Early Season Dollar Spot Suppression on Golf Course Fairways

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OBJECTIVE

To determine how early season fungicide application affect the use of the Smith-Kerns dollar spot prediction model.

MATERIALS AND METHODS

The study was conducted at the O. J. Noer Turfgrass Research and Education Facility on a stand of creeping bentgrass (*Agrostis stolonifera*) maintained at 0.5 inches. The individual plots measured 3 feet by 10 feet and were arranged in a randomized complete block design with four replications. Individual 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 nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft^2. Treatments 5, 6, and 7 were initiated on May 15th, 2019 when GDD base 50 was close to reaching 140. Subsequent applications were made at 28-day intervals and were made when the Smith-Kerns model reached 20%, 30%, and 40%, respectively. Treatments 2, 3, and 4 were initiated when the Smith-Kerns model reached 20%, 30%, and 40%, respectively, with no early season application. 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. Disease severity and turf quality were subjected to an analysis of variance and means separated using Fisher's LSD ($P = 0.05$). Results of disease severity and turfgrass quality ratings can be found in table 1 and 2, respectively.

RESULTS AND DISCUSSION

Dollar spot did not develop within the experimental plot area until late August. All fungicide treatments significantly reduced dollar spot severity when compared to the nontreated control. Treatments 2 and 5 typically resulted in the best control of dollar spot, reinforcing previous research that shows 20% on the Smith-Kerns model is the best reapplication threshold. The early season application did not appear to affect the use of the Smith-Kerns model according to this year data.

Table 1. Mean dollar spot severity per treatment on creeping bentgrass maintained at fairway height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2019.

	Treatment	Rate	Application Code[b]	App Rule	Dollar Spot Severity[a]		
					Aug 21	Sep 4	Sep 18
1	Non-treated control				29.5a	262.8a	147.3a
2	Xzemplar	0.26 fl oz/M	CGKOS	20%	1.3b	8.5c	11.5c
3	Xzemplar	0.26 fl oz/M	FJNR	30%	2.8b	94.0b	24.3bc
4	Xzemplar	0.26 fl oz/M	GMR	40%	0.0b	61.5bc	18.0bc
5	Xzemplar	0.26 fl oz/M	AEIMQ	GDD140, 20%	1.5b	46.5bc	11.8c
6	Xzemplar	0.26 fl oz/M	AEIMQ	GDD140, 30%	2.5b	83.0b	16.5bc
7	Xzemplar	0.26 fl oz/M	AEIMR	GDD140, 40%	5.0b	75.3bc	29.8b
				LSD P=.05	10.26	70.42	13.27

[a]Dollar spot rated as number of dollar spot infection centers per plot. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).
[b]Application code A=May 15, C=May 29, E=June 11, F=June 19, G=June 27 (trt 2), G=June 28 (trt 4), I=July 9, J=July 17, K=July 25, M=Aug 6 (trt 5), M=Aug 7 (trt 6), M=Aug 8 (trt 4,7), N=Aug 14, O=Aug 22, Q=Sep 3 (trt 5), Q=Sep 6 (trt 6), R=Sep 11 (trt 3), R=Sep 12 (trt 4,7), S=Sep 19

Table 2. Mean turfgrass quality per treatment on creeping bentgrass maintained at fairway height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2019.

	Treatment	Rate	Application Code[b]	App Rule	Turfgrass Quality[a]		
					Aug 21	Sep 4	Sep 18
1	Non-treated control				4.5c	4.3e	4.0b
2	Xzemplar	0.26 fl oz/M	CGKOS	20%	6.8a	6.8a	6.3a
3	Xzemplar	0.26 fl oz/M	FJNR	30%	5.8a	5.3d	6.0a
4	Xzemplar	0.26 fl oz/M	GMR	40%	6.5ab	6.0bc	6.0a
5	Xzemplar	0.26 fl oz/M	AEIMQ	GDD140, 20%	6.3ab	6.5ab	6.0a
6	Xzemplar	0.26 fl oz/M	AEIMQ	GDD140, 30%	5.8b	5.8cd	5.8a
7	Xzemplar	0.26 fl oz/M	AEIMR	GDD140, 40%	6.5ab	6.0bc	5.8a
				LSD P=.05	0.95	0.74	0.93

[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, Fisher's LSD).
[b]Application code A=May 15, C=May 29, E=June 11, F=June 19, G=June 27 (trt 2), G=June 28 (trt 4), I=July 9, J=July 17, K=July 25, M=Aug 6 (trt 5), M=Aug 7 (trt 6), M=Aug 8 (trt 4,7), N=Aug 14, O=Aug 22, Q=Sep 3 (trt 5), Q=Sep 6 (trt 6), R=Sep 11 (trt 3), R=Sep 12 (trt 4,7), S=Sep 19