Control of Bipolaris leaf spot on a golf course fairway

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OBJECTIVE

To determine the efficacy of standard and experimental fungicides for the control 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. 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 8005 VS nozzles. All fungicides were agitated by hand and applied in the equivalent of 2 gallons of water per 1000 ft^2. All treatments were initiated May 27th, 2010 and subsequent applications were made on June 16th and August 4th. Disease severity was visually assessed on July 7th and July 29th, but only older vegetative bentgrasses are susceptible to this particular leaf spot. Therefore the disease severity depended on the amount of susceptible bentgrass within each plot. Resurgent leaf spot infection on August 4th allowed the assessment of susceptible turf in each plot prior to the fungicide application. The final rating date on August 24th relates mean disease severity to the amount of susceptible turf. Data was subjected to an analysis of variance and means were separated using the Waller-Duncan test (P = 0.05).

RESULTS AND DISCUSSION

Because of the variation in percent susceptible bentgrass throughout the plot, the disease severity ratings on July 7 and July 29 were highly variable and did not display differences amongst treatments. Significant results were obtained once the rating was altered to account for the amount of susceptible bentgrass in each plot. From the August 24 rating date, all treatments with the exception of Chipco 26GT and DPX-LEM17-50-76 reduced leaf compared to the non treated control. Chipco 26GT tank-mixed with Daconil Ultrex, along with Headway, provided the greatest reduction in leaf spot. These results suggest that Daconil Ultrex provides Bipolaris leaf spot protection while Chipco 26GT does not, a surprising result because of 26GT's effectiveness against other leaf spot fungi. Heritage TL, Insignia, and the low rate of DPX-LEM17-50-76 also provided reductions in leaf spot when compared to the non treated control.

Table 1. Leaf spot disease severity on a mixed stand of creeping bentgrass and annual bluegrass maintained at fairway height at Pine Hills Country Club in 2010.

	Treatment	Rate	Application Interval	Leaf Spot Disease Severity[a]		Leaf Spot Disease Severity[b]	
				July 7	July 29	Aug 4	Aug 24
1	Non-treated control			25.0a	50.0a	61.5a	**66.65a**
2	Chipco 26GT	4.0 FL OZ/1000 FT2	5/27, 6/14, 8/4	17.5a	62.5a	60.5a	**75.98a**
3	Chipco 26GT Daconil Ultrex	4.0 FL OZ/1000 FT2 3.6 OZ/1000 FT2	5/27, 6/14, 8/4	12.3a	67.5a	46.5a	**15.55c**
4	Headway	3.0 FL OZ/1000 FT2	5/27, 6/14, 8/4	8.8a	45.0a	31.0a	**18.98c**
5	Heritage TL	2.0 FL OZ/1000 FT2	5/27, 6/14, 8/4	0.5a	18.8a	20.0a	**19.63bc**
6	Insignia	0.9 OZ/1000 FT2	5/27, 6/14, 8/4	3.8a	37.5a	42.8a	**31.63bc**
7	DPX-LEM17-50-76	0.3 OZ/1000 FT2	5/27, 6/14, 8/4	7.3a	46.3a	41.8a	**31.95bc**
8	DPX-LEM17-50-76	0.5 OZ/1000 FT2	5/27, 6/14, 8/4	18.5a	57.5a	45.5a	**50.50ab**

[a]Disease severity was visually assessed as percent disease. Means followed by the same letter do not significantly differ (P=.05, Waller-Duncan).

[b]Disease severity was assessed as percent disease out of percent susceptible bentgrass in each plot. Means followed by the same letter do not significantly differ (P=.05, Waller-Duncan).