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Fungicide Evaluation in Washington Creeping Bentgrass at Greens Height

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Abstract
Fungicide evaluations for control of brown spot in greens height creeping bentgrass were conducted at Veenker Memorial Golf Course, Ames, IA.

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Introduction

Fungicide evaluations for control of brown spot in greens height creeping bentgrass were conducted at Veenker Memorial Golf Course, Ames, IA.

Materials and Methods

Trials were conducted at the WOI green of Creeping bentgrass (cv. Washington) and was maintained at 0.16-in. cutting height. Fungicides selected for activity against dollar spot were applied using a backpack sprayer at 30 psi and a dilution rate of 5 gal/1000 sq ft. The experimental design was a randomized complete block with four replications. All plots measured 4 ft × 5 ft. Spray applications were initiated on June 4, except for treatment 26, which was initiated May 15. Re-applications at designated intervals were made until August 20. Periodic assessments of disease symptoms were initiated July 2. Visual estimates of brown patch disease severity were made with a qualitative scale of 0–5, where 0 = no disease; 1 = 1–5%; 2 = 6–10%; 3 = 11–25%; 4 = 26–50%; 5 = > 50% plot symptomatic.

A turf quality assessment of 1 to 10 (1 = poorest, 10 = best, 6 = adequate) was taken every three weeks beginning July 23. Data were analyzed using the GLM procedure in SAS and mean separations were determined using Fisher's protected LSD at $P \leq 0.05$.

Results and Discussion

Weather patterns were exceptionally cool and Brown patch severity on untreated subplots was moderate, whereas dollar spots symptoms did not occur on any treatment including the unsprayed check. Most of the tested products suppressed brown patch significantly ($P \leq 0.05$) in comparison with the unsprayed check, with several products resulting in < 5% disease severity (Table 1). No phytotoxicity symptoms were observed during the trial.

Differences in turf quality increased as the season progressed (Table 2). Assessment values ranged from acceptable to unacceptable levels. Quality substantially dropped in the unsprayed control and in some fungicide treatments, most notably the Emerald 70WG combinations, but remained unchanged and in some cases improved over the season treatment period.

Acknowledgements

We thank the Hort Station turf crew for maintenance of turf during 2009.

Table 1. Brown patch ratings in a comparison of fungicides applied to turfgrass greens.

TRT	Products and rates/1000 sq ft	Interval (days)	Brown patch (0–5 rating)[x, z] July 2	July 23	Aug. 7	Aug. 20
1	Unsprayed check	---	1.3 ab	2.0 a	4.0 a	5.0 a
2	Gowan Rubigan AS 0.5 fl oz	14	0.7 a-c	0.0 c	1.0 b-e	0.3 e
3	Gowan Rubigan AS 1.0 fl oz	14	1.7 a	1.7 ab	2.7 a-c	0.7 e
4	Gowan Rubigan AS 0.5 fl oz + GWN-9812 1 qt/acre	14	0.3 bc	0.0 c	1.3 b-e	3.7 ab
5	Gowan Rubigan AS 1.0 fl oz + GWN-9812 1 qt/acre	21	0.0 c	1.3 a-c	1.7 b-e	2.0 b-e
6	Gowan Rubigan AS 1.0 fl oz + GWN-9790 0.44 oz + GWN-9812 1 qt/acre	21	0.3 bc	0.7 a-c	1.7 b-e	3.0 a-d
7	Gowan GWN-9790 0.44 oz + GWN-9812 1 qt/acre	21	0.7 a-c	0.7 a-c	2.3 a-d	3.7 ab
8	Gowan GWN-9790 0.29 oz + GWN-9812 1 qt/acre	21	0.0 c	0.0 c	1.0 b-e	3.3 a-c
9	Gowan Banner Maxx 1.0 oz	21	0.7 a-c	0.7 a-c	0.7 c-e	0.7 e
10	Bayer Banner Maxx 2.0 oz	14	0.3 bc	0.3 bc	1.0 b-e	1.7 b-e
11	BASF Emerald 70WG 0.13 oz + Iprodione Pro 2.0 fl oz	14	0.0 c	0.7 a-c	0.7 c-e	2.0 b-e
12	BASF Emerald 70WG 0.13 oz + Iprodione Pro 3.0 fl oz	14	0.7 a-c	0.7 a-c	2.0 a-e	3.7 ab
13	BASF Emerald 70WG 0.13 oz + Daconil Ultrex 82.5 WG 1.8 oz	14	0.3 bc	1.0 a-c	1.7 b-e	4.7 a
14	BASF Emerald 70WG 0.13 oz + Daconil Ultrex 82.5 WG 3.25 oz	14	0.3 bc	1.0 a-c	2.3 a-d	1.3 c-e
15	BASF Curalan EG 50WG 1.0 oz	14	0.7 a-c	1.3 a-c	2.3 a-d	3.0 a-d
16	Valent Tourney 50WD 0.28 oz	14	0.0 c	0.7 a-c	1.3 b-e	0.3 e
17	Valent Tourney 50WD 0.37 oz	14	0.7 a-c	1.7 ab	3.0 ab	0.3 e
18	Bayer Reserve 4.8 SC 2.8 fl oz	7	0.3 bc	0.7 a-c	1.0 b-e	0.0 e
19	Bayer Reserve 4.8 SC 3.2 fl oz	14	1.3 ab	0.7 a-c	1.7 b-de	1.0 de
20	Bayer Reserve 4.8 SC 3.6 fl oz	14	0.3 bc	0.7 a-c	1.3 b-e	1.0 de
21	Bayer Reserve 4.8 SC 4.5 fl oz	14	0.3 bc	0.3 bc	0.0 e	0.7 e
22	Bayer Concert EC 5 fl oz	14	0.0 c	1.3 a-c	2.7 a-c	1.0 de
23	Bayer Triton Flo SC 0.5 fl oz	14	0.3 bc	0.0 c	0.7c-e	0.7 e
24	Bayer Triton Flo SC 0.75 fl oz	14	0.0 c	0.0 c	0.7 c-e	0.3 e
25	Bayer Triton Flo SC 1.0 fl oz	14	0.0 c	0.0 c	0.3 de	0.0 e
26	Bayer Bayleton Flo 1.0 fl oz 2nd spray Chipco Signature WG 4.0 oz 3rd spray Triton Flo SC 0.5 fl oz 4th spray Chipco Signature WG 4.0 oz 5th spray Daconil Ultrex 82.5 WG 3.2 oz 6th spray Chipco Signature WG 4.0 oz 7th spray Triton Flo SC 0.5 fl oz 8th spray Chipco Signature WG 4.0 oz 9th spray Daconil Ultrex 82.5 WG 3.2 oz	14	1.0 a-c	0.70 a-c	2.0 a-e	1.7 b-e
	LSD (0.05)[x]	---	1.3	1.4	2.1	2.1

[x]Means followed by the same letter are not significantly different within column according to Fisher's protected LSD at $P \leq 0.05$.

[z]Brown patch rating scale: 0 = no disease; 1 = 1–5%; 2 = 6–10%; 3 = 11–25%; 4 = 26–50%; 5 = > 50% plot symptomatic.

Table 2. Turf quality ratings in a comparison of fungicides applied to turfgrass greens.

TRT	Products and rates/1000 sq ft	Interval (days)	Quality rating 1–10[x, z] July 23	Aug. 7	Aug. 20
1	Unsprayed check	---	5.0 d	4.0 f	3.3 h
2	Gowan Rubigan AS 0.5 fl oz	14	6.0 a-d	5.7 b-e	6.0 a-e
3	Gowan Rubigan AS 1.0 fl oz	14	5.7 b-d	4.3 ef	6.3 a-d
4	Gowan Rubigan AS 0.5 fl oz + GWN-9812 1 qt/acre	14	7.0 ab	5.7 b-e	4.3 f-h
5	Gowan Rubigan AS 1.0 fl oz + GWN-9812 1 qt/acre	21	5.7 b-d	5.3 b-f	5.3 c-f
6	Gowan Rubigan AS 1.0 fl oz + GWN-9790 0.44 oz + GWN-9812 1 qt/acre	21	5.7 b-d	5.3 b-f	5.0 d-g
7	Gowan GWN-9790 0.44 oz + GWN-9812 1 qt/acre	21	6.7 a-c	5.0 c-f	5.0 d-g
8	Gowan GWN-9790 0.29 oz + GWN-9812 1 qt/acre	21	6.7 a-c	6.0 a-d	4.7 e-h
9	Gowan Banner Maxx 1.0 oz	21	6.3 a-d	6.0 a-d	6.3 a-d
10	Bayer Banner Maxx 2.0 oz	14	7.0 ab	6.0 a-d	5.7 b-f
11	BASF Emerald 70WG 0.13 oz + Iprodione Pro 2.0 fl oz	14	6.3 a-d	6.0 a-d	5.3 c-f
12	BASF Emerald 70WG 0.13 oz + Iprodione Pro 3.0 fl oz	14	6.7 a-c	5.7 b-e	5.0 d-g
13	BASF Emerald 70WG 0.13 oz + Daconil Ultrex 82.5 WG 1.8 oz	14	6.0 a-d	5.7 b-e	3.7 gh
14	BASF Emerald 70WG 0.13 oz + Daconil Ultrex 82.5 WG 3.25 oz	14	5.7 b-d	5.3 b-f	6.0 a-e
15	BASF Curalan EG 50WG 1.0 oz	14	5.3 cd	5.0 c-f	5.3 c-f
16	Valent Tourney 50WD 0.28 oz	14	7.0 ab	5.7 b-e	6.7 a-c
17	Valent Tourney 50WD 0.37 oz	14	5.3 cd	4.7 d-f	6.7 a-c
18	Bayer Reserve 4.8 SC 2.8 fl oz	7	6.3 a-d	6.3 a-c	6.7 a-c
19	Bayer Reserve 4.8 SC 3.2 fl oz	14	6.0 a-d	5.3 b-f	5.7 b-f
20	Bayer Reserve 4.8 SC 3.6 fl oz	14	6.7 a-c	5.3 b-f	7.0 ab
21	Bayer Reserve 4.8 SC 4.5 fl oz	14	7.0 ab	6.3 a-c	6.3 a-f
22	Bayer Concert EC 5 fl oz	14	5.7 b-d	4.3 ef	6.0 a-e
23	Bayer Triton Flo SC 0.5 fl oz	14	6.7 a-c	6.3 a-c	6.7 a-c
24	Bayer Triton Flo SC 0.75 fl oz	14	7.3 a	7.3 a	7.3 a
25	Bayer Triton Flo SC 1.0 fl oz	14	7.0 ab	6.7 ab	7.3 a
26	Bayer Bayleton Flo 1.0 fl oz 2nd spray Chipco Signature WG 4.0 oz 3rd spray Triton Flo SC 0.5 fl oz 4th spray Chipco Signature WG 4.0 oz 5th spray Daconil Ultrex 82.5 WG 3.2 oz 6th spray Chipco Signature WG 4.0 oz 7th spray Triton Flo SC 0.5 fl oz 8th spray Chipco Signature WG 4.0 oz 9th spray Daconil Ultrex 82.5 WG 3.2 oz	14	6.7 a-c	5.3 b-f	5.7 b-f
	LSD (0.05)[x]	---	1.6	1.5	1.6

[x]Means followed by the same letter are not significantly different within column according to Fisher's protected LSD at $P \leq 0.05$.

[z]A turf quality assessment of 1 to 10 (1 = poorest, 10 = best, 6 = acceptable)