



Bipolaris Leaf Spot Management on Golf Course Fairways

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OBJECTIVE

To determine the efficacy of standard and experimental fungicides for the management of leaf spot caused by the fungus *Bipolaris sorokiniana*.

MATERIALS AND METHODS

The study was conducted on the 11th fairway at Pine Hills Country Club in Sheboygan, WI on a mixed stand of creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) maintained at 0.5 inches. Individual plots measured 3 ft by 10 ft 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 CO₂ pressurized boom sprayer equipped with two Teejet AI8004 nozzles. All fungicides were agitated by hand and applied in the equivalent of 2 gallons of water per 1000 ft². All treatments were applied on June 2nd, July 2nd, and August 1st. Disease severity and turfgrass quality (1-9, 1 being bare dirt, 6 being acceptable, and 9 being exceptional) were visually assessed on July 2nd, August 1st, and August 26th. Only older vegetative bentgrasses are susceptible to this particular leaf spot, therefore disease severity is dependent on the amount of susceptible bentgrass within each plot. Disease severity was assessed as percent of susceptible bentgrass within each plot expressing leaf spot symptoms. Data was subjected to an analysis of variance and means were separated using the Waller Duncan test. Means for disease severity and turf quality for individual treatments are presented in the following tables.

RESULTS AND DISCUSSION

Leaf spot pressure was very high this year due to prolonged stretches of high humidity, with disease severity in the non-treated controls reaching nearly 80% at its peak in early August. Only 4 of 13 fungicide treatments reduced leaf spot severity relative to the non-treated control on the August 1st rating date. At least 3 of those 4 treatments (Lexicon, Briskway, and Headway) included an active ingredient from the QoI fungicide class, indicating that this is an important class for effective leaf spot control. The 4th effective treatment is a numbered compound and it is not clear what class of fungicide the active ingredient is from. Turfgrass quality mirrored disease severity, and only Lexicon, Briskway, and Headway provided acceptable quality on the August 1st rating date. Though differences are still apparent on the August 26th rating date, much of the damage had begun to recover, which likely limited the statistical differences between treatments. Phytotoxicity was not observed with any treatment.

Table 1. Mean leaf spot severity on a creeping bentgrass and annual bluegrass fairway at Pine Hills Country Club in Sheboygan, WI during 2014.

Treatment	Rate	Application Dates	Leaf Spot Severity ^a			
			Jul 2	Aug 1	Aug 26	
1	Non-treated control		26.3a	78.8a	50.0a	
2	Velista	0.3 OZ/1000 FT2	6/2, 7/2, 8/1	18.8a	67.5ab	30.0a
3	Velista	0.5 OZ/1000 FT2	6/2, 7/2, 8/1	28.8a	77.5a	33.8a
4	A15457	0.236 FL OZ/1000 FT2	6/2, 7/2, 8/1	23.8a	80.0a	40.0a
5	A18126	0.164 OZ/1000 FT2	6/2, 7/2, 8/1	16.3a	41.3ab	41.3a
6	A19188	1.0 FL OZ/1000 FT2	6/2, 7/2, 8/1	22.5a	45.0ab	22.5a
7	Secure	0.5 FL OZ/1000 FT2	6/2, 7/2, 8/1	32.5a	67.5ab	32.5a
8	A20235	0.5 FL OZ/1000 FT2	6/2, 7/2, 8/1	20.0a	60.0ab	22.5a
9	Xzemplar	0.262 FL OZ/1000 FT2	6/2, 7/2, 8/1	13.8a	47.5ab	23.8a
10	Lexicon	0.34 FL OZ/1000 FT2	6/2, 7/2, 8/1	5.0a	6.3c	10.0a
11	A20964	0.2 OZ/1000 FT2	6/2, 7/2, 8/1	16.3a	37.5b	26.3a
12	Briskway	0.5 FL OZ/1000 FT2	6/2, 7/2, 8/1	3.8a	7.5c	5.0a
13	Chipco 26GT	4.0 FL OZ/1000 FT2	6/2, 7/2, 8/1	17.5a	41.3ab	20.0a
14	Headway	3.0 FL OZ/1000 FT2	6/2, 7/2, 8/1	2.8a	5.0c	16.3a

^aLeaf spot severity was visually assessed as the percentage of susceptible turf affected within each plot. Means followed by the same letter do not significantly differ (P=.05, Waller-Duncan).

Table 2. Mean turfgrass quality on a creeping bentgrass and annual bluegrass fairway at Pine Hills Country Club in Sheboygan, WI during 2014.

	Treatment	Rate	Application Dates	Turfgrass Quality ^a		
				Jul 2	Aug 1	Aug 26
1	Non-treated control			4.8a	2.3d	4.0abc
2	Velista	0.3 OZ/1000 FT2	6/2, 7/2, 8/1	5.0a	3.3bcd	5.0abc
3	Velista	0.5 OZ/1000 FT2	6/2, 7/2, 8/1	5.0a	2.8cd	3.8bc
4	A15457	0.236 FL OZ/1000 FT2	6/2, 7/2, 8/1	4.8a	2.8cd	3.3c
5	A18126	0.164 OZ/1000 FT2	6/2, 7/2, 8/1	5.3a	4.8b	4.3abc
6	A19188	1.0 FL OZ/1000 FT2	6/2, 7/2, 8/1	4.8a	4.0bc	4.8abc
7	Secure	0.5 FL OZ/1000 FT2	6/2, 7/2, 8/1	4.5a	3.3bcd	4.3abc
8	A20235	0.5 FL OZ/1000 FT2	6/2, 7/2, 8/1	5.0a	3.8bcd	5.5abc
9	Xzemplar	0.262 FL OZ/1000 FT2	6/2, 7/2, 8/1	6.0a	4.0bc	5.3abc
10	Lexicon	0.34 FL OZ/1000 FT2	6/2, 7/2, 8/1	6.3a	6.8a	6.3ab
11	A20964	0.2 OZ/1000 FT2	6/2, 7/2, 8/1	5.3a	4.5b	5.5abc
12	Briskway	0.5 FL OZ/1000 FT2	6/2, 7/2, 8/1	6.5a	6.5a	6.5a
13	Chipco 26GT	4.0 FL OZ/1000 FT2	6/2, 7/2, 8/1	5.5a	4.3bc	4.8abc
14	Headway	3.0 FL OZ/1000 FT2	6/2, 7/2, 8/1	6.8a	7.0a	6.0ab

^aTurfgrass quality was rated visually on a 1 – 9 scale with 1 being bare dirt, 6 being acceptable, and 9 being exceptional. Means followed by the same letter do not significantly differ (P=.05, Waller Duncan).