

# 2000 RUTGERS Turfgrass Proceedings



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This publication includes lecture notes of papers presented at the 2000 New Jersey Turfgrass Expo. Publication of these lectures pro-

vides a readily available source of information covering a wide range of topics and includes technical and popular presentations of importance to the turfgrass industry.

This proceedings also includes research papers that contain original research findings and reviews of selected subjects in turfgrass science. These papers are presented primarily to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

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Dr. Ann B. Gould, Editor  
Dr. Bruce B. Clarke, Coordinator

## EVALUATION OF BIOLOGICAL AND CHEMICAL PRODUCTS FOR THE CONTROL OF DOLLAR SPOT IN BENTGRASS

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Fungicides were evaluated in 2000 for their ability to control dollar spot (caused by *Sclerotinia homoeocarpa*) at the Rutgers Turf Research Farm in North Brunswick, NJ on creeping bentgrass (*Agrostis palustris* 'Crenshaw') maintained under golf course greens conditions. Turf was established in September 1996 on a Norton loam with a pH of 6.5. Mowing was performed three times weekly at a height of 0.152 inch with clippings collected. The site was irrigated as needed to prevent drought stress.

Fertilizer was applied as 16-4-8 on 7 April (0.63 lb nitrogen (N)/1000 ft<sup>2</sup>), 18-4-10 on 18 May (1.0 lb N/1000 ft<sup>2</sup>), and 16-4-8 on 11 June (0.51 lb N/1000 ft<sup>2</sup>). Localized dry spots were controlled with Primer wetting agent (4.0 fl oz/1000 ft<sup>2</sup>) on 20 June. Betasan 4E (6.8 fl oz/1000 ft<sup>2</sup>) was applied for preemergence weed control on 28 April. On 24 April, turf was aerified with 0.5 inch hollow tines on 4 inch centers. Daconil Ultrex 82.5 WDG (3.8 oz/1000 ft<sup>2</sup>) was applied to the entire study on 20 May to suppress dollar spot and brown patch prior to the current study. Insect pests were controlled with Turcam 76W (1 oz/1000 ft<sup>2</sup>) on 22 June. Plots were 3 X 9 ft and were arranged in a randomized complete block with four replications.

Fungicides were applied in water equivalent to 1.9 gal per 1000 ft<sup>2</sup> with a CO<sub>2</sub> powered sprayer at 30 psi using TeeJet 8003E nozzles. Treatments (trt) were initiated on 2 June when environmental conditions were conducive to dollar spot development. Fungicides were re-

applied at the appropriate intervals as indicated in Table 1. Turf was visually evaluated for number of dollar spot infection centers per plot on 3 July (data not shown), 12 July, 21 July, 5 August, 12 August, 22 August, 1 September, and 11 September (data not shown). Turf quality was assessed on 26 August using a 1 to 9 scale, where 9 = best quality. Data were subjected to analysis of variance and means separation by Waller-Duncan *k*-ratio *t*-test (*k* = 100).

Dollar spot was first observed in early July, but did not become evenly distributed throughout the test until late August. Disease pressure was low to moderate throughout the study, with disease activity peaking in early September. All treatments provided acceptable control of dollar spot through 22 August except: GE-2 + Daconil Ultrex 82.5SDG + AA Blend (trt 1), 710-132 (trt 2), Turf Vigor (trt 3), Urea 46-0-0 (trt 4), WAC79 (trt 13), WAC74 (trt 14), and Cleary 3336 4.3F (trt 16). Interestingly, the combination of WAC74 and Cleary 3336 4.3F (trt 15) provided excellent control of dollar spot during the same period. Good residual control (28 to 35 days post-treatment) was observed on 1 September for plots treated with Daconil Ultrex 82.5SDG at the 7 day rate (trt 5), Eagle 40W (trt 7), and Bayleton 50W (trt 8). WAC79 (trt 13) actually enhanced the incidence of dollar spot from 12 August to 1 September, compared to the untreated check (trt 18). At the end of the study, turf quality was closely associated with the prior incidence of dollar spot. No phytotoxicity was observed.

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Table 1. Impact of biological and chemical products on the incidence of dollar spot in bentgrass in North Brunswick, NJ: 2000.

Treatment and rate/1000 sq ft	Spray interval (days) <sup>3</sup>	Number of dollar spot lesion centers per plot <sup>1</sup>							Turf Quality <sup>2</sup> 26 Aug.
		12 July	21 July	5 Aug.	12 Aug.	22 Aug.	1 Sept.		
1. GE-2 6.0 fl oz / GE-2 6.0 fl oz + Daconil Ultrex 82.5SDG 2.8 oz + AA Blend 1.0 fl oz	14 <sup>4</sup>	5.8 cd	14.8 b	23.0 c	13.3 b	70.5 c	137.8 d	6.3 de	
2. 710-132 5.0 fl oz	7	3.8 a-c	11.3 b	22.0 c	28.5 d	81.3 d	173.3 d	6.3 de	
3. Turf Vigor 18 fl oz	14	1.5 ab	4.0 a	13.0 b	23.5 cd	60.3 b	178.8 e	6.3 de	
4. Urea 46-0-0 2.1 oz	14	4.8 b-d	19.5 c	25.0 c	38.5 e	117.0 f	218.8 f	6.0 e	
5. Daconil Ultrex 82.5SDG 1.8 oz	7	0.0 a	0.0 a	0.3 a	0.0 a	0.0 a	13.0 a	6.0 e	
6. Daconil Ultrex 82.5SDG 1.8 oz	14	0.0 a	0.0 a	0.0 a	0.0 a	8.8 a	72.3 bc	8.8 ab	
7. Eagle 40W 0.6 oz	14	0.0 a	0.0 a	0.0 a	0.0 a	0.3 a	16.0 a	7.0 b-d	
8. Bayleton 50W 0.5 oz	14	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	15.5 a	8.3 a	
9. WAC79 2.0 fl oz + Daconil Ultrex 82.5SDG 3.8 oz	14	0.0 a	0.0 a	0.0 a	0.0 a	1.3 a	52.3 a-c	8.3 a	
10. WAC79 3.0 fl oz + Daconil Ultrex 82.5SDG 3.8 oz	14	0.0 a	0.0 a	0.0 a	0.0 a	1.0 a	51.0 a-c	6.8 c-e	
11. WAC79 4.0 fl oz + Daconil Ultrex 82.5SDG 3.8 oz	14	0.0 a	0.0 a	0.0 a	0.0 a	0.8 a	44.5 a-c	7.0 b-d	
12. WAC79 5.0 fl oz + Daconil Ultrex 82.5SDG 3.8 oz	14	0.0 a	0.0 a	2.5 a	0.0 a	0.8 a	36.0 ab	7.3 bc	
13. WAC79 4.0 fl oz	14	2.3 a-c	12.5 b	31.8 d	49.3 f	148.8 h	276.3 g	6.0 e	
14. WAC74 2.0 oz	14	8.0 d	5.2 a	37.8 d	44.0 ef	102.3 e	177.5 e	6.3 de	
15. WAC74 2.0 oz + Cleary 3336 4.3F 4.0 fl oz	14	0.0 a	0.0 a	0.0 a	0.0 a	2.5 a	77.8 c	7.0 b-d	
16. Cleary 3336 4.3F 4.0 fl oz.	14	1.3 ab	4.8 a	13.8 b	19.5 bc	58.5 b	163.8 de	6.3 de	
17. Daconil Ultrex 82.5SDG 3.8 oz	14	0.0 a	0.0 a	0.0 a	0.0 a	0.8 a	67.3 bc	6.0 e	
18. Untreated Check		7.8 d	21.5 c	36.0 d	42.5 e	140.0 g	221.0 f	7.0 b-d	

Table 1 (continued).

Treatment and rate/1000 sq ft	Spray interval (days) <sup>3</sup>	Number of dollar spot lesion centers per plot <sup>1</sup>								Turf Quality <sup>2</sup> 26 Aug.
		12 July	21 July	5 Aug.	12 Aug.	22 Aug.	1 Sept.	1 Sept.	1 Sept.	
	INT <sup>5</sup>	DAT <sup>6</sup>	DAT	DAT	DAT	DAT	DAT	DAT	DAT	DAT
	7	5	7	1	8	18	28	22		
	14	12	7	8	15	25	35	29		

<sup>1</sup> Values are means of four replicates. Means followed by the same letter are not significantly different according to Waller-Duncan *k*-ratio *t*-test (*k* = 100).

<sup>2</sup> Turf quality on a scale of 1 to 9, where 9 = best turf quality. Values above 6.0 represent acceptable turf quality.

<sup>3</sup> Fungicides were applied 2 June (all treatments), 9 June (7 day treatment), 16 June (7 and 14 day treatments), 23 June (7 day treatment), 30 June (7 and 14 day treatments), 7 July (7 day treatment), 14 July (7 and 14 treatments), 21 July (7 day treatment), 28 July (7 and 14 day treatments), and 4 August (7 day treatment).

<sup>4</sup> For treatment 1, GE-2 6.0 fl oz was applied alone (2 June to 14 July) until the mean number of lesion centers per plot exceeded a threshold of 10, then GE-2 6.0 fl oz + Daconil Ultrex 82.5SDG 2.8 oz + AA Blend 1.0 fl oz was applied (28 July).

<sup>5</sup> Spray interval in days.

<sup>6</sup> Days after treatment (DAT) for each spray interval.