

CREEPING BENTGRASS (*Agrostis palustris* 'A-4')  
Brown patch; *Rhizoctonia solani*  
Dollar spot; *Sclerotinia homoeocarpa*  
Visual Quality  
Phytotoxicity

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### **Preventative control of brown patch and dollar spot in creeping bentgrass putting greens, 2003.**

Fungicides were evaluated for their effect on brown patch, dollar spot, and visual quality. This trial was conducted at the Sandhills Research Station in Jackson Springs, NC on 'A-4' creeping bentgrass maintained under golf course putting green conditions. Mowing was performed 3 times weekly at a height of 0.187 in. with clippings collected, and the site was irrigated to prevent drought stress. Fertilizer was applied as 18-6-15 on 2 May, 13 May, and 9 Jul (0.63 lb N/1000 sq ft), and as 13-2-26 on 13 Jun (0.45 lb N/1000 sq ft). Insect pests were suppressed with Deltagard GC (0.4 oz/1000 sq ft) on 20 Jun and 24 Jun. Bayleton 50 (0.76 oz/1000 sq ft) was applied on 30 May for control of dollar spot, and Subdue Maxx + Primer (1.11 + 5.5 fl oz/1000 sq ft) was applied on 2 Jun for prevention of *Pythium* blight and localized dry spots. Plots were 3.33 ft x 5 ft and were arranged in a randomized complete block with four replications. Fungicides were applied in water equivalent to 2 gal per 1000 sq ft with a CO<sub>2</sub> powered sprayer at 40 psi using TeeJet 8004 flat fan nozzles. All treatments were initiated on 5 Jun. Fungicides were reapplied at the appropriate intervals as indicated in the table. The experimental area was inoculated on 3 June and 1 July using rye grain infested with *Rhizoctonia solani* AG2-2 IIBB to encourage brown patch development. Percent turf area exhibiting brown patch symptoms was assessed on 29 Jul, 5 Aug, and 13 Aug. Dollar spot incidence was assessed by counting the total number of infection centers in each plot on 1 Jul, 15 Jul, 29 Jul, and 13 Aug. Phytotoxicity, in the form of leaf-tip necrosis, was evaluated on 5 Aug, using a 1 to 9 scale (9=most severe; 0=no phytotoxicity observed). Turfgrass quality was evaluated on 27 Aug, using a 1 to 9 scale (9=best, 5=acceptable) based on color, density, and uniformity. All data were subjected to analysis of variance and means separation by Waller-Duncan k-ratio t test (k=100).

Symptoms of brown patch were first observed in the experimental area on 29 Jul. Brown patch pressure was low throughout June, but increased steadily during July following a second inoculation with *R. solani*. All treatments resulted in significant suppression of brown patch on all ratings dates, except for on 13 Aug, when Banner MAXX (1 fl oz), Silwet (0.25% v/v), and Medallion (0.25 oz) did not significantly reduce brown patch compared to the Untreated Control. Overall, these treatments did not provide adequate control of brown patch during this trial.

Phytotoxicity was observed on 5 Aug in plots treated with A13705 (1.33 fl oz), A14035A (9.33 fl oz), A14036A (9.33 fl oz), A13817B (4.2 fl oz), A14167 (1.33 fl oz), Banner MAXX (1 fl oz), and Banner MAXX + Heritage (1 fl oz + 0.2 oz). Plots treated with 26GT (4 fl oz), TADS1557 (2.7 fl oz), TADS1557 (5.4 fl oz), Iprodione Pro (4 fl oz), Silwet (0.25% v/v), Medallion (0.25 oz), and Endorse (4 oz) failed to improve turfgrass quality compared to the Untreated Control on 27 Aug.

Symptoms of dollar spot were first observed on 1 Jul. Disease pressure was low to moderate throughout the study. Most treatments in this trial provided acceptable control of dollar spot. Plots treated with Compass (0.15 oz), Heritage (0.4 oz), Heritage MAXX (1.84 fl oz), Silwet (0.25% v/v), Medallion (0.25 oz), Endorse (4 oz), and Insignia (0.5 oz) exhibited significantly higher dollar spot incidence than the Untreated Control on one or more rating dates during July and August.

**Table 1.** Effect of fungicide treatments on brown patch incidence, phytotoxicity, and turfgrass quality in ‘A-4’ creeping bentgrass in Jackson Springs, NC.

Treatment and rate / 1000 sq ft	Spray Interval (days)	Brown patch incidence (%)			Phytotoxicity <sup>z</sup> 5 Aug	Turf quality <sup>y</sup> 27 Aug
		29 Jul	5 Aug	13 Aug		
Lynx 45WG 0.28 oz	14 <sup>x</sup>	5 d-g <sup>w</sup>	1 e	5 bc	0.0 g	5.5 d-h
Lynx 45WG 0.56 oz	14	0 g	0 e	0 c	0.0 g	7.8 a
Lynx 45WG 0.56 oz + Signature 80WDG 4 oz	14	0 g	0 e	0 c	0.0 g	7.5 ab
26GT 2SC 4 fl oz	14	0 g	0 e	2 bc	0.0 g	4.3 hi
TADS1557 3SC 2.7 fl oz	14	1 fg	1 e	5 bc	0.0 g	4.8 f-i
TADS1557 3SC 5.4 fl oz	14	0 g	0 e	3 bc	0.0 g	4.5 ghi
Iprodione Pro 2SC 4 fl oz	14	6 de	6 cd	10 b	0.0 g	4.5 ghi
Compass 50WDG 0.15 oz	14	1 efg	1 e	1 c	0.0 g	5.0 e-i
Compass 50WDG 0.25 oz	21	2 efg	1 e	0 c	0.0 g	6.3 a-f
A13705 SC 1.33 fl oz	14	0 g	0 e	0 c	0.8 ef	6.8 a-d
A14035A SC 9.33 fl oz	14	0 g	0 e	0 c	5.3 b	6.0 b-g
A14036A SC 9.33 fl oz	14	0 g	0 e	0 c	6.8 a	6.3 a-f
A13817B SC 4.2 fl oz	14	0 fg	0 e	2 bc	1.8 cd	6.0 b-g
A14167 SC 1.33 fl oz	14	0 g	0 e	0 c	2.0 c	6.3 a-f
A13666 SC 1.6 fl oz	14	1 efg	0 e	0 c	0.0 g	7.0 a-d
Banner MAXX 1.24ME 1 fl oz	14	13 c	19 b	21 a	0.5 fg	6.3 a-f
Banner MAXX 1.24ME 1 fl oz + Heritage 50WG 0.2 oz	14	0 g	0 e	0 c	1.3 de	6.8 a-d
Heritage 50WG 0.2 oz	14	2 efg	1 e	3 bc	0.0 g	6.8 a-d
Heritage 50WG 0.4 oz	28	3 efg	0 e	0 c	0.0 g	5.5 d-h
Heritage MAXX ME 0.92 fl oz	14	3 efg	0 e	1 c	0.0 g	7.0 a-d
Heritage MAXX ME 1.84 fl oz	28	2 efg	0 e	0 c	0.0 g	5.5 d-h
Heritage MAXX ME 3.68 fl oz	28	2 efg	0 e	1 c	0.0 g	7.0 a-d
Heritage 50WG 0.2 oz + Silwet SC 0.25% v/v	14	3 d-g	0 e	0 c	0.0 g	5.8 c-h
Silwet SC 0.25% v/v	14	20 b	17 b	21 a	0.0 g	3.5 i
Daconil Ultrex 82.5WDG 2.4 oz	14	5 def	2 de	5 bc	0.0 g	6.0 b-g
Medallion 50WP 0.25 oz	14	8 d	9 c	18 a	0.0 g	4.3 hi
Daconil Ultrex 82.5WDG 2.4 oz + Medallion 50WP 0.25 oz	14	0 fg	0 e	2 bc	0.0 g	5.5 d-h
Daconil Ultrex 82.5WDG 2.4 oz + Heritage 50WG 0.2 oz	14	3 efg	2 de	2 c	0.0 g	7.3 abc
3336 50WP 4 oz	14	0 fg	0 e	1 c	0.0 g	5.0 e-i
Daconil Ultrex 82.5WDG 3.2 oz	14	1 fg	1 e	4 bc	0.0 g	5.5 d-h
Spectro 90WDG 4 oz	14	2 efg	0 e	2 bc	0.0 g	6.8 a-d
Endorse 2.5WP 4 oz	14	0 g	0 e	3 bc	0.0 g	4.5 ghi
Insignia 20WG 0.5 oz	14	1 fg	0 e	0 c	0.0 g	6.5 a-e
Insignia 20WG 0.9 oz	28	1 efg	0 e	1 c	0.0 g	7.0 a-d
Systar 80WDG 2 oz	14	0 g	0 e	2 bc	0.0 g	6.0 b-g
Untreated Control	--	29 a	24 a	19 a	0.0 g	4.3 hi

<sup>z</sup>Phytotoxicity, in the form of tip-necrosis, where 9=most severe and 0=no phytotoxicity observed.

<sup>y</sup>Turfgrass quality on a 1 to 9 scale, where 9=highest quality and 5=acceptable quality.

<sup>x</sup>Fungicides were applied on 5 Jun (all treatments), 19 Jun (14 day treatments), 26 Jun (21 day treatments), 3 Jul (14 and 28 day treatments), 17 Jul (14 and 21 day treatments), 1 Aug (14 and 28 day treatments), 7 Aug (21 day treatments), and 14 Aug (14 day treatments).

<sup>w</sup>Values are means of four replicates. Means within columns followed by the same letter are not significantly different according to Waller-Duncan k-ratio t-test (k=100).

**Table 2.** Effect of fungicide treatments on dollar spot incidence in ‘A-4’ creeping bentgrass in Jackson Springs, NC.

Treatment and rate / 1000 sq ft	Spray Interval (days)	Dollar spot incidence (infection centers per plot)			
		1 Jul	15 Jul	29 Jul	13 Aug
Lynx 45WG 0.28 oz .....	14 <sup>z</sup>	0 g <sup>y</sup>	0 d	0 f	0 g
Lynx 45WG 0.56 oz .....	14	0 g	0 d	0 f	0 g
Lynx 45WG 0.56 oz + Signature 80WDG 4 oz .....	14	0 fg	0 d	0 f	0 g
26GT 2SC 4 fl oz .....	14	0 fg	0 d	0 f	0 g
TADS15573 SC 2.7 fl oz .....	14	0 g	0 d	0 f	0 g
TADS15573 SC 5.4 fl oz .....	14	0 g	0 d	1 ef	0 g
Iprodione Pro 2SC 4 fl oz .....	14	0 g	0 d	1 ef	0 g
Compass 50WDG 0.15 oz .....	14	2 c-g	4 bcd	8 b-e	13 abc
Compass 50WDG 0.25 oz .....	21	1 efg	2 cd	4 def	6 c-g
A13705 SC 1.33 fl oz .....	14	0 g	0 d	1 ef	0 g
A14035A SC 9.33 fl oz .....	14	0 g	0 d	0 f	0 g
A14036A SC 9.33 fl oz .....	14	0 g	0 d	0 f	0 g
A13817B SC 4.2 fl oz .....	14	0 g	0 d	0 f	1 fg
A14167 SC 1.33 fl oz .....	14	0 g	0 d	2 def	0 g
A13666 SC 1.6 fl oz .....	14	0 g	1 d	4 def	5 c-g
Banner MAXX 1.24ME 1 fl oz .....	14	0 g	0 d	0 f	0 g
Banner MAXX 1.24ME 1 fl oz + Heritage 50WG 0.2 oz .....	14	0 fg	0 d	1 ef	0 g
Heritage 50WG 0.2 oz .....	14	1 d-g	2 cd	6 c-f	6 c-g
Heritage 50WG 0.4 oz .....	28	4 a-d	7 bc	16 ab	17 ab
Heritage MAXX ME 0.92 fl oz .....	14	3 b-g	5 bcd	7 c-f	10 a-e
Heritage MAXX ME 1.84 fl oz .....	28	6 ab	6 bcd	16 ab	17 a
Heritage MAXX ME 3.68 fl oz .....	28	4 a-e	3 cd	10 bcd	7 c-g
Heritage 50WG 0.2 oz + Silwet SC 0.25% v/v .....	14	1 d-g	2 cd	6 c-f	10 a-e
Silwet SC 0.25% v/v .....	14	7 a	10 b	15 ab	18 a
Daconil Ultrex 82.5WDG 2.4 oz .....	14	0 g	0 d	1 ef	1 efg
Medallion 50WP 0.25 oz .....	14	4 a-e	5 bcd	12 bc	11 a-d
Daconil Ultrex 82.5WDG 2.4 oz + Medallion 50WP 0.25 oz .....	14	0 g	0 d	1 ef	1 efg
Daconil Ultrex 82.5WDG 2.4 oz + Heritage 50WG 0.2 oz .....	14	0 g	0 d	0 f	1 efg
3336 50WP 4 oz .....	14	1 d-g	2 cd	2 def	6 c-g
Daconil Ultrex 82.5WDG 3.2 oz .....	14	0 g	0 d	0 f	0 g
Spectro 90WDG 4 oz .....	14	1 efg	1 d	3 def	2 d-g
Endorse 2.5WP 4 oz .....	14	5 abc	16 a	21 a	14 abc
Insignia 20WG 0.5 oz .....	14	4 a-f	4 bcd	13 abc	9 a-f
Insignia 20WG 0.9 oz .....	28	1 d-g	1 d	4 def	1 efg
Systar 80WDG 2 oz .....	14	1 d-g	2 cd	6 c-f	8 b-g
Untreated Control .....	--	1 efg	1 d	3 def	2 d-g

<sup>z</sup>Fungicides were applied on 5 Jun (all treatments), 19 Jun (14 day treatments), 26 Jun (21 day treatments), 3 Jul (14 and 28 day treatments), 17 Jul (14 and 21 day treatments), 1 Aug (14 and 28 day treatments), 7 Aug (21 day treatments), and 14 Aug (14 day treatments).

<sup>y</sup>Values are means of four replicates. Means within columns followed by the same letter are not significantly different according to Waller-Duncan k-ratio t-test (k=100).