LEAF SPOT CONTROL IN A KENTUCKY BLUEGRASS ROUGH WITH VARIOUS BAYER FUNGICIDES

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INTRODUCTION

Leaf spot (*Drechslera sp*; LS) is a disease that affects all cool season grasses, particularly Kentucky bluegrass (*Poa pratensis*). In higher maintained turfgrass sites, disease severity can increase where turfgrass is subjected to lower mowing heights and/or increased nitrogen fertility. For this reason, it is important to evaluate existing commercially available fungicides as well as new and emerging experimental chemistries to continue to improve our ability to manage the disease. The objective of this research was to evaluate the efficacy of various commercially available and experimental fungicides on LS suppression in a Kentucky bluegrass rough.

MATERIALS & METHODS

A one-year field study was initiated at the Landscape Management Research Center located in University Park, PA. Soil was a clay loam with a pH of 5.8 and 2.7% organic matter. Kentucky bluegrass accounted for approximately 95% of the species within the study site when treatments were initiated. All fungicide treatments were applied with a CO_2 pressurized (40 psi) sprayer equipped with an air-induction flat fan nozzle (TeeJet AI9508EVS), calibrated to deliver 2.0 gal of water 1000 ft^{-2}. The site was mowed biweekly to a height of 1.5 inches. Treatments were initiated on 25 Apr and reapplied according to the application schedule. All treatments are listed in the data tables.

Plots measured 3 ft x 6 ft and were arranged in a randomized complete block design with four replications. Percent LS was visually assessed on a 0 to 100% scale where 0 = no disease present and 100 = entire plot area affected by LS. Turfgrass quality and color were also visually assessed on a 1 to 9 scale where 1 = entire plot brown or dead and 9 = optimum greenness and/or density. All data were subjected to analysis of variance and means were separated at $P \leq 0.05$ according to Tukey's Protected least significant difference test.

Figure 1. Leaf spot in Kentucky bluegrass at the Landscape Management Research Center, University Park, PA.

RESULTS & DISCUSSION

Leaf spot was first observed in early May. Disease pressure developed slowly in May and severity decreased in June. Leaf spot pressure peaked on 23 May with 54% disease present in the non-treated control plots (Table 1). On rating dates that had significance, all treatments provided a disease reduction when compared to the non-treated control plots (Table 1).

On 23 May, plots treated with Interface resulted in the least LS (8% LS) (Table 1.). Plots treated with 26 GT Xtra (all rates, formulations, and application timings) provided similar control (10-11% LS). Moderate reductions were observed in plots treated with Xzemplar (20% LS) when compared to the non-treated control (54% LS).

All treatments reduced disease when compared to the non-treated control on 13 Jun (Table 1.). Turfgrass recovered rapidly during June and few agronomic differences were present on the final rating date.

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Table 1. Leaf spot severity on Kentucky bluegrass rough following the application of Bayer products, 2016.

	Treatment and rate per 1000 ft^2	Application Code[y]	Leaf spot[z] 25 Apr	9 May	23 May	13 Jun	27 Jun
1	26 GT Xrta 3 fl oz	ABC	0.0 a[x]	1.3 a	13.3 bc	5.8 b	1.5 b
2	26 GT Xrta 4 fl oz	ABC	0.0 a	1.0 a	10.0 bc	4.5 b	1.3 b
3	26 Gt Xrta 4 fl oz	BC	0.0 a	1.5 a	10.3 bc	4.0 b	0.8 b
4	Interface 3 fl oz	ABC	0.0 a	0.8 a	8.0 c	3.0 b	1.3 b
5	Xzemplar 0.26 fl oz	ABC	0.0 a	1.0 a	20.0 b	6.3 b	1.3 b
6	26 GT 4 fl oz	ABC	0.0 a	2.0 a	11.0 bc	2.8 b	0.8 b
7	Nontreated	-	0.0 a	1.5 a	53.8 a	29.5 a	10.5 a

[z] Percent leaf spot (LS) was visually assessed on a 0 to 100% scale where 0 = no disease present and 100 = entire plot area affected by LS.

[y] Treatments were applied on the following dates: A = 25 Apr, B= 16 May, and C = 6 Jun.

[x] Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to the Tukey's least significant difference test.

Table 2. Quality of a Kentucky bluegrass rough following the application of Bayer products, 2016.

	Treatment and rate per 1000 ft^2	Application	Quality[z] 25 Apr	9 May	23 May	13 Jun	27 Jun
1	26 GT Xrta 3 fl oz	ABC	7.0 a[x]	7.0 a	6.3 a	6.3 ab	7.5 a
2	26 GT Xrta 4 fl oz	ABC	7.0 a	7.0 a	6.0 a	6.0 b	6.8 ab
3	26 Gt Xrta 4 fl oz	BC	7.0 a	6.8 a	6.0 a	6.5 ab	7.0 ab
4	Interface 3 fl oz	ABC	7.0 a	6.5 a	6.5 a	7.0 a	7.5 a
5	Xzemplar 0.26 fl oz	ABC	7.0 a	6.8 a	5.3 a	7.0 a	6.5 ab
6	26 GT 4 fl oz	ABC	7.0 a	7.0 a	5.8 a	6.8 ab	6.8 ab
7	Nontreated	-	7.0 a	6.8 a	4.3 b	6.0 b	6.0 b

[z] Quality was visually assessed on a 1 to 9 scale where 1 = entire plot brown and 9 = optimum uniformity and density.

[y] Treatments were applied on the following dates: A = 25 Apr, B= 16 May, and C = 6 Jun,.

[x] Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to the Tukey's least significant difference test.

Table 3. Color of a Kentucky bluegrass rough following the application of Bayer products, 2016.

	Treatment and rate per 1000 ft^2	Application	Color[z]				
			25 Apr	9 May	23 May	13 Jun	27 Jun
1	26 GT Xrta 3 fl oz	ABCD	7.0 a[x]	7.0 a	6.3 a	6.3 ab	7.5 a
2	26 GT Xrta 4 fl oz	ABCD	7.0 a	7.0 a	6.0 a	6.0 b	6.8 ab
3	26 Gt Xrta 4 fl oz	XY	7.0 a	6.8 a	6.0 a	6.5 ab	7.0 ab
4	Interface 3 fl oz	ABCD	7.0 a	6.5 a	6.5 a	7.0 a	7.5 a
5	Xzemplar 0.26 fl oz	ABCD	7.0 a	6.8 a	5.3 a	7.0 a	6.5 ab
6	26 GT 4 fl oz	ABCD	7.0 a	7.0 a	5.8 a	6.8 ab	6.8 ab
7	Nontreated	-	7.0 a	6.8 a	4.3 b	6.0 b	6.0 b

[z] Color was visually assessed on a 1 to 9 scale where 1 = entire plot brown and 9 = optimum greenness.

[y] Treatments were applied on the following dates: A = 25 Apr, B= 16 May, C = 6 Jun, X = 16 May, Y= 6 Jun.

[x] Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to the Tukey's least significant difference test.