

COLONIAL BENTGRASS (*Agrostis capillaris*)
CREEPING BENTGRASS (*Agrostis stolonifera* 'Seaside')
ANNUAL BLUEGRASS (*Poa annua*)
Dollar Spot; *Sclerotinia homoeocarpa*

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Preventative control of dollar spot caused by a population of *Sclerotinia homoeocarpa* isolates exhibiting dual fungicide resistance, 2012.

This field trial was conducted at Hickory Ridge Golf Club, in Amherst MA to evaluate fungicide treatments for control of dollar spot under natural disease conditions. The plot consisted of a mixed stand of creeping bentgrass, an unknown cultivar of colonial bentgrass and annual bluegrass established in 1965 on a native soil (Boxford silt loam). The site was maintained under fairway conditions with mowing performed 2-3 times per week (0.50-inch cutting height). Irrigation was applied as needed to prevent drought stress. 19-0-19 fertilizer was applied at a rate of 0.5 lb nitrogen N/1,000 sq ft on 12 Jun. The plant growth regulator Goldwing™ was applied at a rate of 0.25 fl oz/1,000 sq ft on 15 Jun. The herbicide Drive XLR8 1.5ME was applied at a rate of 0.5 fl oz/1,000 sq ft on 15 Jun. Individual plots measured 3 ft × 6 ft with a 1-ft buffer strip and were arranged in a randomized complete block design with four replications. All treatments were applied preventatively and were initiated on 16 May and continued through 8 Aug. All individual treatments were applied at a nozzle pressure of 40 psi using a CO₂-pressurized boom sprayer equipped with two XR TeeJet 8004VS nozzles in the equivalent of 2 gallons of water per 1,000 sq ft. Dollar spot was rated weekly as a count of individual infection centers. The area under the disease progress curve (AUDPC) was calculated for the number of infection centers using the formula $\sum[(y_i + y_{i+1})/2](t_{i+1} - t_i)$, where $i = 1, 2, 3, \dots, n-1$ and y_i is the amount of disease (number of infection centers) at the time t_i (days) of the i^{th} rating. All dollar spot assessments were subject to an analysis of variance and means were separated using Fisher's LSD test ($P < 0.05$).

Individual leaf blades from dollar spot infection centers were sampled (five per replication) within untreated plots on 25 May. In total, *S. homoeocarpa* was isolated from 11 of the 20 leaf blades. Discriminatory concentrations of propiconazole (1 ppm) and thiophanate-methyl (1,000 ppm) were amended into potato dextrose agar and used to assess the sensitivity of isolates. Of the 11 isolates assayed, 9 out of the 11 were confirmed to be DMI insensitive and 9 out of the 11 were benzimidazole resistant. Moreover, prior DMI field efficacy testing (Popko et al., 2012) confirmed reduced efficacy in comparison to a local baseline site. Moderate to high dollar spot pressure was observed from mid-May through June and again in August. Rainfall was below average in July and dry conditions led to reduced dollar spot pressure in the middle of the trial. All treatments yielded statistically better control than the untreated on all rating dates. Most treatments provided acceptable control throughout the trial with a few exceptions. Quali-Pro™ was the least effective fungicide, which is expected due to the high number of thiophanate-methyl resistant isolates detected at the site. The lower rate of Velista was statistically similar to Quali-Pro™ and did not adequately control dollar spot. Secure + A9898A and the higher rate of Velista tank-mixed with Curalan (1.0 oz/1,000 sq ft) controlled dollar spot very well. All treatments that included QP Enclave controlled dollar spot very well. Overall, Secure (applied alone) and tank mix treatments with either A9898A or Banner MAXX provided adequate dollar spot control throughout the trial. Preventative treatments improved the performance of DMI fungicides in comparison to previously observed trials. Phytotoxicity was not observed during the course of the study.

Treatment and rate per 1,000 sq ft	Application Code ^y	Dollar Spot Severity ^z		
		27 Jun	14 Aug	AUDPC ^x
Untreated	---	64 a ^w	78 a	5415 a
Secure 4.17SC 0.5 fl oz	ABDEFHI	0 ef	0 e	327 c-e
Daconil Action 6.11SC 2.0 fl oz.....	ABDEFHI	12 c-f	7 de	901 c-e
A9898A 0.6 fl oz.....	ABDEFHI	4 d-f	5 e	376 c-e
Quali-Pro TM 4.5SC 2.0 fl oz	ABDEFHI	21 bc	42 b	2437 b
QP Enclave 3.0 fl oz + Foursome 0.4 fl oz	ABDEFHI	2 ef	5 de	244 e
QP Enclave 4.0 fl oz + Foursome 0.4 fl oz.....	ACEGI	0 f	3 e	281 e
QP Enclave 3.0 fl oz + QP Fosetyl-AL 80WDG 4.0 oz + Foursome 0.4 fl oz	ABDEFHI	2 d-f	3 e	268 e
QP Enclave 4.0 fl oz + QP Fosetyl-AL 80WDG 4.0 oz + Foursome 0.4 fl oz	ACEGI	2 ef	0 e	332 c-e
Velista 50WDG 0.3 oz + Daconil Ultrex 82.5WG 3.25 oz.....	ACEGI	5 d-f	1 e	781 c-e
Velista 50WDG 0.3 oz.....	ACEGI	26 b	22 cd	2206 b
Velista 50WDG 0.5 oz.....	ACEGI	15 b-d	9 de	1137 cd
Velista 50WDG 0.5 oz + Curalan 50EG 1.0 oz	ACEGI	1 ef	0 e	262 e
Velista 50WDG 0.5 oz <i>alternated with</i>	AEI			
+ Curalan 50EG 1.0 oz.....	CG	2 ef	15 de	757 c-e
Secure 4.17SC 0.5 fl oz + A9898A 0.6 fl oz.....	ABDEFHI	0 f	0 e	218 e
Banner MAXX 1.3ME 1.0 fl oz.....	ABDEFHI	5 d-f	1 e	314 de
Secure 4.17SC 0.5 fl oz + Banner MAXX 1.3ME 1.0 fl oz.....	ABDEFHI	1 ef	0 e	578 c-e
Emerald 70 WG 0.18 oz.....	ACEGI	3 d-f	0 e	323 c-e

^z Dollar spot was rated as a count of individual infection centers and values are reported as the mean of 4 replications.

^y Application code indicates date of each treatment: A-16 May, B-31 May, C-7 Jun, D-14 Jun, E-27 Jun, F-11 Jul, G-18 Jul, H-25 Jul and I-9 Aug.

^x Area under the disease progress curve values were reported as the mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).