Dollar Spot Suppression on Golf Course Fairways

Sam Soper, Bruce Schweiger, and Paul Koch, Ph.D.
Department of Plant Pathology
University of Wisconsin - Madison

OBJECTIVE

To determine the efficacy of standard and experimental fungicides for controlling dollar spot caused by the fungus *Sclerotinia homoeocarpa* on fairway-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* 'Alpha') maintained at 0.5 inches. Individual plots measured 3 ft by 5 ft 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 27th and subsequent applications were made at 14, 21, or 28-day intervals. Number of dollar spot foci per plot and turfgrass quality (1-9, 9 being excellent, 6 acceptable, and 1 bare soil) were visually assessed every 2 weeks. Turf quality and disease severity were subjected to an analysis of variance and means separated using the Tukey's Honest Significant Difference test (P = 0.05). Results of disease severity and turfgrass quality ratings can be found in table 1 and 2, respectively.

RESULTS AND DISCUSSION

Dollar spot pressure was low in June and gradually increased in mid-July and August. All treatments reduced dollar spot relative to the non-treated control on the July 16th rating date. Turfgrass quality mirrored disease severity, and when disease pressure was highest during the July 16th rating date, 22 of the 32 treatments provided acceptable turfgrass quality. By the August 13th rating date, dollar spot pressure began breaking through some of the treatments and only 10 of the 32 treatments provided acceptable turfgrass quality. Products that provided acceptable dollar spot suppression and turfgrass quality on both the July 16th and August 13th rating dates include Daconil WeatherStik, Velista, Secure, Chipco 26GT, Interface, Xzemplar, and Banner MAXX II. Phytotoxicity was not observed with any treatment.

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

	Treatment	Rate	Application Interval	Dollar Spot Severity[a]		
				Jun 29	Jul 16	Aug 13
1	Non-treated control			44.8a	250.3a	152.5a-g
2	Secure	0.5 FL OZ/1000 FT2	14 Day	0.8b	0.0b	0.0h
3	Daconil WeatherStik	5.5 FL OZ/1000 FT2	14 Day	6.8b	24.3b	21.5fgh
4	Velista	0.5 OZ/1000 FT2	14 Day	0.3b	0.3b	0.8h
5	Velista	0.3 OZ/1000 FT2	14 Day	0.3b	8.5b	11.5gh
6	Velista	0.3 OZ/1000 FT2	21 Day	0.0b	24.8b	156.8a-f
7	Velista	0.5 OZ/1000 FT2	21 Day	0.0b	2.3b	61.5c-h
8	Velista Secure	0.3 OZ/1000 FT2 0.5 FL OZ/1000 FT2	21 Day	0.0b	0.0b	28.8e-h
9	Secure	0.5 FL OZ/1000 FT2	14 Day	0.0b	0.5b	3.8h
10	A20235	0.5 FL OZ/1000 FT2	14 Day	6.3b	1.5b	0.0h
11	Secure	0.5 FL OZ/1000 FT2	21 Day	2.0b	0.8b	80.3b-h
12	A20235	0.5 FL OZ/1000 FT2	21 Day	0.0b	0.3b	55.0d-h
13	Chipco 26GT	2.0 FL OZ/1000 FT2	14 Day	23.5ab	68.5b	126.5b-h
14	Chipco 26GT	3.0 FL OZ/1000 FT2	21 Day	8.5b	19.0b	21.5fgh
15	26GT Xtra	1.5 FL OZ/1000 FT2	14 Day	15.3ab	35.3b	34.0e-h
16	26GT Xtra	2.0 FL OZ/1000 FT2	14 Day	0.0b	0.5b	39.8e-h
17	26GT Xtra	3.0 FL OZ/1000 FT2	14 Day	0.0b	3.8b	201.3abc
18	Chipco GT Stressguard	3.0 FL OZ/1000 FT2	14 Day	1.5b	4.0b	199.8a-d
19	26GT Xtra	3.0 FL OZ/1000 FT2	21 Day	2.3b	4.0b	44.5e-h
20	26GT Xtra	4.0 FL OZ/1000 FT2	21 Day	0.0b	6.3b	170.0a-e
21	26GT Xtra	6.0 FL OZ/1000 FT2	28 Day	2.3b	94.3b	273.8a
22	Interface	3.0 FL OZ/1000 FT2	21 Day	2.0b	3.8b	7.5h
23	Xzemplar	0.26 FL OZ/1000 FT2	21 Day	0.0b	1.8b	8.5gh
24	Mirage	1.5 FL OZ/1000 FT2	21 Day	12.3ab	58.0b	108.3b-h
25	Emerald	0.18 OZ/1000 FT2	28 Day	4.3b	21.3b	74.5c-h
26	Encartis	3.0 FL OZ/1000 FT2	21 Day	1.3b	12.0b	225.0ab
27	Encartis	4.0 FL OZ/1000 FT2	28 Day	0.3b	24.0b	107.0b-h
28	Xzemplar	0.26 FL OZ/1000 FT2	28 Day	0.5b	10.0b	45.3e-h
29	Banner MAXX II	2.0 FL OZ/1000 FT2	28 Day	0.0b	12.8b	25.5e-h
30	Fame T	0.45 FL OZ/1000 FT2	14 Day	0.3b	23.3b	90.3b-h
31	Fame M	0.67 FL OZ/1000 FT2	14 Day	1.5b	69.5b	133.8a-h
32	Fame C	3.9 FL OZ/1000 FT2	14 Day	10.0ab	30.3b	39.5e-h

[a]Dollar spot rated 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 fairway height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2015.

	Treatment	Rate	Application Interval	Dollar Spot Severity[a]		
				Jun 29	Jul 16	Aug 13
1	Non-treated control			5.3b	3.5e	4.0def
2	Secure	0.5 FL OZ/1000 FT2	14 Day	7.0a	7.0a	7.0a
3	Daconil WeatherStik	5.5 FL OZ/1000 FT2	14 Day	6.5ab	5.8a-d	6.0a-d
4	Velista	0.5 OZ/1000 FT2	14 Day	7.0a	7.0a	7.0a
5	Velista	0.3 OZ/1000 FT2	14 Day	7.0a	6.5ab	6.5ab
6	Velista	0.3 OZ/1000 FT2	21 Day	7.0a	6.0abc	3.8def
7	Velista	0.5 OZ/1000 FT2	21 Day	7.0a	7.0a	4.8a-f
8	Velista Secure	0.3 OZ/1000 FT2 0.5 FL OZ/1000 FT2	21 Day	7.0a	7.0a	5.8a-e
9	Secure	0.5 FL OZ/1000 FT2	14 Day	7.0a	7.0a	6.8ab
10	A20235	0.5 FL OZ/1000 FT2	14 Day	6.5ab	7.0a	7.0a
11	Secure	0.5 FL OZ/1000 FT2	21 Day	7.0a	7.0a	4.5b-f
12	A20235	0.5 FL OZ/1000 FT2	21 Day	7.0a	7.0a	5.3a-f
13	Chipco 26GT	2.0 FL OZ/1000 FT2	14 Day	5.8ab	4.5cde	4.8a-f
14	Chipco 26GT	3.0 FL OZ/1000 FT2	21 Day	6.5ab	6.3abc	6.0a-d
15	26GT Xtra	1.5 FL OZ/1000 FT2	14 Day	6.3ab	5.5a-d	5.8a-e
16	26GT Xtra	2.0 FL OZ/1000 FT2	14 Day	7.0a	7.0a	5.0a-f
17	26GT Xtra	3.0 FL OZ/1000 FT2	14 Day	7.0a	6.8ab	3.5ef
18	Chipco GT Stressguard	3.0 FL OZ/1000 FT2	14 Day	7.0a	6.8ab	3.8def
19	26GT Xtra	3.0 FL OZ/1000 FT2	21 Day	7.0a	7.0a	5.3a-f
20	26GT Xtra	4.0 FL OZ/1000 FT2	21 Day	7.0a	6.5ab	4.0def
21	26GT Xtra	6.0 FL OZ/1000 FT2	28 Day	6.8ab	4.0de	3.0f
22	Interface	3.0 FL OZ/1000 FT2	21 Day	7.0a	6.8ab	6.5ab
23	Xzemplar	0.26 FL OZ/1000 FT2	21 Day	7.0a	7.0a	6.5abc
24	Mirage	1.5 FL OZ/1000 FT2	21 Day	6.3ab	4.5cde	4.8a-f
25	Emerald	0.18 OZ/1000 FT2	28 Day	6.8ab	6.0abc	4.8a-f
26	Encartis	3.0 FL OZ/1000 FT2	21 Day	7.0a	6.3abc	3.5ef
27	Encartis	4.0 FL OZ/1000 FT2	28 Day	7.0a	5.0b-e	4.3c-f
28	Xzemplar	0.26 FL OZ/1000 FT2	28 Day	6.5ab	6.5ab	5.5a-e
29	Banner MAXX II	2.0 FL OZ/1000 FT2	28 Day	7.0a	6.3abc	6.0a-d
30	Fame T	0.45 FL OZ/1000 FT2	14 Day	7.0a	5.5a-e	4.8a-f
31	Fame M	0.67 FL OZ/1000 FT2	14 Day	7.0a	5.0b-e	4.5b-f
32	Fame C	3.9 FL OZ/1000 FT2	14 Day	6.5ab	5.5a-e	5.3a-f

[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).