 being acceptable, and 9 being exceptional. Means followed by the same letter do not significantly differ (P=.05, Waller Duncan).