

CREEPING BENTGRASS (*Agrostis stolonifera* 'L-93')
ANNUAL BLUEGRASS (*Poa annua*)
Dollar Spot; (*Sclerotinia homoeocarpa*)
Copper Spot; (*Gloeocercospora sorghi*)

J. Popko and G. Jung
Stockbridge School of Agriculture
University of Massachusetts
Amherst, MA 01003

Evaluation of new products for curative dollar spot control on a creeping bentgrass and annual bluegrass putting green, 2012.

This trial was conducted at the Joseph Troll Turf Research Center in South Deerfield, MA to evaluate fungicide treatments for curative control of dollar spot under natural disease conditions. The plot consisted of approximately 90% creeping bentgrass (cultivar 'L-93') and 10% annual bluegrass maintained under putting green conditions. Mowing was performed five times per week (0.156-inch cutting height) and clippings were collected. 19-3-19 fertilizer was applied at a rate of 0.5 lb N/1,000 sq ft on 19 July. Tupersan 50WP was applied 23 May to control crabgrass at a rate of 24 lb/A. Sevin SL was applied at a rate of 4.0 fl oz/1,000 sq ft on 6 Jul to control cutworms. The trial area was irrigated as needed to prevent drought stress. Individual plots measured 3 ft x 6 ft and were arranged in a randomized complete block design with three replications. Treatments were initiated on 20 Jun and continued through 31 Jul. 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 (26 Jun to 14 Aug) by counting individual infection centers or using a 1 to 9 rating scale (9=no dollar spot 6= acceptable, less than 3% dollar spot). Copper spot severity was also determined on a 1-5 rating scale (1=no copper spot, 5=100% copper spot) on 14 Aug. Turf quality was assessed bi-weekly starting on 19 Jul to 14 Aug on a 1 to 9 rating scale (9=best, 6=acceptable). All disease assessments were subject to an analysis of variance and means were separated using Fisher's LSD test ($P < 0.05$).

A severe dollar spot outbreak (100+ infection centers per plot) occurred in June and all treatments were initiated curatively on 20 Jun. All fungicide treatments provided significantly better dollar spot control than untreated by the second rating date (6 Jul). Most treatments that included a systemic fungicide provided acceptable control (> 6) by the final rating date (14 Aug). PAR and Foursome (pigment products) did not control dollar spot when applied alone or improve turf quality compared to the untreated. PAR and Foursome tank-mixed with Daconil Weatherstik produced similar dollar spot control and turf quality results to Daconil Weatherstik applied alone. Civitas + Harmonizer reduced dollar spot, but did not provide an acceptable level of control. On 14 Aug, significantly higher copper spot incidence was observed in plots treated with 0.5 oz/1,000 sq ft rate of Velistra than all other treated or untreated plots. Copper severity was similar to the untreated for all rates of IKF-5411, Daconil Weatherstik, Velistra (0.3 oz/1,000 sq ft), PAR, Foursome, Civitas + Harmonizer, Foursome + Daconil Weatherstik. Phytotoxicity (thinning/reduced turfgrass cover) was observed in the Civitas + Harmonizer + Daconil Weatherstik tank-mix, significantly reducing turf quality lower than Civitas + Harmonizer applied alone.

Treatment and rate per 1,000 sq ft	Application	Dollar Spot Severity ^y					
	Code ^z	26 Jun	6 Jul	13 Jul	19 Jul	27 Jul	14 Aug ^x
Untreated	---	142 a ^w	119 ab	120 ab	195 ab	188 ab	1.3 f
Torque 3.6SC 0.6 fl oz + Spectro 90WDG 3.75 oz	AD						
<i>alternated with</i>							
26/36 4F 4.0 fl oz	BE	73 f	36 ef	21 de	18 gh	0 e	9.0 a
IKF 400SC 0.4 fl oz	ABDE	88 c-f	39 ef	14 e	39 d-h	4 e	9.0 a
IKF 400SC 0.5 fl oz	ABDE	94 c-f	26 f	11 e	16 gh	1 e	9.0 a
IKF 400SC 0.5 fl oz	ACE	77 ef	27 f	23 de	23 e-h	20 de	9.0 a
Daconil Weatherstik 6.0SC 2.0 fl oz	ABDE	101 b-f	50 c-f	31 de	80 c-g	19 de	4.7 bc
Daconil Action 6.11SC 2.0 fl oz	ABDE	84 d-f	32 ef	29 de	69 d-h	11 e	4.0 cd
Secure 4.17SC 0.5 fl oz	ABDE	95 c-f	29 f	13 e	11 h	1 e	9.0 a
A9898A 0.6 fl oz.....	ACE	102 b-f	47 d-f	16 e	10 h	0 e	8.3 a
Briskway 2.72SC 0.7 fl oz	ABDE	93 c-f	35 ef	26 de	16 gh	0 e	9.0 a
Appear 4.1L 4.0 fl oz + Daconil Action 6.11SC 2.0 fl oz.....	ABDE	93 c-f	49 c-f	41 de	53 d-h	15 de	5.7 b
Enclave 3.0 fl oz.....	ACE	87 c-f	40 ef	37 de	23 e-h	1 e	9.0 a
Velista 50WDG 0.3 oz.....	ABDE	79 ef	32 ef	39 de	88 c-e	1 e	9.0 a
Velista 50WDG 0.5 oz.....	ACE	77 ef	32 f	47 c-e	21 f-h	12 e	9.0 a
PAR SC 0.37 fl oz	ABDE	115 a-d	97 a-c	114 ab	183 ab	149 bc	2.0 ef
Foursome 0.5 fl oz	ABDE	134 ab	121 ab	148 a	211 a	214 ab	1.3 f
Civitas L 16.0 fl oz + Harmonizer L 1.0 fl oz	ABDE	97 c-f	58 c-f	36 de	84 c-f	38 de	4.0 cd
PAR SC 0.37 fl oz + Daconil Weatherstik 6.0SC 2.0 fl oz.....	ABDE	86 c-f	43 d-f	31 de	78 c-g	9 e	4.3 b-d
Foursome 0.5 fl oz + Daconil Weatherstik 6.0SC 2.0 fl oz.....	ABDE	107 a-f	81 b-e	63 cd	141 bc	82 cd	3.0 de
Civitas L 16.0 fl oz + Harmonizer L 1.0 fl oz + Daconil Weatherstik 6.0SC 2.0 fl oz.....	ABDE	112 a-e	88 a-d	90 bc	89 cd	1 e	5.3 bc

^z Application code indicates date of each treatment: A-20 Jun, B-3 Jul, C-10 Jul, D-17 Jul, E-31 Jul.

^y Number of dollar spot infection centers per plot reported as a mean of 3 replications for except for 14 Aug.

^x Due to high disease severity, a 1 to 9 rating scale (9=no dollar spot, 6=acceptable, less than 3% of the area affected by dollar spot) was used for this rating date.

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

Treatment and rate per 1,000 sq ft	Application Code ^z	Copper Spot ^y		Turf Quality ^x	
		14 Aug	19 Jul	27 Jul	14 Aug
Untreated	---	3.0 b ^w	1.7 fg	3.0 ef	1.3 j
Torque 3.6SC 0.6 fl oz + Spectro 90WDG 3.75 oz	AD				
<i>alternated with</i>					
26/36 4F 4.0 fl oz	BE	1.0 d	6.3 a	7.0 a	8.0 a
IKF 400SC 0.4 fl oz	ABDE	2.7 bc	5.3 a-c	6.7 ab	4.7 c-e
IKF 400SC 0.5fl oz	ABDE	2.7 bc	5.3 a-c	6.7 ab	4.7 c-e
IKF 400SC 0.5fl oz	ACE	3.0 b	5.0 a-d	5.3 b-d	4.3 c-f
Daconil Weatherstik 6.0SC 2.0 fl oz	ABDE	1.7 cd	3.7 c-e	5.7 a-c	4.3 c-f
Daconil Action 6.11SC 2.0 fl oz	ABDE	1.0 d	4.7 a-d	5.7 a-c	4.7 c-e
Secure 4.17SC 0.5 fl oz	ABDE	1.0 d	6.0 ab	6.7 ab	7.0 ab
A9898A 0.6 fl oz	ACE	1.0 d	6.3 a	6.3 a-c	7.0 ab
Briskway 2.72SC 0.7 fl oz	ABDE	1.0 d	5.7 ab	6.3 a-c	7.7 a
Appear 4.1L 4.0 fl oz + Daconil Action 6.11SC 2.0 fl oz	ABDE	1.0 d	4.3 b-e	5.7 a-c	5.7 bc
Enclave 3.0 fl oz	ACE	1.0 d	5.0 a-d	6.7 ab	7.0 ab
Velista 50WDG 0.3 oz	ABDE	2.7 bc	5.0 a-d	6.3 a-c	5.0 cd
Velista 50WDG 0.5 oz	ACE	4.7 a	5.3 a-d	5.3 b-d	3.3 e-h
PAR SC 0.37 fl oz	ABDE	2.0 b-d	1.7 fg	3.3 ef	2.3 g-j
Foursome 0.5 fl oz	ABDE	2.7 bc	2.7 e-g	2.7 ef	1.7 ij
Civitas L 16.0 fl oz + Harmonizer L 1.0 fl oz	ABDE	1.5 cd	3.3 d-f	5.3 b-d	4.7 c-e
PAR SC 0.37 fl oz + Daconil Weatherstik 6.0SC 2.0 fl oz	ABDE	1.0 d	4.3 b-e	6.3 a-c	5.0 cd
Foursome 0.5 fl oz + Daconil Weatherstik 6.0SC 2.0 fl oz	ABDE	1.8 b-d	2.7 e-g	5.0 cd	3.7 d-g
Civitas L 16.0 fl oz + Harmonizer L 1.0 fl oz + Daconil Weatherstik 6.0SC 2.0 fl oz	ABDE	1.0 d	3.7 c-e	4.0 de	3.0 f-i

^z Application code indicates date of each treatment: A-20 Jun, B-3 Jul, C-10 Jul, D-17 Jul, and E-31 Jul.

^y Copper spot severity was rated on a 1-5 rating scale (1=no copper spot, 5=100% of the area affected by copper spot) and is reported as a mean of 3 replications.

^x Turf quality was assessed on a 1 to 9 rating scale (9=best, 6=acceptable) and is reported as a mean of 3 replications.

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