Brown Patch Suppression on Golf Course Putting Greens

Sam Soper, Bruce Schweiger, and Paul Koch, Ph.D.
Department of Plant Pathology
University of Wisconsin - Madison

OBJECTIVE

To determine the efficacy of standard and experimental fungicides for the control of brown patch caused by the fungus *Rhizoctonia solani*.

MATERIALS AND METHODS

The study was conducted at the O. J. Noer Turfgrass Research and Education Facility in Madison, WI on a stand of creeping bentgrass (*Agrostis stolonifera* 'Penncross') maintained at 0.125 inches. The individual plots measured 3 feet by 10 feet 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 XR Teejet AI8004 nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft^2. All treatments were initiated June 10th and subsequent applications were made at 14, 21, or 28 day intervals. Plots were covered with a permeable greens cover on July 17th to promote brown patch infection and inoculated with *R. solani*-infested rye grain on July 17th and July 24th. Brown patch severity and turf quality (1-9, 9 being excellent and 6 acceptable) were visually assessed and subjected to an analysis of variance and means were separated using Tukey's Honest Significant Difference test (P = 0.05). Results of the disease severity and turfgrass quality ratings can be found in table 1 and 2, respectively.

RESULTS AND DISCUSSION

Brown patch disease pressure was low during summer 2015, with no disease present in the non-treated controls until late July. A spike in disease pressure saw non-treated controls averaging 52.5% and 37.5% brown patch on the August 12th and August 20th rating dates. Despite the high disease pressure on the August rating dates, all treatments provided acceptable disease suppression and turfgrass quality. Phytotoxicity was not observed with any treatment.

Table 1. Mean brown patch severity per treatment on creeping bentgrass maintained at greens height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2015.

	Treatment	Rate	Application Interval	Brown Patch Severity[a]		
				Jul 29	Aug 12	Aug 20
1	Non-treated control			5.5a	52.5a	37.5a
2	Heritage TL	2.0 FL OZ/1000 FT2	28 Day	2.8ab	1.3b	0.0b
3	Fame 480 SC	0.36 FL OZ/1000 FT2	21 Day	1.3b	1.0b	0.0b
4	Fame T	0.89 FL OZ/1000 FT2	21 Day	1.0b	0.0b	0.0b
5	Fame M	1.0 FL OZ/1000 FT2	21 Day	2.5ab	0.0b	0.0b
6	Kabuto NB38832	0.56 LB AI/A 0.2 OZ WT/1000 FT2	14 Day	1.0b	1.3b	0.0b
7	Kabuto NB38832	0.56 LB AI/A 0.1 OZ WT/1000 FT2	14 Day	1.8b	0.5b	0.0b
8	Kabuto NB38832	0.56 LB AI/A 0.075 OZ WT/1000 FT2	14 Day	1.8ab	0.0b	2.5b

[a]Brown patch severity was visually assessed as percent disease. Means followed by the same letter do not significantly differ (P=.05, Tukey's HSD).

Table 2. Mean turfgrass quality per treatment on creeping bentgrass maintained at greens height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2015.

	Treatment	Rate	Application Interval	Turfgrass Quality[a]		
				Jul 29	Aug 12	Aug 20
1	Non-treated control			5.8a	4.0b	4.8b
2	Heritage TL	2.0 FL OZ/1000 FT2	28 Day	6.0a	6.8a	7.0a
3	Fame 480 SC	0.36 FL OZ/1000 FT2	21 Day	6.5a	7.0a	7.0a
4	Fame T	0.89 FL OZ/1000 FT2	21 Day	6.8a	7.0a	7.0a
5	Fame M	1.0 FL OZ/1000 FT2	21 Day	6.3a	7.0a	7.0a
6	Kabuto NB38832	0.56 LB AI/A 0.2 OZ WT/1000 FT2	14 Day	6.8a	6.8a	7.0a
7	Kabuto NB38832	0.56 LB AI/A 0.1 OZ WT/1000 FT2	14 Day	6.3a	7.0a	7.0a
8	Kabuto NB38832	0.56 LB AI/A 0.075 OZ WT/1000 FT2	14 Day	6.3a	7.0a	6.8a

[a]Turfgrass quality was rated visually on a 1 – 9 scale with 6 being acceptable. Means followed by the same letter do not significantly differ (P=.05, Tukey's HSD).