

Nitrogen Source Impacts on Dollar Spot Development



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OBJECTIVE

To determine the impact of various nitrogen sources on the development of dollar spot caused by the fungus *Sclerotinia homoeocarpa* on creeping bentgrass.

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* 'Penncross') maintained at 0.125 inches. Individual plots measured 3 feet by 5 feet and were arranged in a randomized complete block design with four replications. Treatments were applied by hand as a granular formulation and watered in for approximately 10 minutes. All treatments were initiated on June 17th and subsequent applications were made at 14-day intervals. Number of dollar spot foci and turfgrass quality (1-9, 9 being excellent, 6 acceptable, and 1 bare soil) were visually assessed every 2 weeks. Turf quality and disease severity were subjected to an analysis of variance and means separated using the Waller-Duncan test ($P = 0.05$). Results of disease severity and turfgrass quality ratings can be found in table 1 and 2, respectively.

RESULTS AND DISCUSSION

Dollar spot pressure was high throughout most of 2014, reaching extreme levels near the end of August as non-treated controls averaged over 600 foci per plot on the August 27th rating date. Though there was a slight reduction in dollar spot apparent on treated plots relative to the non-treated control, the reduction was not statistically significant and none of the various nitrogen sources provided acceptable levels of suppression in any of the July or August rating dates. Despite slightly greener turfgrass on plots treated with the various nitrogen sources, the severe dollar spot infestation prevented any treatment from providing acceptable turfgrass quality.

Table 1. Mean number of dollar spots per treatment at putting green height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2014.

Treatment	Rate	Application Interval	Dollar Spot Severity ^a			
			Jun 20	Jul 16	Aug 27	
1	Non-treated control		6.8a	126.0a	620.5a	
2	Ammonium Sulfate (21-0-0)	0.2 LB N/1000 FT2	14 Day	5.3a	116.0a	571.8a
3	Potassium Nitrate (13-0-46)	0.2 LB N/1000 FT2	14 Day	13.5a	138.5a	563.0a
4	Urea (46-0-0)	0.2 LB N/1000 FT2	14 Day	9.5a	117.5a	531.3a

^aDollar spot severity assessed as number of dollar spot infection centers per plot. Means followed by the same letter do not significantly differ (P=.05, Waller Duncan).

Table 2. Mean turfgrass quality at putting green height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2014.

Treatment	Rate	Application Interval	Turfgrass Quality ^a			
			Jun 20	Jul 16	Jul 16	
1	Non-treated control		6.8a	4.5a	3.3a	
2	Ammonium Sulfate (21-0-0)	0.2 LB N/1000 FT2	14 Day	7.0a	4.5a	3.3a
3	Potassium Nitrate (13-0-46)	0.2 LB N/1000 FT2	14 Day	6.5a	4.0a	3.3a
4	Urea (46-0-0)	0.2 LB N/1000 FT2	14 Day	6.5a	4.5a	3.3a

^aTurfgrass 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, Waller Duncan).