

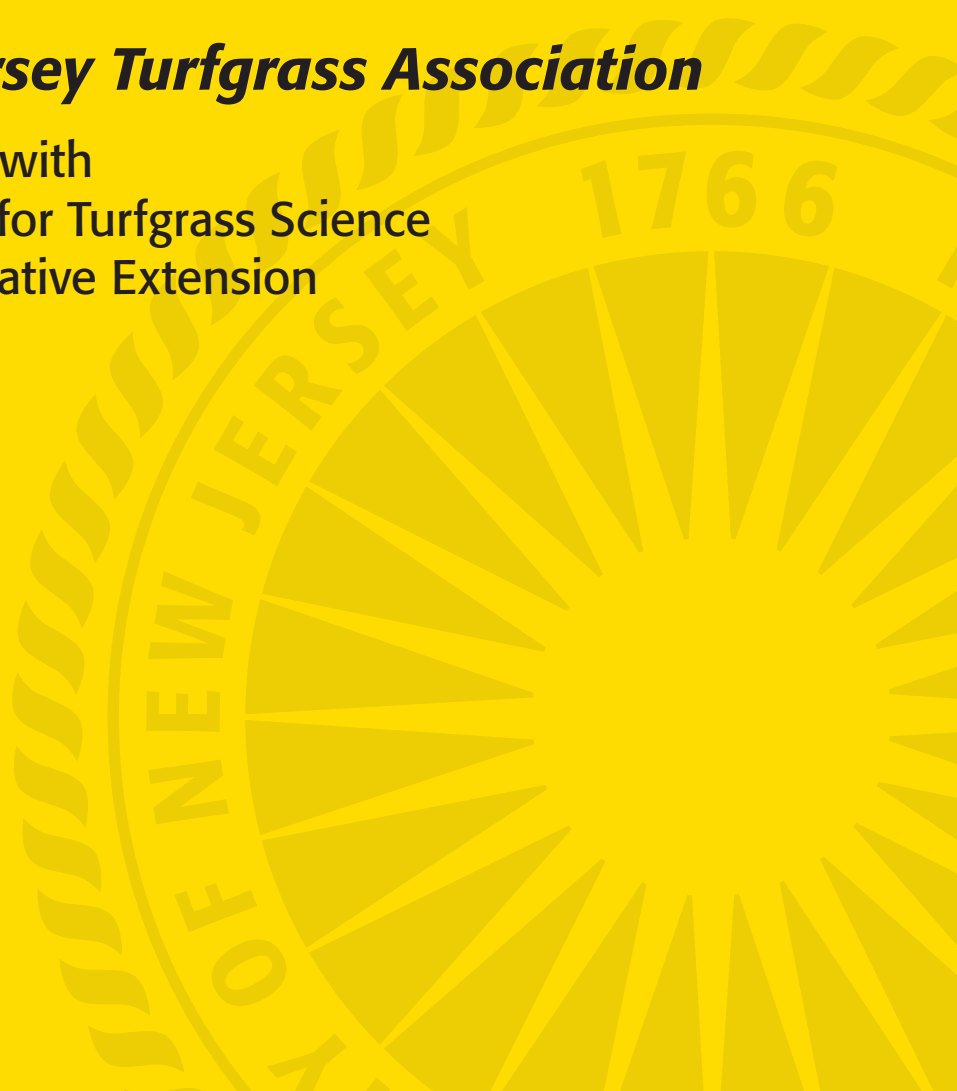
RUTGERS

New Jersey Agricultural
Experiment Station

2009 Turfgrass Proceedings

The New Jersey Turfgrass Association

In Cooperation with
Rutgers Center for Turfgrass Science
Rutgers Cooperative Extension



2009 RUTGERS TURFGRASS PROCEEDINGS

of the

New Jersey Turfgrass Expo December 8-10, 2009 Trump Taj Mahal Atlantic City, New Jersey

The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey 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.

This publication includes lecture notes of papers presented at the 2009 New Jersey Turfgrass Expo. Publication of these lectures provides a readily avail-

able 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.

Special thanks are given to those who have submitted papers for this proceedings, to the New Jersey Turfgrass Association for financial assistance, and to Barbara Fitzgerald and Anne Diglio for administrative and secretarial support.

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

INFLUENCE OF SELECTED FUNGICIDES ON DOLLAR SPOT DEVELOPMENT OF A CREEPING BENTGRASS FAIRWAY, 2009

Bruce B. Clarke, Pradip R. Majumdar, Mark Peacos, Tracy J. Lawson, Andra Pitonak, J. P. Chung Yew, Dennis Fitzgerald, Katherine E. Clarke, Samantha Hampton, William K. Dickson, and Joseph B. Clark¹

Fungicides were evaluated in 2009 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 stolonifera*) maintained under golf course fairway conditions. Turf was established September 1996 on a Nixon loam with a pH of 6.2. Mowing was performed three times weekly at a height of 0.375 inches with clippings collected. The site was irrigated as needed to prevent drought stress.

Fertilizer was applied as 34-0-0 (0.4 lb nitrogen (N)/1000 ft²) on 13 May and (0.2 lb N/1000 ft²) on 25 June, and 2 and 19 July. Dimension 2EW (6.27 fl oz/A) was applied on 30 April for pre-emergence weed control. Broadleaf weeds were controlled with Trimec Bentgrass 1.3L (1.5 fl oz/1000 ft²) + Lontrel T/O 3L (0.18 oz/1000 ft²) on 10 June. ProStar 70W (3.0 oz/1000 ft²) was applied on 18 July and 6 August to suppress brown patch (caused by *Rhizoctonia solani*). Localized dry spots were suppressed with the wetting agent Tricure 100LC (6.0 oz/1000 ft²) on 2 May and 2 July. Insect pests were controlled with Acelepryn 1.67SC (3.0 fl oz/A) on 16 June, Sevin SL 4L (8 qt/A) on 23 June, and Merit 75WP (0.16 oz/1000 ft²) on 7 July. Plots were 3 x 5 ft and were arranged in a randomized complete block with four replications.

Fungicides were applied in water equivalent to 1.9 gal/1000 ft² with a CO₂ powered sprayer at 30 psi using TeeJet 8003VS flat fan nozzles. Treatments (trt) were initiated on 15 April (early-season schedule; trts 24 to 28) or 21 May (standard preventive schedule; remaining trts) when environmental conditions were conducive to dollar spot development. Fungicides were reapplied at the appropriate intervals as indicated in Tables 1A and 1B. Turf was visually evalu-

ated for number of dollar spot infection centers per plot on 3, 11, and 22 June, 2, 13, and 23 July, and 7 and 17 August. Turf quality was rated on 18 June, 24 July, and 24 August using a 1 to 9 scale, where 9 = best turf quality and 5 = acceptable quality. Data were subjected to analysis of variance and means were separated using the Waller-Duncan *k*-ratio *t*-test (*k* = 100).

A natural infestation of dollar spot was first observed on 30 May and became uniform throughout the study by 3 June (Table 1A). The disease progressed gradually during June and July (4 to 34 lesion centers per untreated plot) and then intensified to 277 lesion centers per untreated plot by 17 August (Tables 1A and 1B). This was considered a moderate to severe level of dollar spot infestation, respectively, and thus was a good evaluation of the ability of a product to control this disease under commercial golf course fairway conditions. Less than 10 infection centers per plot represented an acceptable level of disease control for this study.

Of the early-season schedule entries (trts 24 to 28 initiated on April 15), RU22112-09A @ 0.3 to 0.5 fl oz (trts 25 to 27) did not exceed the predetermined retreatment threshold of five lesion centers per plot until 4 June (51 days after the initial treatment [DAT]), whereas DPX-LEM17-50 50WDG @ 0.5 oz (trt 24) and RU22112-09A @ 0.6 fl oz (trt 28) did not exceed the threshold until 12 June (59 DAT). The low rate of RU22112-09A (0.3 fl oz; trt 25) maintained acceptable disease control (<10 infection centers per plot) until 2 July (28 DAT); whereas RU22112-09A (0.4 and 0.5 fl oz; trts 26 and 27, respectively) and RU22112-09A @ 0.6 fl oz (trt 28) provided acceptable control through 13 July (39 and 31 DAT, respectively).

¹Extension Specialist in Turfgrass Pathology, Senior Laboratory Technician, Senior Greenhouse and Field Technician, Principal Laboratory Technician, Research Assistant, Research Assistant, Research Assistant, Research Assistant, Research Assistant, Turfgrass Research Farm Supervisor, and Principal Laboratory Technician, respectively, New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey, New Brunswick, NJ 08901-8520.

DPX-LEM17-50 50WDG @ 0.5 oz (trt 24), which was reapplied a third time on 26 June when it exceeded the retreatment threshold, provided acceptable control through 23 July (27 DAT).

Only Emerald 70WG @ 0.13 oz every 14 days (trt 43) afforded season-long control of dollar spot (21 May to 17 August). DPX-LEM17-50 50WDG @ 0.5 oz every 14 days (trt 23), Tourney 50WDG @ 0.28 oz (trt 30), RU22112-09A SC + RU22112-09B WDG (trts 31 to 36), and Daconil Ultrex 82.5WDG (trt 46) provided good to excellent residual control of this disease (until 7 August, 7 to 15 DAT). All other standard preventive schedule treatments in this study provided adequate dollar spot protection during the application period (21 May to 30 July) except for A16841A 1.3ME @ 0.247 fl oz (trt 2), A17595A 0.7EC (trt 4), A17601A

0.92EC @ 0.81 fl oz (trt 5), A13703G 2.7SC (trts 7, 8) A8122B 4.2EC @ 0.157 fl oz (trt 10), Trinity 1.69SC (trt 13), RU192514-09B ME (trt 16), RU192514-09L ME (trt 17), RU192514-09A F + RU192514-09D EC (trt 20), RU192514-09L ME + RU192514-09D EC (trt 21), A9898A 0.83SL @ 0.6 fl oz (trt 29) or 1.3 fl oz (trt 58), Tartan 2.4SC (trt 45), A12910C 2.3SC (trts 48, 49), A17629A 1.16G @ 3.0 lb (trt 50), A17630A 0.96G @ 3.0 lb (trt 52), Disarm 0.25G (trt 55), and Prophecy 0.72G @ 3.0 lb (trt 56).

Turf quality evaluated on 18 June, 24 July, and 24 August was closely associated with the degree of dollar spot control; treatments affording good protection from this disease had acceptable turf quality (Table 1B). No phytotoxicity was observed for any of the products evaluated.

Table 1A. Influence of selected fungicides on dollar spot development in a creeping bentgrass fairway: Rutgers University, 2009.

Treatment	Rate per 1000 sq ft	Application Interval (days) ²	Number of Lesion Centers per Plot ¹					
			3 June	11 June	22 June	2 July	13 July	23 July
1 A6780L 1.3ME	1.0 fl oz	21	1.5 a-c	2.5 c-g	4.3 c-l	5.8 d-n	4.0 f-p	10.3 h-n
2 A16841A 1.3ME	0.247 fl oz	21	1.0 a-c	4.5 a-g	5.0 b-l	12.0 a-j	5.3 e-p	19.5 d-g
3 A16841A 1.3ME	0.494 fl oz	21	0.5 c	3.0 b-g	3.5 d-l	5.5 d-n	0.8 m-p	9.0 h-r
4 A17595A 0.7EC	1.7 fl oz	21	2.0 a-c	4.8 a-g	7.5 a-i	18.5 a	7.8 c-j	26.3 c-e
5 A17601A 0.92EC	0.81 fl oz	21	0.3 c	4.0 b-g	6.3 b-l	9.0 a-n	3.5 f-p	14.5 f-k
6 A17601A 0.92EC	1.61 fl oz	21	0.5 c	4.0 b-g	4.8 b-l	10.0 a-n	1.0 l-p	9.3 h-q
7 A13703G 2.7SC	0.32 fl oz	21	0.8 bc	5.5 a-d	5.8 b-l	12.3 a-i	6.8 d-m	20.8 d-f
8 A13703G 2.7SC	0.5 fl oz	21	0.0 c	3.8 b-g	5.0 b-l	10.0 a-n	5.8 e-p	20.0 d-g
9 A9898A 0.83SL	0.96 fl oz	21	1.3 a-c	5.0 a-f	3.8 d-l	5.8 d-n	4.0 f-p	4.5 m-s
10 A8122B 4.2EC	0.157 fl oz	21	2.3 a-c	5.8 a-c	7.3 b-j	14.0 a-f	8.3 c-i	14.8 f-j
11 A8122B 4.2EC	0.314 fl oz	21	0.0 c	1.8 c-g	1.8 g-l	5.0 d-n	0.8 m-p	5.5 l-s
12 A14212C 1.4EC	1.5 fl oz	21	0.0 c	3.0 b-g	1.5 h-l	3.3 g-n	1.3 k-p	7.0 j-s
13 Trinity 1.69SC	1.0 fl oz	21	0.8 bc	2.8 b-g	5.8 b-l	9.5 a-n	6.3 d-o	19.5 d-g
14 RU192514-09D EC	0.314 fl oz	21	0.5 c	1.8 c-g	3.0 e-l	6.8 d-n	2.8 h-p	8.8 h-r
15 RU192514-09D EC	0.63 fl oz	21	0.5 c	2.0 c-g	2.5 e-l	5.8 d-n	0.5 n-p	6.0 l-s
16 RU192514-09B ME	1.0 fl oz	21	2.5 a-c	5.3 a-e	5.3 b-l	10.3 a-n	7.3 d-k	14.5 f-k
17 RU192514-09L ME	0.247 fl oz	21	1.5 a-c	5.8 a-c	8.8 a-f	13.8 a-g	13.5 bc	31.0 bc
18 RU192514-09O WG	0.13 oz	21	0.3 c	2.3 c-g	5.3 b-l	8.0 b-n	3.8 f-p	4.8 l-s
19 RU192514-09B ME	1.0 fl oz							
+ RU192514-09D EC	0.314 fl oz	21	0.0 c	1.3 d-g	0.5 kl	2.5 i-n	0.3 op	4.0 n-s
20 RU192514-09A F	2.0 fl oz							
+ RU192514-09D EC	0.314 fl oz	21	0.5 c	4.3 a-g	7.5 a-i	14.5 a-e	6.5 d-n	16.5 f-h
21 RU192514-09L ME	0.247 fl oz							
+ RU192514-09D EC	0.314 fl oz	21	0.0 c	3.8 b-g	5.3 b-l	11.3 a-l	5.5 e-p	12.5 g-m
22 DPX-LEM17-50 50WDG	0.3 oz	14	2.5 a-c	1.8 c-g	0.5 kl	1.0 l-n	0.8 m-p	1.8 p-s
23 DPX-LEM17-50 50WDG	0.5 oz	14	2.0 a-c	1.5 c-g	0.3 kl	0.0 n	0.0 p	0.0 s
24 DPX-LEM17-50 50WDG	0.5 oz	VAR ³	0.3 c	4.8 a-g	5.5 b-l	3.3 g-n	1.8 j-p	8.5 h-r
25 RU22112-09A	0.3 fl oz	VAR ⁴	3.0 a-c	2.8 b-g	8.3 a-g	11.8 a-k	19.5 ab	30.8 bc
26 RU22112-09A	0.4 fl oz	VAR ⁴	2.5 a-c	2.5 c-g	5.0 b-l	8.0 b-n	9.5 c-f	27.5 cd
27 RU22112-09A	0.5 fl oz	VAR ⁴	1.8 a-c	0.8 e-g	2.3 f-l	7.0 c-n	8.8 c-h	19.8 d-g

(Continued)

Table 1A (continued).

Treatment	Rate per 1000 sq ft	Application Interval (days) ²	Number of Lesion Centers per Plot ¹					
			3 June	11 June	22 June	2 July	13 July	23 July
28 RU22112-09A.....	0.6 fl oz	VAR ⁵	0.5 c	4.3 a-g	2.8 e-l	4.3 e-n	6.8 d-m	14.5 f-k
29 A9898A 0.83SL.....	0.6 fl oz	35	0.3 c	3.8 b-g	10.8 a-c	13.3 a-h	11.3 c-e	15.8 f-h
30 Tourney 50WDG.....	0.28 oz	14	0.5 c	0.5 fg	0.0 l	2.3 i-n	0.0 p	0.0 s
31 RU22112-09A SC.....	0.3 fl oz							
+ RU22112-09B WDG.....	0.18 oz	14	1.5 a-c	1.3 d-g	0.5 kl	1.8 i-n	0.0 p	0.0 s
32 RU22112-09A.....	0.4 fl oz							
+ RU22112-09B WDG.....	0.18 oz	14	0.3 c	0.3 g	0.0 l	0.3 mn	0.0 p	0.0 s
33 RU22112-09A.....	0.5 fl oz							
+ RU22112-09B WDG.....	0.18 oz	14	0.5 c	0.8 e-g	0.0 l	0.5 mn	0.0 p	0.0 s
34 RU22112-09A.....	0.3 fl oz							
+ RU22112-09B WDG.....	0.28 oz	14	0.5 c	0.3 g	0.3 kl	1.3 k-n	0.0 p	0.0 s
35 RU22112-09A.....	0.4 fl oz							
+ RU22112-09B WDG.....	0.28 oz	14	0.5 c	0.3 g	0.0 l	0.3 mn	0.0 p	0.0 s
36 RU22112-09A.....	0.5 fl oz							
+ RU22112-09B WDG.....	0.28 oz	14	0.3 c	0.3 g	0.0 l	0.0 n	0.0 p	0.0 s
37 Triton Flo 3SC.....	0.75 fl oz	21	1.0 a-c	2.8 b-g	2.8 e-l	6.5 d-n	3.0 g-p	7.5 i-s
38 Reserve 4.8SC.....	3.2 fl oz	21	0.0 c	2.3 c-g	5.8 b-l	11.8 a-k	5.5 e-p	14.8 f-j
39 Concert 4.3SC.....	5.0 fl oz	21	0.5 c	1.8 c-g	2.8 e-l	7.5 c-n	4.0 f-p	6.3 l-s
40 Interface 2.27SC.....	3.0 fl oz	21	0.5 c	1.0 e-g	3.5 d-l	5.8 d-n	2.3 i-p	5.3 l-s
41 Interface 2.27SC.....	4.0 fl oz	21	0.3 c	0.8 e-g	1.0 i-l	2.8 h-n	0.3 op	2.0 o-s
42 A9898A 0.83SL.....	0.95 fl oz	35	1.3 a-c	3.3 b-g	6.3 b-l	5.8 d-n	5.0 f-p	9.8 h-p
43 Emerald 70WG.....	0.13 oz	14	0.3 c	1.3 d-g	0.3 kl	1.0 l-n	0.0 p	0.0 s
44 Emerald 70WG.....	0.13 oz	21	0.5 c	1.3 d-g	3.8 d-l	6.3 d-n	3.8 f-p	6.5 k-s
45 Tartan 2.4SC.....	1.5 fl oz	21	0.8 bc	4.0 b-g	6.5 b-l	10.8 a-m	4.5 f-p	10.5 h-n
46 Daconil Ultrex 82.5WDG.....	3.2 oz	14	0.5 c	1.0 e-g	0.3 kl	1.8 i-n	0.5 n-p	1.0 rs
47 Tourney 50WDG.....	0.18 oz	14	0.3 c	0.5 fg	0.8 j-l	1.5 j-n	0.8 m-p	1.3 q-s
48 A12910C 2.3SC.....	0.48 fl oz	21	0.8 bc	5.3 a-e	7.8 a-h	11.8 a-k	11.3 c-e	19.3 e-g
49 A12910C 2.3SC.....	0.76 fl oz	21	1.0 a-c	3.8 b-g	6.8 b-k	11.8 a-k	7.0 d-l	15.5 f-i
50 A17629A 1.16G.....	3.0 lb	21 ⁶	2.3 a-c	5.5 a-d	10.0 a-d	15.3 a-d	12.0 cd	12.8 fl
51 A17629A 1.16G.....	4.0 lb	21 ⁶	0.3 c	1.5 c-g	2.8 e-l	3.8 f-n	2.3 i-p	4.5 m-s

(Continued)

Table 1A (continued).

Treatment	Rate per 1000 sq ft	Application Interval (days) ²	Number of Lesion Centers per Plot ¹					
			3 June	11 June	22 June	2 July	13 July	23 July
52 A17630A 0.96G.....	3.0 lb	21 ⁶	1.8 a-c	4.3 a-g	5.0 b-l	11.5 a-l	8.5 c-h	15.8 f-h
53 A17630A 0.96G.....	4.0 lb	21 ⁶	1.3 a-c	3.0 b-g	5.0 b-l	8.8 a-n	5.5 e-p	7.5 i-s
54 Headway 1.39EC.....	1.5 fl oz	21	0.3 c	3.5 b-g	5.8 b-l	8.3 a-n	3.5 f-p	10.0 h-o
55 Disarm 0.25G.....	2.3 lb	21 ⁶	3.0 a-c	3.0 b-g	11.3 ab	18.3 ab	20.5 a	37.5 b
56 Prophecy 0.72G.....	3.0 lb	21 ⁶	1.8 a-c	3.5 b-g	4.8 b-l	7.3 c-n	9.0 c-g	15.5 f-i
57 Prophecy 0.72G.....	4.0 lb	21 ⁶	0.3 c	1.5 c-g	3.0 e-l	4.0 e-n	3.0 g-p	4.5 m-s
58 A9898A 0.83SL.....	1.3 fl oz	35	1.3 a-c	3.5 b-g	9.0 a-e	9.5 a-n	7.0 d-l	12.0 g-n
59 Untreated check.....	—	—	4.3 a	7.0 ab	13.5 a	17.5 a-c	20.8 a	33.8 bc

	INT ⁷	DAT ⁸	DAT	DAT	DAT	DAT	DAT
	14	13	7	4	14	11	7
	21	13	21	11	21	11	21
	35	13	21	33	7	18	28
	VAR ³	50	58	10	20	31	41
	VAR ⁴	50	7	18	28	39	49
	VAR ⁵	49	58	10	20	31	41

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 15 April (treatments 24 to 28), 21 May (all treatments except treatments 24 to 28), 4 June (14-day treatment and treatments 25 to 27), 11 June (21-day treatments), 12 June (treatments 24 and 28), 18 June (14-day treatment except treatment 25 to 27), 25 June (35-day treatment), 26 June (treatment 24 only), 2 July (14- and 21-day treatments), 16 July (14-day treatment), 23 July (21-day treatment), and 30 July (14- and 35-day treatments).

³ Variable spray schedule where treatments 24 and 28 were initiated on 15 April and reapplied on 12 June when the disease threshold was more than five lesion centers per plot on one replication. Treatment 24 was again applied on 26 June when plots exceeded the disease threshold.

⁴ Variable spray schedule where treatments 25 to 27 were initiated on 15 April and reapplied on 4 June when the disease threshold was more than five lesion centers per plot on one replication.

⁵ Variable spray schedule where treatment 28 was initiated on 15 April and reapplied on 12 June.

(Continued)

Table 1A (continued).

⁶ Treatments 50 to 53 and 55 to 57 were applied to dry foliage and then immediately irrigated with 0.25 gal of water per plot.

⁷ Spray interval in days.

⁸ Days after the last treatment.

Table 1B. Influence of selected fungicides on dollar spot development in a creeping bentgrass fairway: Rutgers University, 2009.

Treatment	Rate per 1000 sq ft	Application Schedule (days) ³	Number of Lesion Centers per Plot ¹		Turf Quality ²		
			7 Aug.	17 Aug.	18 June	24 July	24 Aug.
1 A6780L 1.3ME1.0 fl oz	21	46.5 j-n	133.5 i-m	7.0 b-f	6.5 b-e	5.3 h-k	
2 A16841A 1.3ME0.247 fl oz	21	81.5 d-f	225.0 c-e	7.3 a-e	6.5 b-e	3.5 o-q	
3 A16841A 1.3ME0.494 fl oz	21	43.3 k-n	132.0 i-n	7.0 b-f	6.8 a-d	4.8 j-m	
4 A17595A 0.7EC1.7 fl oz	21	88.5 c-e	197.5 d-f	6.8 c-f	6.3 c-f	4.0 m-o	
5 A17601A 0.92EC0.81 fl oz	21	76.5 e-g	148.5 g-k	7.8 a-c	6.5 b-e	4.8 j-m	
6 A17601A 0.92EC1.61 fl oz	21	46.0 k-n	134.3 i-m	7.5 a-d	6.0 d-g	4.5 k-n	
7 A13703G 2.7SC0.32 fl oz	21	80.8 ef	186.3 e-g	7.5 a-d	6.3 c-f	5.0 i-l	
8 A13703G 2.7SC0.5 fl oz	21	71.0 f-i	183.8 e-h	7.5 a-d	6.8 a-d	4.8 j-m	
9 A9898A 0.83SL0.96 fl oz	21	14.3 t-v	88.3 o-s	6.5 d-f	5.0 h	5.5 g-j	
10 A8122B 4.2EC0.157 fl oz	21	75.0 e-h	183.3 e-h	7.0 b-f	6.8 a-d	4.5 k-n	
11 A8122B 4.2EC0.314 fl oz	21	17.0 s-v	96.5 m-r	7.0 b-f	6.3 c-f	5.5 g-j	
12 A14212C 1.4EC1.5 fl oz	21	26.5 o-t	69.0 p-w	7.5 a-d	6.0 d-g	6.0 e-h	
13 Trinity 1.69SC1.0 fl oz	21	77.0 e-g	211.0 c-f	6.5 d-f	6.3 c-f	4.8 j-m	
14 RU192514-09D EC0.314 fl oz	21	46.5 j-n	142.0 h-l	7.8 a-c	6.8 a-d	5.0 i-l	
15 RU192514-09D EC0.63 fl oz	21	39.5 l-q	135.0 i-m	7.0 b-f	7.0 a-c	4.3 l-o	
16 RU192514-09B ME1.0 fl oz	21	63.0 g-j	153.3 g-j	7.0 b-f	5.5 f-h	5.5 g-j	
17 RU192514-09L ME0.247 fl oz	21	141.0 b	238.8 b-d	7.0 b-f	5.5 f-h	3.8 n-p	
18 RU192514-09O WG0.13 oz	21	26.0 p-t	78.5 o-u	7.5 a-d	6.0 d-g	5.0 i-l	
19 RU192514-09B ME1.0 fl oz							
+ RU192514-09D EC0.314 fl oz	21	16.3 s-v	61.3 q-x	7.0 b-f	6.5 b-e	5.3 h-k	
20 RU192514-09A F2.0 fl oz							
+ RU192514-09D EC0.314 fl oz	21	41.8 l-p	119.3 j-o	8.0 ab	6.5 b-e	4.5 k-n	
21 RU192514-09L ME0.247 fl oz							
+ RU192514-09D EC0.314 fl oz	21	38.0 m-q	132.3 i-n	6.8 c-f	6.8 a-d	4.8 j-m	
22 DPX-LEM17-50 50WDG0.3 oz	14	19.0 r-u	69.3 p-w	7.5 a-d	6.3 c-f	6.3 d-g	
23 DPX-LEM17-50 50WDG0.5 oz	14	4.8 uv	31.3 v-z	8.0 ab	6.8 a-d	8.0 a	
24 DPX-LEM17-50 50WDG0.5 oz	VAR ⁴	58.8 h-k	170.0 f-i	7.5 a-d	7.0 a-c	4.8 j-m	
25 RU22112-09A0.3 fl oz	VAR ⁵	135.3 b	285.0 a	6.3 ef	5.5 f-h	2.8 q	
26 RU22112-09A0.4 fl oz	VAR ⁵	125.5 b	242.5 a-c	6.0 f	5.5 f-h	3.0 pq	
27 RU22112-09A0.5 fl oz	VAR ⁵	97.5 cd	222.5 c-e	7.0 b-f	6.3 c-f	3.5 o-q	

(Continued)

Table 1B (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) ³	Number of Lesion Centers per Plot ¹		Turf Quality ²		
			7 Aug.	17 Aug.	18 June	24 July	24 Aug.
28 RU22112-09A.....	0.6 fl oz	VAR ⁶	100.8 c	238.8 b-d	6.5 d-f	6.0 d-g	3.5 o-q
29 A9898A 0.83SL.....	0.6 fl oz	35	34.0 m-r	107.0 k-p	7.0 b-f	5.5 f-h	4.5 k-n
30 Tourney 50WDG.....	0.28 oz	14	4.5 uv	28.8 w-z	7.3 a-e	7.5 a	6.3 d-g
31 RU22112-09A SC.....	0.3 fl oz						
+ RU22112-09B WDG.....	0.18 oz	14	7.0 uv	35.5 v-z	6.8 c-f	7.3 ab	6.5 c-f
32 RU22112-09A.....	0.4 fl oz						
+ RU22112-09B WDG.....	0.18 oz	14	1.0 v	19.3 x-z	7.3 a-e	7.3 ab	7.3 a-c
33 RU22112-09A.....	0.5 fl oz						
+ RU22112-09B WDG.....	0.18 oz	14	0.8 v	14.3 yz	7.0 b-f	7.0 a-c	8.0 a
34 RU22112-09A.....	0.3 fl oz						
+ RU22112-09B WDG.....	0.28 oz	14	0.8 v	11.3 z	7.0 b-f	7.0 a-c	7.0 b-d
35 RU22112-09A.....	0.4 fl oz						
+ RU22112-09B WDG.....	0.28 oz	14	0.5 v	11.0 z	7.3 a-e	7.5 a	8.0 a
36 RU22112-09A.....	0.5 fl oz						
+ RU22112-09B WDG.....	0.28 oz	14	0.5 v	11.0 z	7.3 a-e	7.3 ab	7.5 ab
37 Triton Flo 3SC.....	0.75 fl oz	21	40.5 l-q	87.0 o-t	7.5 a-d	7.0 a-c	5.3 h-k
38 Reserve 4.8SC.....	3.2 fl oz	21	25.5 p-t	84.0 o-t	8.3 a	6.8 a-d	5.5 g-j
39 Concert 4.3SC.....	5.0 fl oz	21	11.0 t-v	38.8 u-z	7.5 a-d	6.0 d-g	5.5 g-j
40 Interface 2.27SC.....	3.0 fl oz	21	25.8 p-t	101.3 l-q	7.5 a-d	7.0 a-c	5.5 g-j
41 Interface 2.27SC.....	4.0 fl oz	21	15.8 s-v	86.3 o-t	7.8 a-c	7.0 a-c	5.5 g-j
42 A9898A 0.83SL.....	0.95 fl oz	35	31.3 n-s	90.5 n-r	7.3 a-e	5.0 h	5.5 g-j
43 Emerald 70WG.....	0.13 oz	14	1.8 v	7.8 z	7.5 a-d	6.8 a-d	8.0 a
44 Emerald 70WG.....	0.13 oz	21	35.5 m-r	86.5 o-t	7.3 a-e	6.0 d-g	5.5 g-j
45 Tartan 2.4SC.....	1.5 fl oz	21	43.0 k-o	101.8 l-q	7.0 b-f	6.5 b-e	4.8 j-m
46 Daconil Ultrex 82.5WDG.....	3.2 oz	14	4.5 uv	20.0 x-z	7.8 a-c	7.0 a-c	7.3 a-c
47 Tourney 50WDG.....	0.18 oz	14	16.5 s-v	45.5 t-z	7.5 a-d	7.0 a-c	6.0 e-h
48 A12910C 2.3SC.....	0.48 fl oz	21	73.3 e-h	169.5 f-i	7.0 b-f	5.5 f-h	4.3 l-o
49 A12910C 2.3SC.....	0.76 fl oz	21	55.8 i-l	178.3 f-h	7.3 a-e	5.8 e-h	4.5 k-n
50 A17629A 1.16G.....	3.0 lb	21 ⁷	50.0 j-m	106.0 k-p	7.3 a-e	5.3 gh	5.0 i-l

(Continued)

Table 1B (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) ³	Number of Lesion Centers per Plot ¹		Turf Quality ²		
			7 Aug.	17 Aug.	18 June	24 July	24 Aug.
51 A17629A 1.16G.....	4.0 lb	21 ⁷	13.8 t-v	37.5 u-z	7.0 b-f	5.5 f-h	6.8 b-e
52 A17630A 0.96G.....	3.0 lb	21 ⁷	62.8 g-j	109.8 k-p	7.5 a-d	5.5 f-h	5.0 i-l
53 A17630A 0.96G.....	4.0 lb	21 ⁷	24.0 q-t	47.8 s-z	7.5 a-d	5.0 h	5.8 f-i
54 Headway 1.39EC.....	1.5 fl oz	21	40.5 l-q	99.0 m-q	8.0 ab	5.8 e-h	4.8 j-m
55 Disarm 0.25G.....	2.3 lb	21 ⁷	132.5 b	277.5 ab	7.0 b-f	5.3 gh	3.0 pq
56 Prophecy 0.72G.....	3.0 lb	21 ⁷	49.5 j-m	101.0 l-q	6.5 d-f	5.5 f-h	5.0 i-l
57 Prophecy 0.72G.....	4.0 lb	21 ⁷	25.8 p-t	56.0 r-y	6.5 d-f	5.3 gh	5.5 g-j
58 A9898A 0.83SL.....	1.3 fl oz	35	31.3 n-s	72.0 p-v	6.3 ef	5.8 e-h	5.5 g-j
59 Untreated check.....	—	—	166.0 a	277.5 ab	6.5 d-f	5.0 h	2.8 q

	INT ⁸	DAT ⁹	DAT	DAT	DAT	DAT
	14	7	17	14	8	24
	21	15	25	7	1	32
	35	7	17	28	29	24
	VAR ⁴	56	66	6	42	73
	VAR ⁵	64	74	14	50	81
	VAR ⁶	56	66	65	42	73

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 Turf quality on a scale of 1 to 9, where 9 = best turf quality and 5 = commercially acceptable quality.

³ Fungicides were applied on 15 April (treatments 24 to 28), 21 May (all treatments except treatments 24 to 28), 4 June (14-day treatment and treatments 25 to 27), 11 June (21-day treatments), 12 June (treatments 24 and 28), 18 June (14-day treatment except treatment 25 to 27), 25 June (35-day treatment), 26 June (treatment 24 only), 2 July (14- and 21-day treatments), 16 July (14-day treatment), 23 July (21-day treatment), and 30 July (14- and 35-day treatments).

⁴ Variable spray schedule where treatments 24 and 28 were initiated on 15 April and reapplied on 12 June when the disease threshold was more than five lesion centers per plot on one replication. Treatment 24 was again applied on 26 June when plots exceeded the disease threshold.

(Continued)

Table 1B (continued).

- ⁵ Variable spray schedule where treatments 25 to 27 were initiated on 15 April and reapplied on 4 June when the disease threshold was more than five lesion centers per plot on one replication.
- ⁶ Variable spray schedule where treatment 28 was initiated on 15 April and reapplied on 12 June.
- ⁷ Treatments 50 to 53 and 55 to 57 were applied to dry foliage and then immediately irrigated with 0.25 gal of water per plot.
- ⁸ Spray interval in days.
- ⁹ Days after the last treatment.