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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, Cook College, Rutgers University in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public. Articles appearing in these proceedings are divided into two sections.

The first section includes lecture notes of papers presented at the 1998 New Jersey Turfgrass Expo. Publication of the New Jersey Turfgrass Expo Notes provides a readily available

source of information covering a wide range of topics. The Expo Notes include technical and popular presentations of importance to the turfgrass industry.

The second section includes research papers containing original research findings and reviews covering selected subjects in turfgrass science. The primary objective of this section is 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 FUNGICIDES FOR THE CONTROL OF FUSARIUM PATCH ON A CREEPING BENTGRASS AND ANNUAL BLUEGRASS PUTTING GREEN

L. P. Tredway, B. B. Clarke, and P. R. Majumdar¹

Fungicides were evaluated for their ability to control Fusarium patch (caused by the fungus *Microdochium nivale*) on a creeping bentgrass and annual bluegrass putting green in 1997 and 1998 at the Peace Pipe Country Club in Denville, NJ. The test area was mowed at a height of 0.156 inches seven times per week with clippings collected. The turf was irrigated to avoid drought stress. Fertilizer was applied as 18-3-17 on 23 August 1997 (1 lb N/1000 ft²) and 1 April 1998 (1 lb N/1000 ft²) and as 10-10-10 on 26 April 1998 (0.5 lb N/1000 ft²). Daconil 2787 4F (6 oz/1000 ft²) was applied on 5 August 1997 and Bayleton 25DF (2 oz/1000 ft²) was applied on 15 August 1997 and 1 September 1997. Plots were 3 ft x 9 ft and were arranged in a randomized complete block with four replications.

Fungicides were applied in water equivalent to 2 gal/1000 ft² with a CO₂ powered sprayer at 30 psi using TeeJet 8003E nozzles or by hand using a shaker jar. Granular materials were watered into the thatch with 1 gal water/27 ft² plot. Treatments (trt) were first applied on 11 November 1997. Fungicides requiring a spring application were applied on 29 January 1998 as indicated in Table 1. The number of Fusarium patch infection centers per plot was assessed on 21 November 1997, 29 January 1998, and 10 March 1998. Average patch diameter was 3

inches. Data were subjected to analysis of variance and means separation by the Waller-Duncan *k*-ratio *t*-test (*k* = 100).

Little snow accumulation was observed during the experimental period; however, significant Fusarium patch development occurred during cool, moist weather from November 1997 to March 1998. Disease development was first observed before the trial was initiated on 11 November 1997. On that date, no significant differences were observed among treatments (data not shown). Excellent control of Fusarium patch was provided by most treatments in this trial through 10 March 1998. The 8.0 fl oz rate of Chipco 26GT (trt 7) provided excellent control when applied in the fall and spring, but applications in the spring only (trt 8) or at the 4.0 fl oz rate (trt 6) were not effective. The addition of Defend 4F to WAC-71 90WG (trt 31) extended the control provided by WAC-71 90WG alone (trt 29), and the tank mix of Heritage 50WG + Par Flo 4F (trt 17) significantly extended the control provided by Heritage 50WG alone (trt 14). Chipco 26019 2F + Daconil 2787 4F (trt 5) provided excellent control through 10 March 1998, whereas Daconil 2787 4F (trt 4) and Chipco 26GT 2SC (trt 6) alone at the same rates provided fair and poor control, respectively. No winter injury or other forms of phytotoxicity were observed.

¹ Graduate Research Assistant, Extension Specialist in Turfgrass Pathology, and Senior Laboratory Technician, respectively, New Jersey Agricultural Experiment Station, Cook College, Rutgers, The State University of New Jersey, New Brunswick, NJ 08901.

Table 1. Impact of fungicides on the severity of Fusarium patch on a creeping bentgrass and annual bluegrass green in Denville, NJ: 1998.

Treatment and rate/1000 sq ft	Application Schedule ¹	Infection centers/plot ^{2,3}		
		21 Nov. 1997	29 Jan. 1998	10 March 1998
1. CGA-BMP-A 9.6MC 6.0 fl oz	F only	2.8 a	0.8 a	1.8 ab
2. CGA-BMP-B 11.8MC 6.0 fl oz	F only	4.0 a	0.5 a	2.2 abc
3. Chipco 26019 2F 8.0 fl oz	F/S	2.2 a	2.8 abc	6.0 a-e
4. Daconil 2787 4F 8.0 fl oz	F/S	2.2 a	5.5 abc	10.8 ef
5. Chipco 26019 2F 4.0 fl oz + Daconil 2787 4F 8.0 fl oz	F/S	4.5 a	0.0 a	1.8 a
6. Chipco 26GT 2SC 4.0 fl oz	F/S	3.2 a	8.8 cd	18.5 g
7. Chipco 26GT 2SC 8.0 fl oz	F/S	7.0 a	0.2 a	2.8 a-d
8. Chipco 26GT 2SC 8.0 fl oz	S only	2.5 a	16.0 e	26.5 hi
9. Cleary 3336 2G 96.0 oz ⁴	F only	1.8 a	0.2 a	4.5 a-e
10. Cleary 3336 50W 4.0 oz + Spotrete 75WDG 6.0 oz + Latron AG-44M 1% v/v	---	---	---	---
11. Eagle 40W 1.2 oz	F/S	1.2 a	0.0 a	11.2 ef
12. FF-II 15.4G 103.8 oz ⁴	F only	2.0 a	3.2 abc	9.2 de
13. FF-II 15.4G 51.9 oz ⁴	F only	1.2 a	0.8 a	1.8 ab
14. Heritage 50WG 0.4 oz	F only	0.0 a	0.2 a	3.0 a-d
15. Heritage 50WG 0.4 oz	F/S	1.8 a	5.0 abc	8.0 b-e
16. Par Flo 4F 12.0 fl oz	F only	4.8 a	4.8 abc	2.8 a-d
17. Par Flo 6F 8.0 fl oz	F only	2.2 a	0.2 a	3.5 a-d
18. Heritage 50WG 0.4 oz + Par Flo 4F 12.0 fl oz	F only	3.5 a	0.0 a	1.0 a
19. Heritage 50WG 0.7 oz + Par Flo 4F 12.0 fl oz	F only	2.0 a	0.0 a	0.5 a
20. L-0006G 64.0 oz ⁴	F only	5.5 a	0.0 a	0.5 a
21. L-0007G 64.0 oz ⁴	F only	5.5 a	0.5 a	1.2 ab
22. Penstar Flo 4F 12.0 fl oz + Fluid Fungicide 39%SC 6.3 fl oz	---	---	---	---
23. Prostar 50W 5.0 oz	F only	1.0 a	0.0 a	2.0 ab
	F only	2.5 a	17.2 e	29.0 j

(continued)

Table 1 (continued).

Treatment and rate/1000 sq ft	Application Schedule ¹	Infection centers/plot ^{2,3}		
		21 Nov. 1997	29 Jan. 1998	10 March 1998
23. S-7500W 4.3 oz.....	F only	1.0 a	0.0 a	1.2 ab
24. S-7501W 5.2 oz.....	F only	1.2 a	14.2 de	16.5 fg
25. Turfcide 75W 8.0 oz.....	F only	2.2 a	0.5 a	1.5 ab
26. Fore 80W 8.0 oz.....	F only	4.2 a	7.0 bc	19.8 gh
27. Turfcide 75W 8.0 oz + Fore 80W 6.0 oz.....	F only	2.2 a	2.5 ab	3.0 a-d
28. Turfcide 75W 8.0 oz + Fore 80W 8.0 oz.....	F only	1.0 a	0.5 a	1.2 ab
29. WAC-71 90WG 12.0 oz.....	F only	1.0 a	0.0 a	9.0 cde
30. Defend 10G 120.0 oz ⁴	F only	2.2 a	0.0 a	1.2 ab
31. WAC-71 90WG 8.0 oz + Defend 4F 9.0 fl oz.....	F only	1.0 a	0.0 a	1.2 ab
32. Untreated Control	—	1.0 a	15.5 e	43.0 k

1. Fungicides were applied in the fall (F only, 11 Nov. 1997), in the spring (S only, 29 Jan. 1998), or in the fall and spring (F/S, 11 Nov. 1997 and 29 Jan. 1998).
2. Values are means of four replicates. Means followed by the same letter are not significantly different according to Waller-Duncan *k*-ratio *t*-test ($k=100$).
3. Average patch diameter = 3 inches.
4. Granular materials were watered into the thatch with 1 gal water per 27 sq ft plot.