

Evaluation of Fungicides for Control of Dollar Spot on Creeping Bentgrass - 2002

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- Objective:** The objective of this research was to evaluate the performance of selected fungicides for control of dollar spot on creeping bentgrass maintained at greens height.
- Rationale:** Dollar spot, caused by the fungus *Sclerotinia homoeocarpa*, is responsible for the deterioration of turf appearance and playability on golf course greens, tees, and fairways throughout the northeastern quadrant of the U.S. Because the pathogen survives locally within soil and thatch, it is an annual threat. Moreover, conditions that favor infection and disease development can persist throughout the growing season, forcing superintendents to manage the disease from early May through late October in most parts of the Midwest. Although alternative control options can be employed to contribute to a reduction in disease pressure, the disease cannot be managed without the judicious use of fungicides. New fungicides are needed to help preserve those that currently are effective and replace those compounds to which insensitive populations of *S. homoeocarpa* have evolved. This research involved comparisons of current standard fungicides with new compounds for control of dollar spot.
- How It Was Done:** The research was conducted at the Purdue University Daniel Turfgrass Research and Diagnostic Center in West Lafayette, IN. The experimental site was a stand of Pennlinks creeping bentgrass maintained at a height of 0.125 in. The soil type was a root zone mix constructed according to USGA specifications. Fertilization, irrigation, aerification, and topdressing, were done according to standard practices for creeping bentgrass at greens height. During spring and summer 2002, fertilizer (18-4-10) was applied at a rate of approximately 0.5 lb N per 1000 sq ft on 19 Apr and 29 Aug.
- Individual treatment plots measured 3.3 ft by 6.6 ft (1m x 2m) and were randomized within each of the 4 replications. Disease was allowed to develop from natural inoculum. Fungicide applications were made using a custom-built bicycle wheel boom sprayer. Three nozzles (Tee-Jet 8004 EVS, flat fan) were mounted approximately 12 in. apart on a boom located 12 in. from the ground. The sprayer was calibrated to deliver 2 gal per 1000 sq ft at 40 psi. Treatments were initiated on 29 May and were applied at 14-day intervals, with the exception of Treatments 5 and 7 (Honor @0.2 oz/M and Emerald @ 0.18 oz /M, respectively). Those treatments were applied at 28-day intervals.
- Plots were evaluated for dollar spot severity at approximately 7-day intervals by counting dollar spot infection centers. Data were subjected to analysis of variance and mean separation procedures.
- Results:** Four weeks of wet weather beginning in early May set the stage for early season dollar spot development. Conditions favorable for disease development continued through July and August. Inspection of severity data in the untreated

plots shows a steady increase in the number of infection centers through the entire season (Table 1).

Dollar spot symptoms were first observed at the time of the initial spray (29 May). Approximately 3 weeks after the initial spray, all treatments provided significantly better control than the plots that received no fungicide. The Heritage treatment did not provide acceptable dollar spot control as the season progressed. Low levels of dollar spot remained in the Daconil plots through the course of the experiment. All treatments (except 3 and 9) provided excellent control through mid-August under moderate-severe disease pressure. There was no phytotoxicity observed in any of the plots. Turf quality ratings are presented in Table 2. Lower turf quality ratings in Heritage-treated plots were due to dollar spot infection.

Table 1. Evaluation of fungicides for dollar spot control on creeping bentgrass in 2002.

TRT #	Fungicide	Rate/M	Dollar spot infection centers (counts) for 13 evaluation dates														
			5/29	6/5	6/10	6/17	6/24	7/1	7/8	7/15	7/22	7/29	8/5	8/12	8/19		
1	No fungicide			18.													
			7.5	8	15.8	78.3	72.8	79.3	72.5	113.5	160.5	176.3	206.8	240.3	273.8		
2	Insignia 20WG	0.9 fl oz	9.0	6.0	0.5	4.0	1.0	0.5	0.3	0.0	0.0	0.0	0.3	0.5	0.3		
3	Heritage 50WG	0.4 fl oz	7.5	5.3	7.8	47.5	20.3	19.0	8.3	6.8	14.5	19.3	30.0	37.3	41.0		
4	Insignia 20WG @ Emerald 70WG*	0.9 @0.13 fl oz															
			6.0	5.8	2.0	5.0	1.0	0.5	0.0	0.0	0.3	0.3	0.3	0.5	0.5		
5	Honor 50WG	0.2 fl oz	8.5	2.5	2.3	0.5	0.3	0.3	0.0	0.5	0.8	1.5	2.0	2.0	2.5		
6	Honor 50WG	0.2 fl oz	13.0	7.8	3.8	0.0	0.0	0.3	0.3	0.3	0.3	0.0	0.0	0.5	0.8		
7	Emerald 70WG	0.18 fl oz	7.5	5.0	3.3	0.3	0.0	0.3	0.3	0.8	0.8	1.5	2.0	1.5	1.3		
8	Emerald 70WG	0.18 fl oz	12.5	6.0	1.5	0.0	0.5	0.5	0.0	0.0	0.3	0.8	1.0	1.0	1.3		
9	Daconil Ultrex 82.5WDG	3.2 fl oz	9.0	8.5	6.3	9.5	5.5	3.5	4.0	5.8	6.8	8.0	8.8	11.3	14.5		
10	Cleary 3336 WP	4.0 fl oz	13.3	7.0	3.0	0.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
11	Chipco 26GT	3.0 fl oz	9.8	1.5	2.8	0.5	0.0	0.0	0.0	0.3	0.5	0.5	0.8	1.0	0.8		
12	Cleary Spectro	5.0 fl oz	<u>8.5</u>	<u>1.8</u>	<u>2.5</u>	<u>0.0</u>	<u>0.3</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.3</u>	<u>0.3</u>	<u>1.0</u>	<u>0.8</u>		
	LSD P=0.05		6.3	5.5	2.9	13.1	5.2	6.4	22.5	10.5	19.2	18.9	28.5	34.9	35.8		

* Insignia was alternated with Emerald such that Insignia was applied at 0.9 oz/m on 29 May, 26 Jun, and 24 Jul, Emerald was applied at 0.13 oz/m on 12 Jun and 10 Jul.

Table 2. Effect of fungicides for dollar spot on turf quality of creeping bentgrass. in 2002.

TRT #	Fungicide	Rate/M	Turf quality** evaluations					
			7/19	7/26	8/2	8/7	8/12	8/19
1	No fungicide		2.0	2.0	1.8	1.5	1.5	1.5
2	Insignia 20WG	0.9 fl oz	7.5	7.4	7.3	7.1	7.0	7.0
3	Heritage 50WG	0.4 fl oz	6.5	6.4	6.0	5.4	5.4	5.4
4	Insignia 20WG @ Emerald 70WG*	0.9 @0.13 fl oz	7.3	7.3	7.0	6.9	6.9	7.0
5	Honor 50WG	0.2 fl oz	7.4	7.3	7.0	6.9	6.9	7.0
6	Honor 50WG	0.2 fl oz	7.0	7.4	7.4	7.1	7.3	7.3
7	Emerald 70WG	0.18 fl oz	7.3	7.4	7.3	7.3	7.1	7.1
8	Emerald 70WG	0.18 fl oz	7.0	6.9	7.1	6.9	7.1	6.9
9	Daconil Ultrex 82.5WDG	3.2 fl oz	7.1	6.9	6.5	6.6	6.8	6.3
10	Cleary 3336 WP	4.0 fl oz	7.5	7.4	7.0	7.1	7.1	7.1
11	Chipco 26GT	3.0 fl oz	7.1	7.6	7.5	7.1	7.3	7.0
12	Cleary Spectro	5.0 fl oz	<u>7.4</u>	<u>7.0</u>	<u>7.1</u>	<u>7.4</u>	<u>7.5</u>	<u>7.1</u>
	LSD P=0.05		0.5	0.5	0.7	0.6	0.5	0.7

* Insignia was alternated with Emerald such that Insignia was applied at 0.9 oz/m on 29 May, 26 Jun, and 24 Jul, Emerald was applied at 0.13 oz/m on 12 Jun and 10 Jul.

**Values less than 6.0 represent unacceptable turf quality. In the case of Heritage, low turf quality values were due to dollar spot incidence.