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This publication includes lecture notes of papers presented at the 2002 New Jersey Turfgrass Expo. Publication of these lectures provides 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 Brooks Gould, Editor
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EFFICACY OF FUNGICIDES FOR THE CONTROL OF GRAY LEAF SPOT ON PERENNIAL RYEGRASS

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Fungicides were evaluated in 2002 for their ability to control gray leaf spot (caused by *Pyricularia grisea*) on perennial ryegrass at the Rutgers Turf Research Farm in North Brunswick, NJ. Turf was established July 2002 on a Norton loam with a pH of 6.5. Mowing was performed three times weekly at a height of 2 inches with clippings collected. The site was irrigated as needed to prevent drought stress. Fertilizer was applied as 16-4-8 (0.75 lb N/1000 ft^2) on 26 June and as 16-4-8 (0.50 lb N/1000 ft^2) on 3 July, 11 July, and 19 July. Tupersan 4.6G (2.5 lb/1000 ft^2) was applied for pre-emergence weed control on 26 June and 11 July. To suppress *Pythium* development, Subdue 0.97GR (20 oz/1000 ft^2) was applied on 26 June and 3 July, Subdue MAXX 1MC (1.0 fl oz/1000 ft^2) on 22 July, Aliette 80WDG (8.0 oz/1000 ft^2) on 29 July, and Aliette 80WDG (4.0 oz/1000 ft^2) on 5 August. Prostar 70WP (2.1 oz/1000 ft^2) was applied on 22 July, 5 August (3.0 oz/1000 ft^2) and 21 August to suppress brown patch. Plots were 3 X 9 ft and were arranged in a randomized complete block with four replications.

Fungicides were applied in water equivalent to 2 gal per 1000 ft^2 with a CO_2 powered sprayer at 30 psi using TeeJet 8003E nozzles. Treatments (trt) were initiated on 23 July when environmental conditions were conducive to gray leaf spot development. Fungicides were reapplied at the appropriate intervals as indicated in Table 1. Turf was visually evaluated for percentage of turf area infested with gray leaf spot per plot on 7 August, 17 August, 23 August, 9 September, and 19 September. Turf quality was evaluated on 9 September using a 1 to 9 scale, where 9 = the best turf quality. Data were subject to analysis of variance and means separation by Waller-Duncan *k*-ratio *t*-test (*k* =100).

Gray leaf spot was first observed 7 August. Disease pressure was moderate to severe and disease activity peaked in early September. Spectro 90WDG (trt 1), Insignia 20WG (trt 7, 8), Insignia 20WG + Concorde 82.5DF (trt 9), Insignia 20WG + Pentathlon 75DF (trt 10), Insignia 20WG alternated with Cleary 3336 4.5SC (trt 11), BAS 516 UEF 26.2W (trt 12, 13), BAS 516 UFF 28W (trt 14, 15), the 0.25 oz rate of Medallion 50W on the 7-day interval (trt 16), the 0.33 and 0.50 oz rates of Medallion 50W on 14-day intervals (trt 18, 19), Medallion 50W + Daconil Ultrex 82.5SDG (trt 20), Heritage 50WG + Daconil Ultrex 82.5SDG (trt 21), the 2.0 fl oz rate of Banner MAXX 1.3MC (trt 22), Heritage 50WG (trt 23, 29, 30), Concorde DF 82.5DF (trt 24), Cleary 3336 4.5SC (trt 26), Daconil Ultrex 82.5SDG (trt 27, 37), A13705 (trt 31), Fore Rainshield 80W (trt 32), Companion I + Cleary 3336 50W (trt 34), Companion I + Daconil Ultrex 82.5SDG (trt 35), Cleary 3336 50W (trt 36), Compass 50WG (trt 38), and Heritage 50WG alternated with Banner MAXX 1.3MC or Cleary 3336 50W (trt 39) provided good to excellent gray leaf spot control throughout the study. Endorse 2.5W (trt 2, 3), FNX-100 (trt 4), TD 2390 42DF (trt 5), PS 00KP (trt 6), the 0.25 oz rate Medallion 50W on the 14-day interval (trt 17), Pentathlon 75DF (trt 25), the 1.0 fl oz rate of Banner MAXX 1.3MC (trt 28), Companion I (trt 33), and Propiconazole 1.3MC (trt 40, 41) did not provide acceptable control of the target disease. Turf quality was closely associated with the incidence of gray leaf spot (9 September). No phytotoxicity was observed.

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Table 1. Evaluation of fungicides for the control of gray leaf spot on perennial ryegrass, North Brunswick, NJ, 2002.

Treatment and Rate per 1000 sq ft	Spray Interval (days)[x]	Turf Area Infested (%) per Plot[z] 7 Aug.	17 Aug.	23 Aug.	9 Sept.	19 Sept.	Turf Quality[y] 9 Sept.
1. Spectro 90WDG 5.0 oz	14	1.8 a-d	0.0 a	0.0 a	0.0 a	0.0 a	7.3 h-k
2. Endorse 2.5W 4.0 oz	14	5.5 b-e	2.0 ab	9.8 c-f	41.0 hi	19.8 de	5.0 b-d
3. Endorse 2.5W 6.0 oz	14	6.8 d-f	10.3 bc	14.8 f-h	39.5 hi	23.3 ef	5.5 b-e
4. FNX-100 16.0 fl oz	14	12.5 g	49.3 f	66.8 k	88.0 l	86.3 j	2.8 a
5. TD 2390 42DF 6.0 oz	14	1.3 a-c	6.8 a-c	18.5 hi	43.5 hi	43.5 h	5.5 b-e
6. PS 00KP 4.0 fl oz	7	11.0 fg	21.5 d	40.5 j	60.8 j	68.0 i	4.5 b
7. Insignia 20WG 0.5 oz	14	0.5 ab	0.0 a	0.3 a	0.0 a	0.0 a	8.0 k
8. Insignia 20WG 0.9 oz	28	1.2 a-c	0.0 a	3.3 ab	3.5 ab	0.0 a	7.5 i-k
9. Insignia 20WG 0.5 oz + Concorde 82.5DF 3.2 oz	14	1.5 a-d	0.0 a	0.0 a	0.0 a	0.0 a	7.3 h-k
10. Insignia 20WG 0.5 oz + Pentathlon 75DF 8.0 oz	14	2.5 a-d	0.3 a	1.3 a	0.0 a	0.0 a	7.3 h-k
11. Insignia 20WG 0.5 oz /Cleary 3336 4.5SC 3.5 fl oz[w]	14	1.5 a-d	0.0 a	0.0 a	0.0 a	0.0 a	7.3 h-k
12. BAS 516 UEF 26.2W 0.554 oz	14	2.3 a-d	0.3 a	0.0 a	0.0 a	0.0 a	7.8 jk
13. BAS 516 UEF 26.2W 1.033 oz	28	0.5 ab	0.0 a	0.0 a	0.0 a	0.0 a	7.8 jk
14. BAS 516 UFF 28W 0.582 oz	14	0.8 ab	0.0 a	0.3 a	0.0 a	0.0 a	7.8 jk
15. BAS 516 UFF 28W 1.093 oz	28	2.3 a-d	0.0 a	0.5 a	0.0 a	0.0 a	7.8 jk
16. Medallion 50W 0.25 oz	7	1.3 a-c	1.0 a	2.3 ab	3.5 ab	1.0 a	7.3 h-k
17. Medallion 50W 0.25 oz	14	0.0 a	5.8 a-c	17.0 gh	37.0 h	30.3 g	6.3 e-h
18. Medallion 50W 0.33 oz	14	1.5 a-d	0.0 a	4.3 a-d	12.5 cd	7.3 ab	6.8 f-j
19. Medallion 50W 0.50 oz	14	1.5 a-d	0.0 a	2.0 a	6.3 a-c	3.3 ab	6.8 f-j
20. Medallion 50W 0.25 oz + Daconil Ultrex 82.5SDG 1.8 oz	14	1.3 a-c	0.0 a	0.0 a	1.0 a	4.3 ab	6.8 f-j
21. Heritage 50WG 0.2 oz + Daconil Ultrex 82.5SDG 1.8 oz	14	2.0 a-d	0.0 a	1.5 a	0.8 a	0.0 a	7.3 h-k
22. Banner MAXX 1.3MC 2.0 fl oz	14	0.8 ab	0.0 a	4.0 a-c	20.3 ef	9.3 bc	6.0 d-g
23. Heritage 50WG 0.2 oz	14	2.8 a-d	0.0 a	0.0 a	0.8 a	0.0 a	6.5 e-i
24. Concorde 82.5DF 3.2 oz	14	0.5 ab	0.0 a	1.5 a	2.3 a	1.5 a	6.8 f-j
25. Pentathlon 75DF 8.0 oz	14	2.0 a-d	0.8 a	12.5 e-g	14.0 de	14.5 cd	6.5 e-i

(Continued)

Table 1 (continued).

	Treatment and Rate per 1000 sq ft	Spray Interval (days)[x]	Turf Area Infested (%) per Plot[z] 7 Aug.	17 Aug.	23 Aug.	9 Sept.	19 Sept.	Turf Quality[y] 9 Sept.
26.	Cleary 3336 4.5SC 3.5 fl oz	14	1.5 a-d	0.0 a	0.0 a	0.0 a	0.0 a	7.0 g-k
27.	Daconil Ultrex 82.5SDG1.8 oz	14	1.3 a-c	0.0 a	1.8 a	6.0 a-c	2.0 a	6.8 f-j
28.	Banner MAXX 1.3MC 1.0 fl oz	7	5.3 a-e	13.5 c	22.8 i	44.8 i	28.0 fg	4.8 bc
29.	Heritage 50WG 0.1 oz	7	1.0 a-c	0.0 a	0.0 a	0.0 a	0.0 a	7.8 jk
30.	Heritage 50WG 0.4 oz	28	2.3 a-d	0.0 a	0.3 a	0.0 a	0.0 a	7.5 i-k
31.	A13705 1.33 fl oz	14	2.0 a-d	0.0 a	1.0 a	0.0 a	0.0 a	7.8 jk
32.	Fore Rainshield 80W 6.0 oz	14	2.2 a-d	0.8 a	0.3 a	5.5 a-c	3.0 ab	7.0 g-k
33.	Companion I 4.0 fl oz	14	9.8 e-g	32.5 e	42.0 j	71.3 k	67.5 i	3.3 a
34.	Companion I 4.0 fl oz +Cleary 3336 50W 4.0 oz	14	1.0 a-c	0.5 a	0.0 a	0.0 a	0.0 a	7.0 g-k
35.	Companion I 4.0 fl oz +Daconil Ultrex 82.5SDG 2.75 oz	14	1.8 a-d	3.5 ab	2.3 ab	9.8 b-d	4.5 ab	6.8 f-j
36.	Cleary 3336 50W 4.0 oz	14	0.8 ab	0.0 a	0.0 a	0.0 a	0.0 a	7.3 h-k
37.	Daconil Ultrex 82.5SDG 2.75 oz	14	1.0 a-c	0.0 a	0.3 a	0.8 a	0.8 a	7.5 i-k
38.	Compass 50WG 0.25 oz	14	3.3 a-d	0.0 a	0.0 a	0.0 a	0.0 a	8.0 k
39.	Heritage 50WG 0.2 oz /Banner MAXX 1.3MC 2.0 fl oz /Cleary 3336 50W 6.0 oz[v]	14 14 14	5.0 a-e	4.5 ab	0.0 a	0.0 a	0.0 a	8.0 k
40.	Propiconazole 1.3MC 1.0 fl oz	7	6.3 c-e	2.5 ab	10.0 ef	24.5 fg	15.0 cd	5.8 c-f
41.	Propiconazole 1.3MC 2.0 fl oz	14	8.8 e-g	13.8 c	8.3 b-e	28.0 g	14.0 cd	5.5 b-e
42.	Untreated Check	-	22.8 h	40.0 e	62.8 k	75.0 k	73.5 i	5.8 c-f
		INT[u]	DAT[t]	DAT	DAT	DAT	DAT	DAT
		7	7	4	3	6	2	6
		14	14	11	3	6	2	6
		28	14	25	3	20	2	20

(Continued)

Table 1 (continued).

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[z] Values are means of four replications. Means followed by the same letter are not significantly different according to Waller-Duncan *k*-ratio *t*-test (*k* =100).

[y] Turf Quality on a 1 to 9 scale, where 9 = best turf quality.

[x] Fungicides were applied on 23 July (all treatments), 30 July (7 day treatment), 6 August (7 and 14 day treatments), 13 August (7 day treatment), 20 August (7, 14, and 28 day treatments), 27 August (7 day treatment), 3 September (7 and 14 day treatments), 10 September (7 day treatment), 17 September (7, 14, and 28 day treatments), 24 September (7 day treatment), 1 October (7 and 14 day treatments), and 8 October (7 day treatment).

[w] Treatment 11: Insignia 20WG 0.5 oz was applied on 23 July, 20 August, and 17 September, whereas Cleary 3336 4.5SC 3.5 fl oz was applied on 6 August, 3 September, and 1 October.

[v] Treatment 39: Heritage 50WG 0.2 oz was applied on 23 July and 3 September, whereas Banner MAXX 1.3MC 2.0 fl oz was applied on 6 August and 17 September, and Cleary 3336 50W 6.0 oz was sprayed on 20 August and 1 October.

[u] Spray interval in days.

[t] Days after treatment (DAT) for each spray interval.