Early Season Dollar Spot Suppression on Golf Course Fairways

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OBJECTIVE

To determine how early season fungicide applications 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 in Madison, WI on a stand of 'Penncross' 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 22nd, 2020 when GDDs (base 50°F) were 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 developed within the plot area in early July. All fungicide treatments significantly reduced dollar spot severity when compared to the non-treated control. Despite intricate variations in reapplication intervals, only minor differences were observed between the treatments. 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 2020.

	Treatment	Rate	Application Code[b]	App Rule	Dollar Spot Severity[a]		
					Jul 8	Aug 5	Sep 2
1	Non-treated control				102.0a	222.3a	403.0a
2	Xzemplar	0.26 fl oz/M	BFJNR	20%	12.5b	21.0b	27.3b
3	Xzemplar	0.26 fl oz/M	BFJO	30%	13.5b	47.3b	54.5b
4	Xzemplar	0.26 fl oz/M	BFJO	40%	6.5b	31.5b	59.5b
5	Xzemplar	0.26 fl oz/M	AFJNR	GDD140, 20%	18.0b	38.3b	44.3b
6	Xzemplar	0.26 fl oz/M	AFJNR	GDD140, 30%	8.0b	33.8b	62.0b
7	Xzemplar	0.26 fl oz/M	AFJO	GDD140, 40%	18.5b	35.8b	57.0b
				LSD P=.05	31.36	35.28	130.15

[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 22, B = May 27, F (trt 5, 6) = Jun 22, F (trt 7) = Jun 23, F (trt 2, 3, 4) = Jun 24, J (trt 5, 6) = Jul 20, J (trt 7) = Jul 21, J (trt 2, 3, 4) = Jul 22, N (trt 5, 6) = Aug 17, N (trt 2) = Aug 19, O (trt 3) = Aug 24, O (trt 4, 7) = Aug 25, R (trt 5, 6) = Sep 14, R (trt 2) = Sep 17.

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 2020.

	Treatment	Rate	Application Code[b]	App Rule	Turfgrass Quality[a]		
					Jul 8	Aug 5	Sep 2
1	Non-treated control				4.3d	4.0b	4.0b
2	Xzemplar	0.26 fl oz/M	BFJNR	20%	6.3ab	5.3a	5.5a
3	Xzemplar	0.26 fl oz/M	BFJO	30%	5.8bc	5.0a	5.0a
4	Xzemplar	0.26 fl oz/M	BFJO	40%	6.8a	5.0a	5.0a
5	Xzemplar	0.26 fl oz/M	AFJNR	GDD140, 20%	5.3c	5.0a	5.0a
6	Xzemplar	0.26 fl oz/M	AFJNR	GDD140, 30%	6.0abc	5.0a	5.0a
7	Xzemplar	0.26 fl oz/M	AFJO	GDD140, 40%	5.8bc	5.0a	5.0a
				LSD P=.05	0.77	0.28	0.56

[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 22, B = May 27, F (trt 5, 6) = Jun 22, F (trt 7) = Jun 23, F (trt 2, 3, 4) = Jun 24, J (trt 5, 6) = Jul 20, J (trt 7) = Jul 21, J (trt 2, 3, 4) = Jul 22, N (trt 5, 6) = Aug 17, N (trt 2) = Aug 19, O (trt 3) = Aug 24, O (trt 4, 7) = Aug 25, R (trt 5, 6) = Sep 14, R (trt 2) = Sep 17.