Evaluation of fungicides for control of brown patch on colonial bentgrass, 2008

R. Latin, Professor of Plant Pathology

Objective:

The objective of this research was to evaluate fungicides for efficacy against brown patch on colonial bentgrass.

Rationale:

Fungicides are essential tools for maintaining high quality golf course turf. Periodic evaluation of fungicides for brown patch control provides superintendents with accurate information on fungicide performance.

Procedures:

The research was conducted at the Purdue University Daniel Turfgrass Research and Diagnostic Center in West Lafayette, IN. The plots were located on a sward (identified as 4.3) of Bardot colonial bentgrass maintained at a height of 0.5 in. Irrigation and aerification operations were done according to standard practices for creeping (colonial) bentgrass fairways. During spring 2008, fertilizer (18-4-10) was applied at a rate of approximately 1.0 lb N per 1000 sq ft on April 3 and June 18. The entire site was treated with Banol (1.0 fl oz per 1000 sq ft) on July 11 and August 5 to prevent Pythium blight outbreaks in the plots, and Emerald 70W (0.9 oz per 1000 sq ft) on June 9 to avoid interference from dollar spot outbreaks at the beginning of the experiment.

Individual treatment plots measured 3.3 ft by 6.6 ft (1m x 2m) and were randomized within each of the 4 replications. Plots were inoculated with a sorghum seed culture of *Rhizoctonia solani* on June 17. Five grains of infested seed were buried in the thatch layer in the center of each plot. However, the experimental site was thoroughly involved with brown patch symptoms in years past. The additional inoculum was applied to reinforce endemic inoculum. Although patches occurred at the inoculation sites in the check plots, its overall effect during the course of the experiment was negligible.

Fungicide applications were made using a custom-built boom sprayer. Three Tee-Jet air induction nozzles (AI9503EVS for the middle, AIUB8503EVS for both sides) were mounted approximately 12 in. apart on the boom located 14 in. from the ground. The sprayer was calibrated to deliver 2 gal per 1000 sq ft at 40 psi. Treatments applied at 14-day intervals were applied on June 11, June 25, July 09, July 23, and August 6. Those applied at 21-day intervals and were sprayed on June 11, July 02, July 23, and August 13.

Visual evaluations of disease severity were recorded at approximately 7-14 day intervals. Data were subjected to analysis of variance and mean separation procedures. Disease severity and turf quality summary tables are presented in Table 1.

Results and Interpretation:

In terms of environmental conditions during the experimental period, there were 2 distinctly favorable periods for brown patch development: July 9-13, and August 1 – 7. Most of the season was marked by relatively cool evening temperatures and therefore the environmental component of disease pressure was considered moderately low, except for

these 2 periods. Environmental conditions promoted rapid recovery from disease related damage in the latter third of August.

All products performed well as disease conditions were very favorable in mid-July (see the July 14 rating date). Products also performed well through the disease favorable period in early August. Two of the 21-day-interval treatments seemed weak by August 14, but that was at the very end of the application interval.

With few exceptions, turf quality was quite good throughout the experimental period.

No phytotoxicity was observed in any of the plots.

Table 1. Brown patch severity in plots treated with fungicides, 2008

Treatment	rate/M		Interval	10-Jul		14-Jul		20-Jul		31-Jul		14-Aug		27-Aug	
No fungicide				1.5	a	22.5	a	35.5	a	62.5	a	42.5	a	16.3	a
V-10178	4.9	oz	14	0.3	a	0.0	b	0.0	b	1.5	b	5.0	b	1.3	b
Tourney	0.28	oz	14	0.0	a	0.3	b	0.5	b	0.5	b	1.0	b	0.0	b
V-10178 + Tourney	4.9 + 0.28	oz	14	0.0	a	0.3	b	1.3	b	0.0	b	0.5	b	0.0	b
Insignia	0.5	oz	14	0.0	a	0.5	b	0.0	b	0.0	b	1.5	b	0.0	b
Trinity	1.0	fl oz	14	0.0	a	0.5	b	4.3	b	3.5	b	6.5	b	1.3	b
Cleary 26/36	4.0	fl oz	14	1.3	a	0.5	b	1.8	b	3.0	b	2.5	b	1.3	b
Endorse	4.0	oz	14	0.3	a	0.5	b	1.0	b	0.5	b	1.0	b	0.0	b
Disarm 480SC	0.27	fl oz	21	0.0	a	0.0	b	0.5	b	2.3	b	1.0	b	0.0	b
Disarm C	4.32	fl oz	21	0.0	a	0.0	b	0.5	b	1.8	b	5.5	b	1.3	b
ARY-0473-007G	54.4	oz	21	0.0	a	0.0	b	1.8	b	1.3	b	5.0	b	1.3	b
Days after 14-day fungicide application				1		5		11		8		7		21	
Days after 21-day fungicide application				8		12		18		8		21		14	

Values within columns followed by the same letter are significantly different with 95% confidence.