

2010

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## Recommended Citation

Gleason, Mark L.; North, Brady S.; and Batzer, Jean C., "Fungicide Evaluation in Penncross Creeping Bentgrass at Greens Height" (2010). *Iowa State Research Farm Progress Reports*. 338.

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# Fungicide Evaluation in Penncross Creeping Bentgrass at Greens Height

## **Abstract**

Fungicide evaluations for control of dollar spot and brown spot in greens height creeping bentgrass were conducted at the Iowa State University Horticulture Station, Ames, IA.

## **Keywords**

RFR A9012, Plant Pathology

## **Disciplines**

Agricultural Science | Agriculture | Plant Pathology

# Fungicide Evaluation in Penncross Creeping Bentgrass at Greens Height

## RFR-A9012

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### Introduction

Fungicide evaluations for control of dollar spot and brown spot in greens height creeping bentgrass were conducted at the Iowa State University Horticulture Station, Ames, IA.

### Materials and Methods

Plots of creeping bentgrass (cv. Penncross) were maintained at 0.16-in. cutting height. On June 2 and June 9 plots were inoculated with rye grain infested with *Sclerotinia homoeocarpa*. 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 sub-plots measured 4 ft × 5 ft. Spray applications were initiated on June 4, except for treatment 26 was initiated May 15. Re-applications were made at recommended intervals until August 20. Periodic assessments of disease symptoms were initiated July 2. Visual estimates of disease severity of each plot with dollar spot symptoms were made at approximately 21-day intervals. Data were analyzed using the GLM procedure in SAS, and mean separations were determined using Fisher's protected LSD at

$P \leq 0.05$ . Visual estimates of disease severity of each sub-plot with brown spot symptoms also were made using a qualitative scale of 0–5 for brown patch, where 0 = no disease; 1 = 1–5%; 2 = 6–10%; 3 = 11–25%; 4 = 26–50%; and 5 = > 50% plot symptomatic. A turf quality assessment of 1 to 10 (1 = poorest, 10 = best, 7 = adequate) were taken four times throughout the season. 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 wet in June, then cool and dry in July, followed by moderately cool in August. Brown patch severity was low to moderate (Table 1). The unsprayed check had significantly higher disease ratings throughout the season. Most treatments resulted in complete disease control.

Dollar spot inoculations failed to cause disease in all plots, including the unsprayed control. The unsprayed check had the poorest turf quality, except during the August 7 observation. The last observation period generally had the best turf quality and most fungicides improved turf quality, in comparison with the unsprayed check (Table 2).

### Acknowledgements

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

**Table 1. Brown patch at the ISU Horticulture Station, Ames, IA.**

TRT	Products and rates per 1,000 sq ft	Interval (days)	Brown patch (0–5 rating) <sup>x, z</sup>			
			July 2	July 3	Aug 7	Aug 20
1	Unsprayed check	---	2.3 a	2.3 ab	0.8 a-c	2.0 a
2	Gowan Rubigan AS 0.5 fl oz	14	0.5 b	2.5 a	0.8 a-c	0.5 bc
3	Gowan Rubigan AS 1.0 fl oz	14	0.8 b	0.3 c	0.8 a-c	0.5 bc
4	Gowan Rubigan AS 0.5 fl oz + GWN-9812 1 qt/acre	14	1.0 ab	1.5 b	1.5 a	1.0 a-c
5	Gowan Rubigan AS 1.0 fl oz + GWN-9812 1 qt/acre	21	1.0 ab	2.3 ab	1.3 ab	0.8 bc
6	Gowan Rubigan AS 1.0 fl oz + GWN-9790 0.44 oz + GWN-9812 1 qt/ac	21	1.0 ab	0.3 c	0.8 a-c	0.3 c
7	Gowan GWN-9790 0.44 oz + GWN-9812 1 qt/acre	21	0.3 b	0.3 c	0.0 c	1.5 ab
8	Gowan GWN-9790 0.29 oz + GWN-9812 1 qt/acre	21	2.3 a	0.0 c	1.3 ab	0.0 c
9	Gowan Banner Maxx 1.0 oz	21	0.5 b	0.0 c	0.3 bc	0.0 c
10	Bayer Banner Maxx 2.0 oz	14	1.0 ab	0.0 c	1.3 ab	1.0 a-c
11	BASF Emerald 70WG 0.13 oz + Iprodione Pro 2.0 fl oz	14	0.0 b	0.0 c	0.3 bc	0.5 bc
12	BASF Emerald 70WG 0.13 oz + Iprodione Pro 3.0 fl oz	14	0.3 b	0.3 c	0.5 a-c	0.0 c
13	BASF Emerald 70WG 0.13 oz + Daconil Ultrex 82.5 WG 1.8 oz	14	0.0 b	0.0 c	0.0 c	0.0 c
14	BASF Emerald 70WG 0.13 oz + Daconil Ultrex 82.5 WG 3.25 oz	14	0.8 b	0.3 c	0.3 bc	0.0 c
15	BASF Curalan EG 50WG 1.0 oz	14	1.0 ab	0.3 c	0.5 a-c	0.0 c
16	Valent Tourney 50WD 0.28 oz	14	1.0 ab	0.3 c	0.0 c	0.0 c
17	Valent Tourney 50WD 0.37 oz	14	0.5 b	0.0 c	0.5 a-c	0.0 c
18	Bayer Reserve 4.8 SC 2.8 fl oz	7	0.0 b	0.0 c	0.0 c	0.0 c
19	Bayer Reserve 4.8 SC 3.2 fl oz	14	0.3 b	0.0 c	0.0 c	0.0 c
20	Bayer Reserve 4.8 SC 3.6 fl oz	14	0.0 b	0.0 c	0.0 c	0.0 c
21	Bayer Reserve 4.8 SC 4.5 fl oz	14	0.0 b	0.0 c	0.3 bc	0.0 c
22	Bayer Concert EC 5 fl oz	14	0.0 b	0.0 c	0.0 c	0.0 c
23	Bayer Triton Flo SC 0.5 fl oz	14	0.0 b	0.3 c	0.0 c	0.0 c
24	Bayer Triton Flo SC 0.75 fl oz	14	0.0 b	0.0 c	0.8 a-c	0.0 c
25	Bayer Triton Flo SC 1.0 fl oz	14	0.0 b	0.5 c	0.0 c	0.0 c
	Bayer Bayleton Flo 1.0 fl oz					
	2 <sup>nd</sup> spray Chipco Signature WG 4.0 oz					
	3 <sup>rd</sup> spray Triton Flo SC 0.5 fl oz					
	4 <sup>th</sup> spray Chipco Signature WG 4.0 oz					
26	5 <sup>th</sup> spray Daconil Ultrex 82.5 WG 3.2 oz	14	0.0 b	0.0	0.3 bc	0.0 c
	6 <sup>th</sup> spray Chipco Signature WG 4.0 oz					
	7 <sup>th</sup> spray Triton Flo SC 0.5 fl oz					
	8 <sup>th</sup> spray Chipco Signature WG 4.0 oz					
	9 <sup>th</sup> spray Daconil Ultrex 82.5 WG 3.2 oz					
	LSD (0.05) <sup>x</sup>	---	3.8	1.0	1.1	1.2

<sup>x</sup>Means followed by the same letter are not statistically different within column according to Fisher's protected LSD at  $P \leq 0.05$ .

<sup>z</sup>Disease rating scale 0 = no disease; 1 = 1–5%; 2 = 6–10%; 3 = 11–25%; 4 = 26–50%; and 5 = > 50% plot symptomatic.

**Table 2. Turf quality ratings at the ISU Horticulture Station, Ames, IA.**

TRT	Products and rates per 1000 sq ft	Interval (days)	Quality rating 1–10 <sup>x, z</sup>			
			July 2	July 23	Aug 7	Aug 2-
1	Unsprayed check	---	5.3 e	5.3 h	6.5 c-f	6.5 g
2	Gowan Rubigan AS 0.5 fl oz	14	6.5 a-e	5.3 h	6.5 c-f	7.3 d-g
3	Gowan Rubigan AS 1.0 fl oz	14	6.8 a-e	7.3 c-e	6.3 d-f	7.0 e-g
4	Gowan Rubigan AS 0.5 fl oz + GWN-9812 1 qt/acre	14	6.3 b-e	5.9 f-h	6.3 d-f	6.8 fg
5	Gowan Rubigan AS 1.0 fl oz + GWN-9812 1 qt/acre	21	6.0 c-e	5.5 hg	6.0 ef	7.3 d-g
6	Gowan Rubigan AS 1.0 fl oz + GWN-9790 0.44 oz + GWN-9812 1 qt/acre	21	6.7 a-e	7.3 c-e	6.0 ef	7.0 e-g
7	Gowan GWN-9790 0.44 oz + GWN-9812 1 qt/acre	21	7.0 a-e	6.5 e-g	6.8 b-f	6.8 fg
8	Gowan GWN-9790 0.29 oz + GWN-9812 1 qt/acre	21	5.8 de	7.3 c-e	6.8 b-f	8.0 a-e
9	Gowan Banner Maxx 1.0 oz	21	6.8 a-e	6.8 d-f	6.8 b-f	7.8 b-f
10	Bayer Banner Maxx 2.0 oz	14	6.0 c-e	6.8 d-f	5.8 f	6.8 fg
11	BASF Emerald 70WG 0.13 oz + Iprodione Pro 2.0 fl oz	14	7.8 a-c	6.5 e-g	7.0 b-e	7.5 c-g
12	BASF Emerald 70WG 0.13 oz + Iprodione Pro 3.0 fl oz	14	7.3 a-d	6.8 d-f	6.3 d-f	7.8 b-f
13	BASF Emerald 70WG 0.13 oz + Daconil Ultrex 82.5 WG 1.8 oz	14	7.3 a-d	6.8 d-f	6.5 c-f	8.0 a-e
14	BASF Emerald 70WG 0.13 oz + Daconil Ultrex 82.5 WG 3.25 oz	14	7.8 a-c	7.3 c-e	7.0 b-e	8.3 a-d
15	BASF Curalan EG 50WG 1.0 oz	14	6.3 b-e	7.0 c-e	7.3 b-d	8.0 a-e
16	Valent Tourney 50WD 0.28 oz	14	6.8 a-e	7.0 c-e	6.8 b-f	7.8 b-f
17	Valent Tourney 50WD 0.37 oz	14	6.0 c-e	7.0 c-e	6.5 c-f	7.8 b-f
18	Bayer Reserve 4.8 SC 2.8 fl oz	7	8.3 a	8.0 a-c	8.5 a	8.8 ab
19	Bayer Reserve 4.8 SC 3.2 fl oz	14	8.0 ab	7.3 c-e	7.3 b-d	8.5 a-c
20	Bayer Reserve 4.8 SC 3.6 fl oz	14	6.3 b-e	7.5 c-e	7.0 b-e	8.8 ab
21	Bayer Reserve 4.8 SC 4.5 fl oz	14	8.3 a	8.8 ab	7.0 b-e	8.5 a-c
22	Bayer Concert EC 5 fl oz	14	7.3 a-d	6.8 d-f	6.5 c-f	7.3 d-g
23	Bayer Triton Flo SC 0.5 fl oz	14	8.0 ab	7.0 c-e	7.0 b-e	8.3 a-d
24	Bayer Triton Flo SC 0.75 fl oz	14	7.5 a-d	7.8 b-d	7.3 b-d	8.3 a-d
25	Bayer Triton Flo SC 1.0 fl oz	14	7.8 a-c	7.5 c-e	7.5 a-c	9.0 a
	Bayer Bayleton Flo 1.0 fl oz					
	2 <sup>nd</sup> spray Chipco Signature WG 4.0 oz					
	3 <sup>rd</sup> spray Triton Flo SC 0.5 fl oz					
	4 <sup>th</sup> spray Chipco Signature WG 4.0 oz					
26	5 <sup>th</sup> spray Daconil Ultrex 82.5 WG 3.2 oz	14	8.3 a	9.0 a	7.8 ab	8.5 a-c
	6 <sup>th</sup> spray Chipco Signature WG 4.0 oz					
	7 <sup>th</sup> spray Triton Flo SC 0.5 fl oz					
	8 <sup>th</sup> spray Chipco Signature WG 4.0 oz					
	9 <sup>th</sup> spray Daconil Ultrex 82.5 WG 3.2 oz					
	LSD (0.05) <sup>x</sup>	---	1.8	1.1	1.1	1.1

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

<sup>z</sup>A turf quality assessment of 1 to 10 (1 = poorest, 10 = best, 6 = acceptable).