

Preventative control of anthracnose foliar blight in creeping bentgrass, 2006.

Fungicides were evaluated for control of anthracnose foliar blight in creeping bentgrass putting greens. This trial was conducted at Lake Wheeler Turfgrass Field Laboratory in Raleigh, NC on 'Dominant Plus' creeping bentgrass maintained under putting green conditions. Mowing was performed five times weekly at a height of 0.22 in. with clippings collected, and the site was irrigated to prevent drought stress. Fertilizer was applied as 7-23-19 on 16 Feb (0.3 lb N/1000 sq ft), 19-5-19 on 1 Mar (0.5 lb N/1000 sq ft), 20-5-10 on 19 Apr (0.75 lb N/1000 sq ft), 18-3-16 on 20 Mar, 5 May, 21 Aug (0.5 lb N/1000 sq ft), 20-20-20 on 20 Jul (0.125 lb N/1000 sq ft), and 18-3-6 on 6 Apr and 4 Aug (0.24 lb N/1000 sq ft). Micro-nutrients were applied as Brexil Multi (3.0 oz/1000 sq ft) on 14 Feb, 27 Mar, and 4 Aug and HEP 35 (4.0 oz/1000 sq ft) on 6 Apr and 29 Jun. Insect pests were suppressed with Allectus G (2.9 lb/1000 sq ft), Scimitar (8.0 fl oz/A), and Dursban Pro (1.5 fl oz/1000 sq ft) on 1 May, 11 Jul, and 24 Aug, respectively. Fore 80WP (6.0 oz/1000 sq ft) was applied on 24 Jul and 1 Aug for control of algae. Plots were 3.33 ft x 6 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 CO₂ powered sprayer at 40 psi using TeeJet 8004 nozzles. All treatments were initiated on 29 Jun and were reapplied at the appropriate intervals as indicated in the table. The experimental area was inoculated on 25 May using a spore suspension containing *C. cereale* isolates ABR-1, 3, 5, 7, 46, 48, 50, and 52 to encourage anthracnose development. Percent turf area exhibiting anthracnose symptoms was assessed on 6 and 23 Aug. Turfgrass quality was evaluated on 21 Jul and 6 Aug, using a 1 to 9 scale (9=best, 5=acceptable) based on color, density, and uniformity. Data were subjected to analysis of variance and means separation by Waller-Duncan k-ratio t test (k=100).

Little anthracnose activity was observed in the experimental area during June due to cool and wet weather conditions. The months of July and August were highly stressful for creeping bentgrass, with average high and low temperatures of 90°F and 70°F, respectively, and 2.5 in. of total precipitation. On 21 Jul, after 2 applications, significant differences in turf quality were observed due to reduced turf density and severe algae invasion in certain treatments. Compared to the untreated control, applications of 3336 Plus + CL-EXP-8 (6 fl oz + 8 oz), CL-EXP-10, Spectro + Alude, Spectro + CL-EXP-11, Disarm + Banner Maxx, Disarm + Daconil Ultrex, Disarm + Endorse, Disarm + Banner Maxx + Vital Sign, and Signature + Daconil Ultrex significantly improved turf quality on this date. These same treatments, with the exception of CL-EXP-10 and Spectro + Alude, also increased turf quality on 6 Aug. Anthracnose activity was first observed in the experimental area in early August, and microscopic observations indicated that the majority of pathogen activity was foliar. On 6 Aug, significant anthracnose suppression was provided by 3336 + CL-EXP-8 (6 fl oz + 8 oz), CL-EXP-8 (8 oz), CL-EXP-9, Spectro + CL-EXP-11, V-10116 (0.37 oz), Signature, Disarm (0.18 oz), Disarm + Banner Maxx, Disarm + Banner Maxx + Vital Sign, Disarm alt Banner Maxx, and Signature + Daconil Ultrex. No significant differences in anthracnose incidence were observed on 23 Aug.

Treatment, formulation, and rate per 1000 sq ft	Spray Interval (days)	Turfgrass quality ^z		Anthracnose incidence (%)	
		21 Jul	6 Aug	6 Aug	23 Aug
3336 Plus SC 6.0 fl oz	14 ^y	2.8 fgh ^x	2.8 f	22 b-f	8 a
3336 Plus SC 6.0 fl oz + CL-EXP-8 WP 8.0 oz	14	5.3 abc	5.8 ab	4 j	4 a
3336 Plus SC 6.0 fl oz + CL-EXP-8 WP 4.0 oz	14	4.0 b-g	4.3 b-f	13 e-j	6 a
Alude L 5.5 fl oz	14	2.8 fgh	3.3 ef	29 ab	15 a
CL-EXP-10 F 10.5 fl oz.....	14	4.3 a-f	3.8 def	26 abc	3 a
CL-EXP-11 L 5.5 fl oz	14	2.0 h	2.8 f	37 a	8 a
CL-EXP-8 WP 8.0 oz	14	3.5 c-h	3.5 def	10 hij	5 a
CL-EXP-8 WP 4.0 oz	14	2.3 gh	3.3 ef	14 d-j	1 a
CL-EXP-9 WG 1.2 oz.....	14	3.3 d-h	4.5 b-e	9 hij	4 a
Spectro 90WG 5.75 oz.....	14	3.8 c-h	3.5 def	16 c-h	1 a
Spectro 90WG 5.75 oz + Alude L 5.5 fl oz.....	14	5.0 a-d	4.5 b-e	21 b-g	3 a
Spectro 90WG 5.75 oz + CL-EXP-11 L 5.5 fl oz.....	14	6.0 a	5.8 ab	12 f-j	4 a
V-10116 50WG 0.18 oz.....	14	3.3 d-h	4.3 b-f	15 d-i	3 a
V-10116 50WG 0.37 oz.....	14	3.0 e-h	3.8 def	13 f-j	7 a
Heritage 50WG 0.2 oz	14	4.0 b-g	4.0 c-f	25 bcd	14 a
Signature 80WG 4.0 oz.....	14	3.0 e-h	4.0 c-f	12 f-j	7 a
Banner MAXX 1.3ME 1.0 fl oz.....	14	3.5 c-h	3.8 def	13 e-j	13 a
Disarm 4SC 0.18 fl oz.....	14	2.5 fgh	3.8 def	11 g-j	10 a
Disarm 4SC 0.36 fl oz.....	14	3.8 c-h	4.0 c-f	15 d-j	13 a
Disarm 4SC 0.18 fl oz + Banner MAXX 1.3ME 1.0 fl oz.....	14	4.3 a-f	5.0 a-d	4 ij	5 a
Disarm 4SC 0.18 fl oz + Daconil Ultrex 82.5WG 1.8 oz.....	14	5.8 ab	5.0 a-d	14 d-j	16 a
Disarm 4SC 0.18 fl oz + Endorse 2.5WP 2.0 oz.....	14	4.3 a-f	5.0 a-d	15 d-i	10 a
Disarm 4SC 0.18 fl oz + Banner MAXX 1.3ME 1.0 fl oz + Vital Sign 4.0 fl oz	14	4.8 a-e	5.5 abc	11 f-j	13 a
Disarm 4SC 0.18 fl oz <i>alt</i> Banner MAXX 1.3ME 1.0 fl oz.....	14 ^w	3.3 d-h	4.3 b-f	8 hij	5 a
Disarm 4SC 0.18 fl oz <i>alt</i> Endorse 2.5WP 2.0 oz.....	14 ^v	3.3 d-h	3.8 def	16 c-h	13 a
Signature 80WG 4.0 oz + Daconil Ultrex 82.5WG 3.2 oz.....	14	5.8 ab	6.3 a	7 hij	3 a
Daconil Ultrex 82.5WG 3.2 oz.....	14	2.5 fgh	2.8 f	30 ab	1 a
Alude L 5.5 fl oz + Daconil Ultrex 82.5WG 3.2 oz.....	14	3.8 c-h	3.8 def	29 ab	6 a
Insignia 20WG 0.5 oz	14	3.3 d-h	3.5 def	15 c-h	8 a
Untreated Control.....		2.3 gh	3.3 ef	24 b-e	11 a

^zTurfgrass quality on a 1 to 9 scale, where 9=highest quality and 5=acceptable.

^yFungicides were applied on a 14 day interval (29 Jun, 13 and 27 Jul, 10 and 23 Aug) unless otherwise noted in the table.

^xValues are means of four replications. Means within columns followed by the same letter are not significantly different according to Waller-Duncan k-ratio t-test (k=100).

^wFungicides were applied alternately, Disarm on 29 Jun, 27 Jul, 23 Aug, and Banner MAXX on 13 Jul and 10 Aug.

^vFungicides were applied alternately, Disarm on 29 Jun, 27 Jul, 23 Aug, and Endorse on 13 Jul and 10 Aug.