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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 (white pages) includes lecture notes of papers presented at the 1997 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 (green pages) includes technical research papers containing original research findings and reviews covering selected subjects in turfgrass science. The primary objective of these papers 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
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EVALUATION OF FUNGICIDES FOR THE CONTROL OF FUSARIUM PATCH AND YELLOW PATCH ON CREEPING BENTGRASS GREENS

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Fungicides were evaluated in 1996 for their ability to control Fusarium patch (pink snow mold), caused by *Microdochium nivale*, and yellow patch, caused by *Rhizoctonia cerealis*, on two creeping bentgrass (*Agrostis palustris* cv. Penncross) greens at the Peace Pipe Country Club in Denville, NJ. The test areas were 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 18-5-10 on 10 September 1995 (1 lb N/1000 ft²) and 15 April 1996 (0.5 lb N/1000 ft²). Subdue 2E (2 fl oz/1000 ft²) and Bayleton 25DF (2 oz/1000 ft²) were applied on 3 September 1995 for preventive Pythium blight and dollar spot control, respectively. Plots were 3 X 9 ft and were arranged in a randomized complete block with four replications.

Fungicides were applied with a CO₂ powered sprayer at 30 psi using TeeJet 8003E nozzles at the application volume indicated in Tables 1 and 2 or by hand using a shaker jar (granular fungicides). All treatments (trt) were applied on 27 November, 1995. On green #7, the number of Fusarium patch and yellow patch infection centers per plot were assessed on 27 March, 1996 (Table 1), whereas only Fusarium patch was evaluated on green #2 on 27 November, 1995 and 22 March, 1996 (Table 2). Average patch diameters for Fusarium patch and yellow patch were 3 and 8 inches, respectively. Data were subjected to analysis of variance and

means separation by Duncan's New Multiple Range Test ($p = 0.05$).

Persistent snow cover from 1 December through 15 March resulted in a uniform incidence of both Fusarium patch and yellow patch on green #7 and Fusarium patch on green #2. Due to differences in microclimate, the severity of Fusarium patch was greater on green #2. Excellent control of Fusarium patch and yellow patch was provided by most treatments on Green #7 (Table 1). Complete control of yellow patch was provided by all treatments except WAC 70 2G (trt 3, 4), Alpha Block AG (trt 8), PMAS 10LC (trt 9), and Fore 4F (trt 12).

On Green #2, Fusarium patch had already developed before the 27 November application date; however, no statistical differences were observed between treatments (Table 2). Excellent control of Fusarium patch was provided by Scotts FF-II 15.4G (trt 1, 2), UBI 4121 10G (trt 5), UBI 1876 4F (trt 10-15), AMV-53 80WDG (trt 16, 17), the 12.0 fl oz rate of AMV-41 48F (trt 19), PCNB 75WDG (trt 22), Banner MAXX 1.24MC + Turfcide 400 4F (trt 23) or Medallion 50W (trt 24), and all tank mixtures with Chipco 26019 FLO 2F (trt 25-30). Treatments incorporating increased application volumes or post-application irrigation did not result in enhanced control when compared to similar treatments with standard application practices.

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Table 1. Impact of fungicides on severity of Fusarium patch and yellow patch on creeping bentgrass in Denville, NJ - Green #7.

Treatment and rate/1000 sq ft	Application volume (gal./1000 sq ft)	Post-Treatment Irrigation (gal./plot) ³	Fusarium patch ¹ (inf. ctrs./plot)		Yellow patch ¹ (inf. ctrs./plot)
			March 27, 1996	March 27, 1996	
1 IB 11924 F 6.0 fl oz.	2	0	0.2 a	0.0 a	0.0 a
2 Fluazinam 500F 4.0 fl oz.	2	0	0.5 a	0.0 a	16.8 c
3 WAC 702G 48.0 oz.	---	0	2.0 ab	13.5 b	13.5 b
4 WAC 702G 96.0 oz.	---	0	0.0 a	0.0 a	0.0 a
5 Sentinel 40W 0.5 oz.	2	0	8.2 c	0.0 a	0.0 a
6 Rizolex 75W 4.0 oz.	2	0	1.2 ab	0.0 a	0.0 a
7 Sentinel 40W 0.5 oz + Rizolex 75W 4.0 oz.	2	0	1.0 ab	0.0 a	0.0 a
8 Alpha Block AG 1% v/v.	2	0	3.8 b	24.5 d	24.5 d
9 PMAS 10LC 1.0 fl oz.	2	0	0.5 a	14.0 b	14.0 b
10 PCNB 75W 8.0 oz.	2	0	0.0 a	1.0 a	1.0 a
11 Daconil 2787 4F 8.0 oz.	2	0	1.8 ab	0.0 a	0.0 a
12 Fore 4F 12.8 fl oz.	2	0	1.2 ab	12.2 b	12.2 b
13 Chipco 26019 2F 4.0 fl oz.	2	0	0.0 a	0.0 a	0.0 a
14 Chipco 26019 2F 8.0 fl oz.	2	0	0.0 a	0.0 a	0.0 a
15 Daconil 2787 4F 8.0 fl oz + Chipco 26019 4F 8.0 fl oz.	2	0	0.2 a	0.0 a	0.0 a
16 Aliette 80WDG 4.0 oz + Fore 4F 12.8 fl oz + Latron AG-44M 1.0 fl oz.	2	0	0.0 a	0.0 a	0.0 a
17 Aliette 80WDG 4.0 oz + Fore 4F 12.8 fl oz + Chipco 26019 4F 4.0 fl oz + Latron AG-44M 1.0 fl oz.	2	0	0.0 a	0.0 a	0.0 a
18 Aliette 80WDG 4.0 oz + Fore 4F 12.8 fl oz + Daconil 2787 4F 8.0 fl oz + Latron AG-44M 1.0 fl oz.	2	0	0.8 ab	0.0 a	0.0 a
19 Heritage 50WG 0.8 oz.	2	0	0.8 ab	0.0 a	0.0 a
20 Untreated Check.....	---	---	25.8 d	---	---

¹ Values are means of four replicates. Means followed by the same letter are not significantly different according to Duncan's New Multiple Range Test ($p = 0.05$). Average patch diameter = 3 inches for Fusarium patch, 8 inches for yellow patch.

² All fungicides were applied on 27 Nov., 1995. Granular treatments were applied by hand with a shaker jar.

³ Post-treatment irrigation was applied by hand to individual plots immediately following application.

Table 2. Impact of fungicides on severity of Fusarium patch and yellow patch on creeping bentgrass in Denville, NJ - Green #2.

	Treatment and rate/1000 sq ft	Application volume (gal./1000 sq ft)	Post-Treatment Irrigation (gal./plot) ³	Nov. 27, 1995	March 22, 1996	Fusarium patch ¹ (inf. ctrs./plot)
1	Scotts FF-II 15.4G 104.0 oz.	—	—	0	0.8 a	1.0 ab
2	Scotts FF-II 15.4G 104.0 oz.	—	—	4.2	4.2 a	2.2 a-f
3	Scotts FF-II 15.4G 52.0 oz.	—	—	0	3.8 a	8.0 hi
4	UBI 4044 10G 160.0 oz.	—	—	0	3.8 a	36.8 l
5	UBI 4121 10G 160.0 oz.	—	—	0	3.0 a	3.2 b-g
6	UBI 4118 15G 107.0 oz.	—	—	0	7.5 a	5.8 gh
7	UBI 4044 10G 160.0 oz.	—	—	4.2	0.5 a	19.8 k
8	UBI 4121 10G 160.0 oz.	—	—	4.2	1.5 a	4.8 efg
9	UBI 4118 15G 107.0 oz.	—	—	4.2	3.2 a	9.0 i
10	UBI 1876 4F 12.0 fl oz.	—	—	0	5.2 a	1.2 a-c
11	UBI 1876 4F 12.0 fl oz.	—	—	4.2	2.9 a	4.2 c-g
12	UBI 1876 4F 24.0 fl oz.	—	—	0	4.5 a	0.5 ab
13	UBI 1876 4F 24.0 fl oz.	—	—	4.2	2.8 a	0.8 ab
14	UBI 1876 4F 12.0 fl oz.	—	—	0	2.2 a	1.2 abc
15	UBI 1876 4F 12.0 fl oz.	—	—	4.2	2.0 a	0.5 ab
16	AMV-53 80WDG 8.0 oz.	—	—	0	2.2 a	0.8 ab
17	AMV-53 80WDG 12.0 oz.	—	—	0	2.0 a	0.8 ab
18	AMV-41 48F 8.0 fl oz.	—	—	0	1.2 a	5.0 fgh
19	AMV-41 48F 12.0 fl oz.	—	—	0	4.0 a	1.2 abc
20	Banner MAXX 1.24MC 4.0 fl oz.	—	—	0	4.8 a	13.5 j
21	Daconil 2787 4F 8.0 fl oz.	—	—	0	0.8 a	18.5 k
22	PCNB 75W 8.0 oz.	—	—	2	2.0 a	1.0 ab
23	Banner MAXX 1.24MC 3.0 fl oz + Turfside 400 4F 9.0 fl oz.	—	—	4	0	1.8 a
24	Banner MAXX 1.24MC 3.0 fl oz + Medallion 50W 0.5 oz... 4	—	—	0	4.2 a	0.5 ab 0.8 ab

(continued)

Table 2 (continued).

Treatment and rate/1000 sq ft	Application volume (gal./1000 sq ft)	Post-treatment irrigation (gal./plot) ³	Fusarium patch ¹ (inf. ctrs./plot)	
			Nov. 27, 1995	March 22, 1996
25 Chipco 26019 Flo 2F 4.0 fl oz +Daconil Ultrex 82.5 WDG 4.8 oz.	2	0	3.2 a	2.8 a-g
26 Chipco 26019 Flo 2F 4.0 fl oz + Daconil 2787 4F 8.0 fl oz. 2	0	0	2.5 a	1.8 a-e
27 Chipco 26019 Flo 2F 8.0 fl oz + Daconil 2787 4F 8.0 fl oz. 2	0	0	7.5 a	0.5 ab
28 Chipco 26019 Flo 2F 4.0 fl oz + PCNB 75W 8.0 oz..... 2	0	0	2.2 a	0.0 a
29 Chipco 26019 Flo 2F 4.0 fl oz + PCNB 75W 4.0 oz +Daconil 2787 4F 8.0 fl oz. 2	0	1.0 a	1.0 a	1.5 a-d
30 Chipco 26019 Flo 2F 4.0 fl oz + Prostar 50W 6.0 oz. 2	0	0	5.8 a	4.5 d-g
31 Untreated Check.....---	0	0	5.2 a	105.5 m

¹ Values are means of four replicates. Means followed by the same letter are not significantly different according to Duncan's New Multiple Range Test ($\alpha = 0.05$). Average patch diameter = 3 inches for Fusarium patch.

² All fungicides were applied on 27 Nov., 1995. Granular treatments were applied by hand with a shaker jar.

³ Post-treatment irrigation was applied by hand to individual plots immediately following application.