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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
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EVALUATION OF FUNGICIDES FOR CURATIVE CONTROL OF GRAY LEAF SPOT ON PERENNIAL RYEGRASS

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Fungicides were evaluated for curative control of gray leaf spot (caused by the fungus *Pyricularia grisea*) on Palmer II perennial ryegrass at the Rutgers Turf Research Farm in North Brunswick, NJ. Turf was established 31 July 1998 on a Norton loam with a pH of 6.4. The site was mowed at 2.0 inches two times per week, and clippings were not collected. Turf was irrigated to prevent drought stress.

Seed was treated with Apron 50W (1.2 oz/100 lb seed) on 16 July for preventive control of Pythium damping-off. Pythium blight was prevented with Subdue 2EC (2 fl oz/1000 ft²) on 8 September. Fertilizer was applied as 16-4-8 on 9 August (1.0 lb N/1000 ft²) and 10-10-10 on 8 Sep (0.5 lb N/1000 ft²). Plots were 3 ft x 7 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. Treatments (trt) were initiated on 27 August, except 28 and 29, which were applied on a curative basis every 14 days beginning 10 September. Fungicides were reapplied at the appropriate intervals as indicated in Table 1.

Turf was inoculated with a 5 ml conidial suspension of *P. grisea* per 21 ft² plot (approx. 66,600 conidia per ml) on 22 August and 4 September. Percent turf area exhibiting foliar symptoms of gray leaf spot was assessed on 3 September, 14 September, and 9 October. Data

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

Gray leaf spot was first observed on 25 August, two days before fungicides were applied. The disease developed rapidly and was already severe (31% turf area infested on the untreated check, trt 38) by the first evaluation date on 3 September. Disease incidence continued to increase through 9 October. Overall, Spectro 90WDG (trt 1,2), CGA-279'202 50W (trt 7), Lynx 45W + Daconil Ultrex 82.5SDG (trt 10, 11), the 0.56 oz rate of Lynx 45W (trt 16), Heritage 50WG + Daconil Ultrex 82.5SDG (trt 17-20), Heritage 50WG (trt 24-27), and Cleary 3336 50W (trt 32) provided good to excellent disease control throughout the study. Daconil Ultrex 82.5SDG (trt 21-23) did not provide adequate control of gray leaf spot, except the 7.6 oz rate on 9 October (trt 22), even though applications began only two days after symptoms were first observed. Although Heritage afforded good to excellent disease suppression when applied once (trt 24, 25) on 27 August, delaying applications until 10 September (repeated 24 September) resulted in poor disease control (trt 28, 29). S-4958 (trt 35 and 36) suppressed gray leaf spot 4 to 7 days post-treatment, but not 15 days after the final treatment on 24 Sep. Chipco 26GT 2SC (trt 34) and ProStar 70W (trt 33) did not provide acceptable control on any rating date. No phytotoxicity was observed.

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Table 1. Impact of fungicides on the severity of gray leaf spot on perennial ryegrass in North Brunswick, NJ: 1998.

Treatment and rate/1000 sq ft	Spray interval (days) ²	Turf area infected (%) / plot ¹		
		3 Sept.	14 Sept.	9 Oct.
1. Spectro 90WDG 4 oz	14	6.8 a-d	6.2 a-c	11.2 a-d
2. Spectro 90WDG 8 oz	14	3.2 a	4.0 a	7.8 ab
3. RU 200112 0.48 oz	14	15.5 h-m	31.2 jk	44.8 i-l
4. RU 200112 0.96 oz	14	16.0 i-m	25.8 ij	37.5 g-j
5. RU 200112 1.44 oz	14	12.0 c-k	20.0 gh	18.8 a-f
6. CGA-279'202 50W 0.15 oz	14	16.2 i-m	21.5 hi	18.8 a-f
7. CGA-279'202 50W 0.30 oz	14	11.0 b-j	11.0 c-e	9.5 a-c
8A. CGA-279'202 50W 0.1 oz	—	—	—	—
B. + Banner MAXX 1.24MC 1 fl oz	21	17.5 k-o	15.5 e-g	11.2 a-d
9A. CGA-279'202 50W 0.2 oz	—	—	—	—
B. + Primo L 1E 0.2 fl oz	21	21.0 m-p	29.8 j	9.5 a-c
10A. Lynx 45W 0.28 oz	—	—	—	—
B. + Daconil Ultrex 82.5SDG 1.82	14	15.0 g-m	11.0 c-e	9.5 a-c
11A. Lynx 45W 0.56 oz	—	—	—	—
B. + Daconil Ultrex 82.5SDG 1.82 oz	14	12.0 c-k	13.8 d-f	6.5 a
12A. Bayleton 50W 0.25 oz	—	—	—	—
B. + Daconil Ultrex 82.5SDG 1.82 oz	14	17.2 j-n	25.8 ij	55.0 k-m
13. Bayleton 50W 0.25 oz	14	11.8 b-k	41.5 lm	45.0 i-l
14. Bayleton 50W 0.50 oz	14	14.2 f-l	36.2 kl	28.5 e-i
15. Lynx 45W 0.28 oz	14	5.5 ab	16.8 f-h	25.5 c-h
16. Lynx 45W 0.56 oz	14	8.5 a-f	10.8 b-e	14.0 a-e
17A. Heritage 50WG 0.2 oz	—	—	—	—
B. + Daconil Ultrex 82.5SDG 3.8 oz	14	9.0 a-g	5.0 a	9.5 a-c

(continued)

Table 1 (continued).

Treatment and rate/1000 sq ft	Spray interval (days) ²	Turf area infected (%)/plot ¹		
		3 Sept.	14 Sept.	9 Oct.
18A. Heritage 50WG 0.4 oz	—	—	—	—
B. + Daconil Ultrex 82.5SDG 3.8 oz	28	11.2 b-k	5.2 ab	13.0 a-e
19A. Heritage 50WG 0.2 oz	—	—	—	—
B. + Daconil Ultrex 82.5SDG 3.8 oz	Once	12.5 d-l	7.8 a-c	8.2 ab
20A. Heritage 50WG 0.4 oz	—	—	—	—
B. + Daconil Ultrex 82.5SDG 3.8 oz	Once	10.0 b-i	6.8 a-c	14.0 a-e
21. Daconil Ultrex 82.5SDG 3.8 oz	14	23.0 n-q	45.5 m	23.5 b-f
22. Daconil Ultrex 82.5SDG 7.6 oz	14	23.8 o-q	51.2 n	18.8 a-f
23. Daconil Ultrex 82.5SDG 3.8 oz	Once	18.5 l-o	37.5 l	49.2 j-m
24. Heritage 50WG 0.2 oz	Once	10.2 b-i	6.8 a-c	9.5 a-c
25. Heritage 50WG 0.4 oz	Once	8.5 a-f	4.0 a	11.2 a-d
26. Heritage 50WG 0.2 oz	14	12.8 d-l	7.0 a-c	14.2 a-f
27. Heritage 50WG 0.4 oz	28	10.2 b-i	8.8 a-d	6.5 a
28. Heritage 50WG 0.2 oz	Cur. ³	29.0 qr	51.8 n	41.0 h-k
29. Heritage 50WG 0.4 oz	Cur. ³	29.2 qr	54.5 n	28.2 e-i
30A. Chipco Aliette 80WDG 4 oz	—	—	—	—
B. + Fore 80W 8 oz	14	9.2 a-h	21.8 hi	26.5 d-h
31. Fore 80W 8 oz	14	25.0 p-r	45.0 m	40.5 h-k
32. Cleary 3336 50W 6 oz	14	7.2 a-d	3.8 a	6.5 a
33. ProStar 70W 2.14 oz	14	30.8 r	62.2 o	76.0 op
34. Chipco 26GT 2SC 6 fl oz	14	27.8 qr	55.0 n	63.5 m-o
35. S-4958 2.13 fl oz	14	5.8 a-c	5.2 ab	58.5 l-n
36. S-4958 4.27 fl oz	14	7.8 a-e	7.0 a-c	31.0 f-i
37. Decree 50W 0.37 oz	14	13.8 e-l	54.5 n	75.0 n-p
38. Untreated Check	—	31.2 r	55.8 n	91.8 p

(continued)

Table 1 (continued).

Treatment and rate/1000 sq ft	Spray interval (days) ²	Turf area infected (%)/plot ¹		
		3 Sept.	14 Sept.	9 Oct.
	INT ⁴	DAT ⁵	DAT	DAT
	14	7	4	15
	21	7	18	1
	28	7	18	15
	Once	7	18	43
	Cur.	—	4	29

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

² Fungicides were applied on 27 August (all treatments except 28 and 29), 10 September (14 day treatment), 17 September (21 day treatment), 24 September (14 and 28 day treatments), and 8 October (21 day treatment).

³ Treatments 28 and 29 were applied on a curative basis every 14 days beginning 10 September.

⁴ Spray interval in days. Cur. = curative fungicide treatment.

⁵ Days after treatment (DAT) for each spray interval.