Dollar Spot Suppression on Golf Course Putting Greens

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OBJECTIVE

To determine the efficacy of standard and experimental fungicides for suppressing dollar spot caused by the fungus *Sclerotinia homoeocarpa* on putting green-height creeping bentgrass.

MATERIALS AND METHODS

The study was conducted at the O. J. Noer Turfgrass Research and Education Facility in Madison, WI on a stand of creeping bentgrass (*Agrostis stolonifera* 'Penncross') maintained at 0.125 inches. The individual plots measured 3 feet by 10 feet and were arranged in a randomized complete block design with four replications. Treatments were applied at a nozzle pressure of 40 p.s.i. using a CO_2 pressurized boom sprayer equipped with two XR Teejet AI8004 VS nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft^2. All treatments were initiated on May 21st and subsequent applications were made at either 14 or 21-day intervals. Number of dollar spot foci per plot, turfgrass quality (1-9, 9 being excellent, 6 acceptable, and 1 bare soil), and normalized difference vegetation index (NDVI) were assessed every 2 weeks. Turf quality and disease severity were subjected to an analysis of variance and means were separated using the Tukey's Honest Significant Difference test (P = 0.05). Results of the disease intensity and turfgrass quality ratings can be found in table 1 and 2, respectively.

RESULTS AND DISCUSSION

Dollar spot pressure was high throughout 2015, as non-treated controls averaged 871, 635, and 122 dollar spot foci per plot on the June 29th, July 15th, and August 13th rating dates, respectively. Many treatments reduced dollar spot relative to the non-treated control, and treatments 2, 6, 9, and 11-13 provided the most dollar spot suppression in mid-July when dollar spot pressure was highest. Turfgrass quality mirrored disease severity, and only treatments 2 and 11-13 provided acceptable turf quality on the July 15th rating date. Pressure was lower on the August 13th rating date, and treatments 2, 4, 7, 8, and 13 provided the most dollar spot suppression while treatments 2, 4, and 13 were the only treatments to provide acceptable turf quality on this rating date. Phytotoxicity was not observed with any treatment.

Table 1: Mean number of dollar spots per treatment at putting green height at the OJ Noer Turfgrass Research and Education Facility in Madison, WI during 2015.

	Treatment	Rate	Application Interval	Dollar Spot Severity[a]		
				Jun 29	Jul 15	Aug 13
1	Non-treated control			871.3a	635.0a	122.3abc
2	Appear Velista	6.0 FL OZ/1000 FT2 0.5 OZ/1000 FT2	14 Day	135.8bcd	23.8d	35.3c
3	Appear Daconil Action	6.0 FL OZ/1000 FT2 3.5 FL OZ/1000 FT2	14 Day	576.3ab	507.8ab	177.3ab
4	Appear Secure	6.0 FL OZ/1000 FT2 0.5 FL OZ/1000 FT2	14 Day	377.5bcd	180.8bcd	18.8c
5	Appear Briskway	6.0 FL OZ/1000 FT2 0.5 FL OZ/1000 FT2	14 Day	554.0abc	421.5abc	133.8abc
6	26GT Xtra	3.0 FL OZ/1000 FT2	14 Day	226.0bcd	92.0cd	127.0abc
7	Exteris Stressgard	1.5 FL OZ/1000 FT2	14 Day	302.0bcd	144.8cd	42.3bc
8	Exteris Stressgard	2.0 FL OZ/1000 FT2	14 Day	397.0a-d	207.0bcd	36.3c
9	Exteris Stressgard	3.0 FL OZ/1000 FT2	14 Day	200.3bcd	96.5cd	190.5a
10	Exteris Stressgard	4.0 FL OZ/1000 FT2	21 Day	407.5a-d	174.8bcd	178.0ab
11	Interface	4.0 FL OZ/1000 FT2	14 Day	60.3d	12.8d	106.5abc
12	Lexicon	0.34 FL OZ/1000 FT2	14 Day	68.0cd	18.8d	83.8abc
13	Emerald	0.13 OZ/1000 FT2	21 Day	189.3bcd	45.5d	15.5c
14	Banner MAXX II	1.0 FL OZ/1000 FT2	14 Day	381.8bcd	247.5bcd	62.3abc

[a]Dollar spot was visually assessed as number of dollar spot infection centers. Means followed by the same letter do not significantly differ (P=.05, Tukey's HSD).

Table 2. Mean turfgrass quality per treatment at putting green height at the O. J. Noer Turfgrass Research and Education Facility in Madison, WI during 2015.

	Treatment	Rate	Application Interval	Turfgrass Quality[a]		
				Jun 29	Jul 15	Aug 13
1	Non-treated control			3.0c	3.5d	4.5b
2	Appear Velista	6.0 FL OZ/1000 FT2 0.5 OZ/1000 FT2	14 Day	5.3a	6.3abc	6.5a
3	Appear Daconil Action	6.0 FL OZ/1000 FT2 3.5 FL OZ/1000 FT2	14 Day	3.5bc	3.5d	4.3b
4	Appear Secure	6.0 FL OZ/1000 FT2 0.5 FL OZ/1000 FT2	14 Day	4.0abc	4.8bcd	6.5a
5	Appear Briskway	6.0 FL OZ/1000 FT2 0.5 FL OZ/1000 FT2	14 Day	3.5bc	3.8d	4.5b
6	26GT Xtra	3.0 FL OZ/1000 FT2	14 Day	4.5abc	5.3a-d	4.5b
7	Exteris Stressguard	1.5 FL OZ/1000 FT2	14 Day	4.3abc	4.8bcd	5.8ab
8	Exteris Stressguard	2.0 FL OZ/1000 FT2	14 Day	4.3abc	4.5cd	5.8ab
9	Exteris Stressguard	3.0 FL OZ/1000 FT2	14 Day	4.5abc	4.8bcd	4.3b
10	Exteris Stressguard	4.0 FL OZ/1000 FT2	21 Day	3.8abc	4.8bcd	4.3b
11	Interface	4.0 FL OZ/1000 FT2	14 Day	5.3[a]	6.8a	4.5b
12	Lexicon	0.34 FL OZ/1000 FT2	14 Day	5.3a	6.5ab	5.0ab
13	Emerald	0.13 OZ/1000 FT2	21 Day	4.8ab	6.0abc	6.5a
14	Banner MAXX II	1.0 FL OZ/1000 FT2	14 Day	4.0abc	4.5cd	5.3ab

[a]Turfgrass quality was rated visually on a 1 – 9 scale with 6 being acceptable. Means followed by the same letter do not significantly differ (P=.05, Tukey's HSD).