

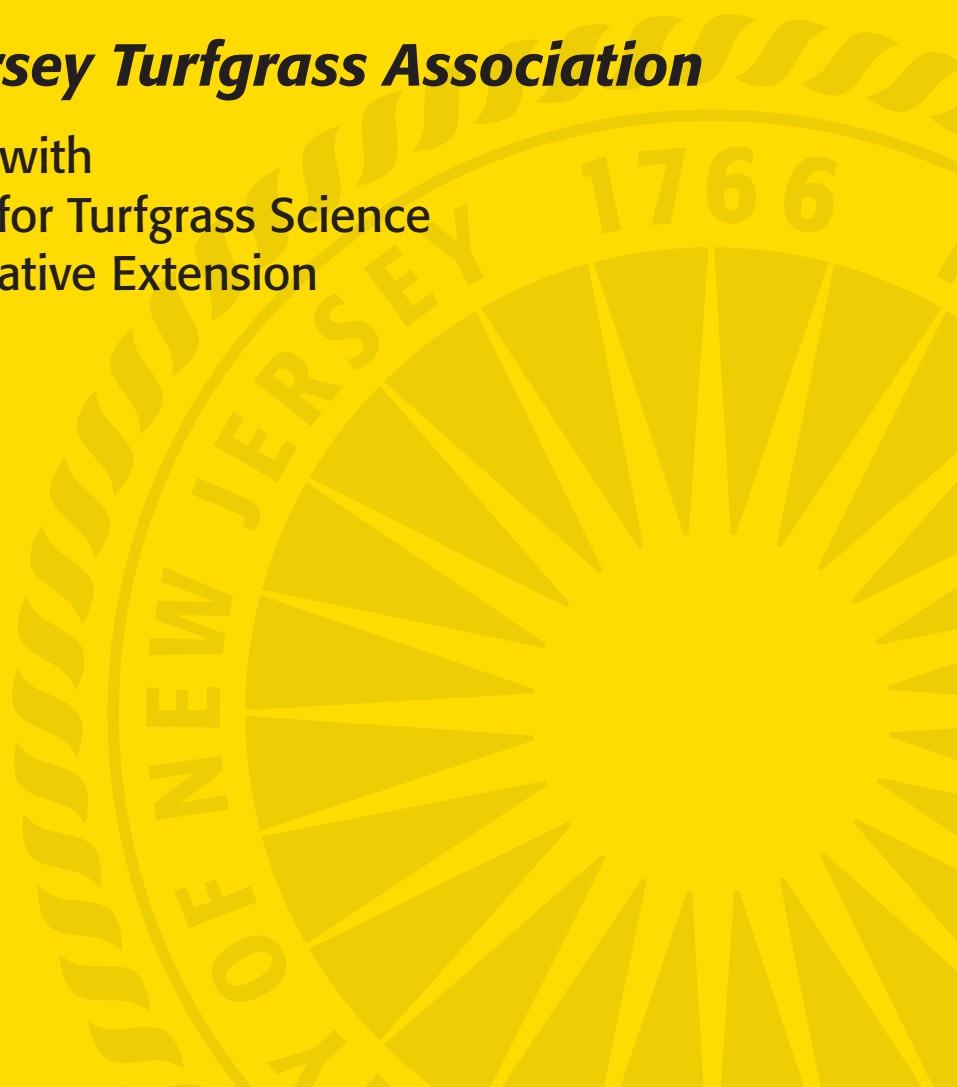
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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State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

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

CONTROL OF DOLLAR SPOT WITH FUNGICIDES AND BIORATIONAL PRODUCTS ON A CREEPING BENTGRASS GREEN, 2009

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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 greens conditions. Turf was established September 2007 on a Nixon loam with a pH of 6.3. Mowing was performed daily at a height of 0.125 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 8 June, and (0.2 lb N/1000 ft²) on 2 and 19 July. Dimension 2EW (6.27 fl oz/A) was applied on 30 April for pre-emergence weed control. Heritage 50WG (0.4 oz/1000 ft²) was applied on 16 May and ProStar 70W (3.0 oz/1000 ft²) 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, 8 June, 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. Turf was topdressed with a sand root zone mix (0.3 L m⁻²) on 27 March, 29 May, 13 June, and 7 August. 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 21 May 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 evaluated for number of dollar spot infection

centers per plot on 9, 18, and 29 June, 9, 21, and 31 July, and 10 and 21 August. Turf quality was rated on 18 June and 10 and 24 August using a 1 to 9 scale, where 9 = best turf quality and 5 = acceptable quality. Turf was visually evaluated for the percentage of the soil/leaf surface covered with blue-green algae (cyanobacteria) on 21 July and 24 August. Phytotoxicity was assessed on 18 June using a 1 to 5 scale, where 1 = no foliar discoloration, 2 = slight chlorosis or necrosis, 3 = moderate chlorosis or necrosis, 4 = severe chlorosis or necrosis, and 5 = all turf dead. Data were subjected to analysis of variance and means were separated using the Waller-Duncan *k*-ratio *t*-test (*k* = 100).

Dollar spot was first observed on 4 June and became uniform throughout the study by 9 June (Table 1A). The disease progressed rapidly throughout June and July, peaking on 21 August at 237 lesion centers per plot on untreated turf (Tables 1A and 1B). This was considered a high level of dollar spot infestation and thus a very stringent test of a products ability to control this disease under commercial golf course greens conditions. Less than 10 infection centers per plot represented an acceptable level of disease control for this study.

Approximately half of the fungicide entries provided good to excellent control of dollar spot throughout the application period (21 May to 6 August; Tables 1A and 1B). The following treatments afforded excellent residual control (i.e., at least until 10 August; 4 to 25 days after the last application) of this disease: SARS-346 40WP + 3336 Plus 19.4F (trts 1, 4), SARS-346 40WP + Heritage 50WG (trts 2, 5), SARS-346 40WP + Endorse 2.5W (trt 3), SARS-346 40WP @ 0.27 oz and 0.4 oz (trt 6, 7), Tartan 2.4SC @ 1.0 fl oz every

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14 days (trt 13), Emerald 70WG @ 0.18 oz every 21 days (trt 16), Daconil Ultrex 82.5WDG (trt 17), Interface 2.27SC @ 3.0 to 7.0 fl oz (trts 18 to 21 and 31), Reserve 4.8SC @ 2.8 to 3.6 fl oz every 14 days (trts 27-29), Concert 4.3SE @ 5.4 fl oz (trt 48), A13703 2.72SC @ 0.49 fl oz (trt 50), A12910 2.34SC @ 0.48 fl oz (trt 51), and SARS-351 20SC @ 0.25 and 0.5 fl oz (trt 55, 56; Table 1B). Season-long control of dollar spot (21 May to 21 August) was only observed for turf treated with Emerald 70WG @ 0.13 oz every 14 days (trt 15), Instrata 3.6SE (trt 22), Tartan 2.4SC @ 2.0 fl oz (trt 23), Concert 4.3SE @ 5.0 fl oz (trt 30), SP2169 1.04SC @ 2.83 fl oz (trt 35), Tartan 2.4SC @ 1.5 fl oz (trt 36), A12910 2.34SC @ 0.76 fl oz (trt 52), and Reserve 4.8SC @ 2.8 fl oz every 7 days (trt 53; Table 1B).

Turf quality evaluated on 18 June, and 10 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). Slight to moderate foliar chlorosis was noted on 18 June for turf treated with Instrata 3.6SE @

9.3 fl oz (trt 22), SP2169 1.04SC @ 0.71, 1.41, and 2.28 fl oz (trts 32, 34 and 35, respectively), A9898A 0.83SC @ 0.6 fl oz every 35 or 21 days (trts 43 and 47, respectively), and A9898A 0.83SC @ 0.95 fl oz every 35 days (trt 44) (Table 1B), but the injury was only temporary and turf quickly recovered in 14 days. Excellent suppression of algae was observed on 21 July and 24 August with several products in the study (Table 1B). The following entries had significantly less algal cover than untreated turf on both rating dates: products containing iprodione [i.e., Interface 2.27SC @ 6.0 and 7.0 fl oz (trts 20 and 21, respectively), and Iprodione Pro 2SE @ 4.0 and 5.0 fl oz (trt 33 and 24, respectively)], products containing chlorothalonil [i.e., Instrata 3.6SE (trt 22), Bayer Dollar Spot Program #1 (trt 26), Reserve 4.8SC @ 3.2 and 3.6 fl oz every 14 days (trts 28 and 29, respectively), Concert 4.3SE @ 5.0 fl oz (trt 30), and Reserve 4.8SC @ 2.8 fl oz every 7 days (trt 53)], SARS-346 40WP 0.4 oz + Heritage 50WG 0.3 oz (trt 5), Emerald 70WG @ 0.13 oz every 14 days (trt 15), and A12910 2.34SC @ 0.76 fl oz (trt 52).

Table 1A. Control of dollar spot with fungicides and biorational products on a creeping bentgrass green: Rutgers University, 2009.

Treatment	Rate per 1000 sq ft	Spray Interval (days) ²	Number of Lesion Centers per Plot ¹						
			9 June	18 June	29 June	9 July	21 July	31 July	10 Aug.
1 SARS-346 40WP0.27 oz + 3336 Plus 19.4F.....3.0 fl oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.0 i	0.0 p
2 SARS-346 40WP0.27 oz + Heritage 50WG.....0.2 oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.3 i	0.0 p
3 SARS-346 40WP0.27 oz + Endorse 2.5W.....4.0 oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.0 i	0.0 p
4 SARS-346 40WP0.4 oz + 3336 Plus 19.4F.....4.5 fl oz		21	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.0 i	1.5 n-p
5 SARS-346 40WP0.4 oz + Heritage 50WG.....0.3 oz		21	0.0 g	0.0 h	1.3 op	0.3 p	0.0 i	0.0 i	2.5 n-p
6 SARS-346 40WP0.27 oz		14	0.0 g	0.0 h	0.8 op	0.3 p	0.0 i	0.0 i	0.0 p
7 SARS-346 40WP0.4 oz		21	0.5 fg	1.8 gh	0.8 op	0.8 p	0.3 i	0.0 i	1.5 n-p
8 3336 Plus 19.4F.....3.0 fl oz		14	0.3 g	7.8 c-e	24.8 fg	39.0 fg	43.0 d	37.5 c-e	78.8 e
9 3336 Plus 19.4F.....4.5 fl oz		21	2.5 d-g	4.3 d-h	25.0 fg	33.8 fg	41.8 d	42.5 b-d	132.5 bc
10 Heritage 50WG0.2 oz		14	1.8 d-g	5.3 d-h	24.0 f-h	32.8 gh	33.8 d	35.0 c-f	84.8 e
11 Heritage 50WG0.3 oz		21	1.3 d-g	3.0 e-h	27.0 ef	33.3 g	42.0 d	31.3 d-g	85.5 e
12 Endorse 2.5W4.0 oz		14	7.0 a-c	15.3 ab	60.3 b	82.5 b	91.5 b	60.0 b	134.3 bc
13 Tartan 2.4SC1.0 fl oz		14	1.0 e-g	1.0 h	4.5 l-p	5.8 k-p	3.3 hi	6.8 hi	5.5 l-p
14 Tartan 2.4SC1.5 fl oz		21	1.0 e-g	1.5 gh	9.8 i-o	9.5 i-p	6.3 f-i	4.8 hi	14.0 j-m
15 Emerald 70WG0.13 oz		14	0.3 g	0.0 h	0.3 op	0.3 p	1.0 i	0.0 i	0.0 p
16 Emerald 70WG0.18 oz		21	0.3 g	0.5 h	2.3 n-p	1.8 p	1.3 i	0.5 hi	3.5 l-p
17 Daconil Ultrex 82.5WDG.....3.2 oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.8 i	3.8 hi	7.3 l-p
18 Interface 2.27SC.....4.0 fl oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.5 hi	0.5 op
19 Interface 2.27SC.....5.0 fl oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.0 i	0.3 op
20 Interface 2.27SC.....6.0 fl oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.0 i	0.0 p
21 Interface 2.27SC.....7.0 fl oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.0 i	0.0 p
22 Instrata 3.6SE9.3 fl oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.0 i	0.0 p
23 Tartan 2.4SC2.0 fl oz		14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.0 i	0.0 p
24 Iprodione Pro 2SE.....5.0 fl oz		14	0.0 g	0.0 h	2.0 n-p	4.5 l-p	3.3 hi	10.8 g-i	20.5 i-k
25 Triton Flo 3.1SC.....0.75 fl oz		14	2.5 d-g	2.3 f-h	14.5 h-k	14.0 i-o	7.8 e-i	11.0 g-i	24.0 ij

(Continued)

Table 1A (continued).

Treatment	Rate per 1000 sq ft	Spray Interval (days) ²	Number of Lesion Centers per Plot ¹						
			9 June	18 June	29 June	9 July	21 July	31 July	10 Aug.
26 Bayer Dollar Spot Program #1	—	Var ³	1.0 e-g	0.0 h	7.3 j-p	4.8 l-p	5.8 f-i	10.8 g-i	14.5 j-l
27 Reserve 4.8SC.....	2.8 fl oz	14	1.5 d-g	0.5 h	2.5 m-p	3.0 op	0.5 i	5.3 hi	6.0 l-p
28 Reserve 4.8SC.....	3.2 fl oz	14	0.3 g	0.5 h	0.3 op	1.3 p	0.3 i	3.0 hi	5.5 l-p
29 Reserve 4.8SC.....	3.6 fl oz	14	0.8 fg	0.8 h	0.5 op	0.3 p	5.0 f-i	2.8 hi	5.0 l-p
30 Concert 4.3SE.....	5.0 fl oz	14	0.0 g	0.0 h	0.0 p	0.0 p	0.0 i	0.0 i	0.0 p
31 Interface 2.27SC	3.0 fl oz	14	0.0 g	0.0 h	0.0 p	0.0 p	0.3 i	1.8 hi	5.3 l-p
32 SP2169 1.04SC	0.71 fl oz	14	2.5 d-g	6.5 d-g	31.5 ef	43.8 fg	44.0 d	54.5 bc	81.8 e
33 Iprodione Pro 2SE.....	4.0 fl oz	14	0.3 g	0.0 h	2.0 n-p	4.3 m-p	7.8 e-i	9.8 hi	30.5 g-i
34 SP2169 1.04SC	1.41 fl oz	14	1.0 e-g	1.8 gh	17.0 g-i	17.5 i-k	15.8 ef	21.0 e-h	36.8 gh
35 SP2169 1.04SC	2.83 fl oz	14	0.0 g	0.0 h	7.0 k-p	5.0 l-p	2.5 i	5.8 hi	4.0 l-p
36 Tartan 2.4SC	1.5 fl oz	14	0.3 g	0.3 h	0.8 op	0.0 p	0.0 i	1.3 hi	0.0 p
37 Rubigan 1AS.....	0.5 fl oz	14	4.8 b-e	12.0 bc	46.8 c	71.0 bc	83.0 b	58.8 b	126.8 c
38 Rubigan 1AS.....	0.5 fl oz								
+ GWN-9812 LC	0.74 fl oz	14	5.0 b-d	14.8 ab	44.5 cd	56.3 de	65.0 c	49.3 b-d	139.5 b
39 Banner MAXX 1.3ME.....	0.5 fl oz	14	2.3 d-g	3.0 e-h	16.0 g-k	18.8 ij	18.0 e	11.8 g-i	30.5 g-i
40 Rubigan 1AS.....	1.0 fl oz	21	7.8 a-c	15.3 ab	46.3 c	62.3 cd	91.5 b	60.0 b	133.5 bc
41 Rubigan 1AS.....	1.0 fl oz								
+ GWN-9812 LC	0.74 fl oz	21	4.3 c-f	5.0 d-h	36.0 de	45.5 ef	61.5 c	42.0 b-d	98.3 d
42 Banner MAXX 1.3ME.....	1.0 fl oz	21	1.0 e-g	3.0 e-h	16.8 g-j	16.0 i-m	17.3 e	7.8 hi	21.5 i-k
43 A9898A 0.83SC	0.6 fl oz	35	3.0 d-g	16.0 ab	42.0 cd	43.3 fg	42.8 d	37.5 c-e	54.5 f
44 A9898A 0.83SC	0.95 fl oz	35	0.3 g	7.5 c-f	14.5 h-k	16.3 i-l	15.3 e-g	18.0 e-i	25.0 ij
45 A9898A 0.83SC	0.6 fl oz	28	0.5 fg	8.3 c-e	11.0 i-n	21.0 hi	18.0 e	14.8 f-i	41.0 g
46 A9898A 0.83SC	0.95 fl oz	28	1.8 d-g	9.3 cd	12.0 i-m	15.3 i-n	13.8 e-h	9.8 hi	26.8 hi
47 A9898A 0.83SC	0.6 fl oz	21	0.5 fg	0.8 h	6.8 k-p	7.5 j-p	5.8 f-i	3.5 hi	11.5 k-o
48 Concert 4.3SE.....	5.4 fl oz	21	0.0 g	0.8 h	2.5 m-p	2.0 p	0.5 i	0.0 i	7.3 l-p
49 A13703 2.72SC.....	0.32 fl oz	14	0.0 g	1.0 h	4.5 l-p	6.3 k-p	4.5 g-i	8.3 hi	22.8 i-k
50 A13703 2.72SC.....	0.49 fl oz	14	0.5 fg	1.0 h	4.3 l-p	4.3 m-p	0.8 i	1.8 hi	8.0 l-p
51 A12910 2.34SC.....	0.48 fl oz	14	0.5 fg	1.0 h	2.3 n-p	2.5 op	1.8 i	6.0 hi	7.8 l-p
52 A12910 2.34SC.....	0.76 fl oz	14	0.0 g	0.0 h	1.3 op	0.3 p	0.0 i	1.5 hi	0.3 op
53 Reserve 4.8SC.....	2.8 fl oz	7	0.0 g	0.0 h	0.3 op	0.0 p	0.0 i	0.0 i	0.0 p

(Continued)

Table 1A (continued).

Treatment	Rate per 1000 sq ft	Spray Interval (days) ²	Number of Lesion Centers per Plot ¹						
			9 June	18 June	29 June	9 July	21 July	31 July	10 Aug.
54 SARS-351 20SC.....	0.125 fl oz	14 ⁴	0.5 fg	2.0 gh	12.3 i-l	11.3 i-p	4.3 g-i	9.3 hi	12.5 k-n
55 SARS-351 20SC.....	0.25 fl oz	14 ⁴	0.3 g	1.0 h	3.8 l-p	3.8 n-p	0.0 i	3.0 hi	3.0 m-p
56 SARS-351 20SC.....	0.5 fl oz	14 ⁴	0.0 g	1.0 h	0.8 op	0.0 p	0.0 i	0.0 i	0.0 p
57 Untreated Control.....	—	—	8.5 ab	17.8 a	87.3 a	114.8 a	126.5 a	91.3 a	173.8 a
		INT ⁵	DAT ⁶	DAT	DAT	DAT	DAT	DAT	DAT
		7	5	7	4	7	5	1	4
		14	5	14	11	7	5	1	11
		21	19	7	18	7	19	8	18
		28	19	28	11	21	5	15	25
		35	19	28	4	14	26	1	11
		VAR ³	5	7	11	7	5	1	11

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 21 May (all treatments, except treatments 54 to 56), 28 May (7-day treatment), 4 June (7- and 14-day treatments), 11 June (7- and 21-day treatments), 18 June (7-, 14-, and 28-day treatments; and initiated treatments 54 to 56), 25 June (7- and 35-day treatments), 2 July (7-, 14-, and 21-day treatments), 9 July (7-day treatment), 16 July (7-, 14-, and 28-day treatments), 23 July (7- and 21-day treatments), 30 July (7-, 14-, and 35-day treatments), and 6 August (7-day treatment).

³ Variable spray schedule, where treatment 26 (Bayer Dollar Spot Program #1) consisted of Triton Flo 3.1SC (0.5 fl oz) + Signature 80WG (4 oz) applied on 21 May, 18 June, and 16 July, and Signature 80WG (4 oz) + Daconil Ultrex 82.5WDG (3.2 oz) applied on 4 June, 2 July, and 30 July.

⁴ Treatments 54 to 56 received Daconil Ultrex 82.5WDG (3.2 oz) on 27 May and SARS-351 20SC every 14 days from 18 June to 30 July.

⁵ Spray intervals in days.

⁶ Days after the last treatment.

Table 1B. Control of dollar spot with fungicides and biorational products on a creeping bentgrass green: Rutgers University, 2009.

Treatment	Rate per 1000 sq ft	Spray Interval (days) ⁴	Number of Lesion Centers Per Plot ¹			Turf Quality ²			Phyto- toxicity ³
			21 Aug.	Algae (%)		18 June	10 Aug.	24 Aug.	18 June
				21 July	24 Aug.				
1 SARS-346 40WP0.27 oz + 3336 Plus 19.4F.....3.0 fl oz		14	17.3 s-u	7.8 d-i	18.0 d-l	7.0 e-h	7.8 a-c	7.0 b	1.0 d
2 SARS-346 40WP0.27 oz + Heritage 50WG.....0.2 oz		14	23.0 r-t	13.3 b-i	15.8 d-l	7.8 b-e	7.5 b-d	6.0 cd	1.0 d
3 SARS-346 40WP0.27 oz + Endorse 2.5W.....4.0 oz		14	23.5 q-t	6.3 d-i	12.3 f-l	7.3 d-g	7.3 b-e	6.8 bc	1.0 d
4 SARS-346 40WP0.4 oz + 3336 Plus 19.4F.....4.5 fl oz		21	113.5 hi	6.3 d-i	18.0 d-l	7.0 e-h	7.3 b-e	5.3 d-g	1.0 d
5 SARS-346 40WP0.4 oz + Heritage 50WG.....0.3 oz		21	75.3 j-l	3.5 f-i	11.8 f-l	7.0 e-h	7.5 b-d	5.5 d-f	1.0 d
6 SARS-346 40WP0.27 oz		14	14.3 s-u	8.3 d-i	15.5 d-l	7.5 c-f	7.3 b-e	7.3 b	1.0 d
7 SARS-346 40WP0.4 oz		21	104.5 i	9.3 d-i	13.0 f-l	7.8 b-e	7.5 b-d	5.0 e-h	1.0 d
8 3336 Plus 19.4F.....3.0 fl oz		14	205.0 d	0.8 i	22.5 a-l	7.3 d-g	5.0 k-n	3.5 kl	1.0 d
9 3336 Plus 19.4F.....4.5 fl oz		21	207.5 d	3.0 f-i	15.8 d-l	7.3 d-g	4.5 m-o	3.3 l	1.0 d
10 Heritage 50WG0.2 oz		14	160.0 e	8.5 d-i	22.5 a-l	7.3 d-g	5.0 k-n	3.5 kl	1.0 d
11 Heritage 50WG0.3 oz		21	202.5 d	8.0 d-i	35.3 a-e	6.5 g-j	4.8 l-n	3.8 j-l	1.0 d
12 Endorse 2.5W4.0 oz		14	252.5 a	11.0 c-i	28.0 a-i	7.3 d-g	3.8 op	2.3 m	1.0 d
13 Tartan 2.4SC1.0 fl oz		14	26.8 p-s	15.8 a-i	18.8 b-l	7.5 c-f	6.5 e-h	5.5 d-f	1.0 d
14 Tartan 2.4SC1.5 fl oz		21	59.5 k-o	27.8 ab	27.5 a-j	7.3 d-g	6.0 g-j	4.5 g-j	1.3 cd
15 Emerald 70WG0.13 oz		14	1.5 u	15.5 a-i	25.0 a-l	7.0 e-h	7.8 a-c	7.0 b	1.0 d
16 Emerald 70WG0.18 oz		21	13.8 s-u	1.8 hi	10.0 g-l	7.3 d-g	7.0 c-f	7.5 b	1.0 d
17 Daconil Ultrex 82.5WDG.....3.2 oz		14	55.3 l-o	0.0 i	4.0 kl	7.5 c-f	6.3 f-i	5.5 d-f	1.0 d
18 Interface 2.27SC.....4.0 fl oz		14	61.3 k-o	8.0 d-i	27.3 a-j	8.8 a	8.0 ab	5.0 e-h	1.0 d
19 Interface 2.27SC.....5.0 fl oz		14	46.3 op	3.3 f-i	20.0 b-l	8.3 a-c	7.5 b-d	5.8 de	1.0 d
20 Interface 2.27SC.....6.0 fl oz		14	49.5 m-o	1.8 hi	5.0 kl	7.8 b-e	8.5 a	6.0 cd	1.0 d
21 Interface 2.27SC.....7.0 fl oz		14	27.8 p-s	0.8 i	7.0 h-l	8.5 ab	8.5 a	6.0 cd	1.0 d
22 Instrata 3.6SE9.3 fl oz		14	0.0 u	0.0 i	6.0 j-l	6.0 ij	4.5 m-o	7.5 b	2.5 a
23 Tartan 2.4SC2.0 fl oz		14	0.0 u	26.0 a-c	25.8 a-k	7.5 c-f	7.3 b-e	5.8 de	1.0 d

(Continued)

Table 1B (continued).

Treatment	Rate per 1000 sq ft	Spray Interval (days) ⁴	Number of Lesion Centers Per Plot ¹			Algae (%)		Turf Quality ²			Phyto- toxicity ³
			21 Aug.	21 July	24 Aug.	18 June	10 Aug.	24 Aug.	18 June		
24 Iprodione Pro 2SE.....	5.0 fl oz	14	123.3 g-i	2.0 hi	14.3 e-l	7.5 c-f	6.8 d-g	4.8 f-i	1.0 d		
25 Triton Flo 3.1SC.....	0.75 fl oz	14	68.3 j-n	19.8 a-e	13.0 f-l	7.8 b-e	6.8 d-g	5.3 d-g	1.0 d		
26 Bayer Dollar Spot Program #1	—	Var ⁵	82.8 j	0.0 i	11.8 f-l	8.5 ab	7.3 b-e	5.0 e-h	1.0 d		
27 Reserve 4.8SC.....	2.8 fl oz	14	55.5 l-o	0.0 i	17.3 d-l	8.0 a-d	7.0 c-f	5.8 de	1.0 d		
28 Reserve 4.8SC.....	3.2 fl oz	14	44.5 o-q	0.0 i	18.5 c-l	8.3 a-c	8.0 ab	5.0 e-h	1.0 d		
29 Reserve 4.8SC.....	3.6 fl oz	14	41.3 o-r	0.0 i	6.5 i-l	8.0 a-d	7.8 a-c	6.0 cd	1.0 d		
30 Concert 4.3SE.....	5.0 fl oz	14	1.0 u	0.0 i	3.8 l	7.8 b-e	5.5 i-l	7.5 b	1.0 d		
31 Interface 2.27SC	3.0 fl oz	14	75.3 j-l	8.0 d-i	22.0 a-l	7.8 b-e	7.5 b-d	4.3 h-k	1.0 d		
32 SP2169 1.04SC	0.71 fl oz	14	205.0 d	27.8 ab	21.0 a-l	6.3 h-j	4.8 l-n	3.8 j-l	1.5 b-d		
33 Iprodione Pro 2SE.....	4.0 fl oz	14	130.5 f-h	0.0 i	12.8 f-l	6.8 f-i	6.5 e-h	4.8 f-i	1.0 d		
34 SP2169 1.04SC	1.41 fl oz	14	69.0 j-m	21.0 a-d	19.5 b-l	6.0 ij	5.5 i-l	4.8 f-i	2.0 ab		
35 SP2169 1.04SC	2.83 fl oz	14	2.8 tu	21.3 a-d	29.0 a-g	5.8 j	7.0 c-f	5.0 e-h	2.0 ab		
36 Tartan 2.4SC	1.5 fl oz	14	4.0 tu	25.3 a-c	42.0 a	7.3 d-g	7.3 b-e	5.3 d-g	1.0 d		
37 Rubigan 1AS.....	0.5 fl oz	14	220.0 b-d	8.8 d-i	28.5 a-h	6.3 h-j	4.3 n-p	3.5 kl	1.0 d		
38 Rubigan 1AS.....	0.5 fl oz										
+ GWN-9812 LC	0.74 fl oz	14	227.5 bc	8.5 d-i	5.0 j-l	6.8 f-i	4.3 n-p	3.8 j-l	1.3 cd		
39 Banner MAXX 1.3ME.....	0.5 fl oz	14	137.3 fg	27.5 ab	27.0 a-j	6.8 f-i	6.0 g-j	3.5 kl	1.0 d		
40 Rubigan 1AS.....	1.0 fl oz	21	210.0 cd	2.3 g-i	20.5 a-l	6.8 f-i	4.5 m-o	3.3 l	1.0 d		
41 Rubigan 1AS.....	1.0 fl oz										
+ GWN-9812 LC	0.74 fl oz	21	163.8 e	19.8 a-e	8.5 g-h	6.3 h-j	4.5 m-o	4.0 i-l	1.3 cd		
42 Banner MAXX 1.3ME.....	1.0 fl oz	21	116.8 g-i	29.0 a	32.3 a-f	7.5 c-f	6.3 f-i	4.0 i-l	1.3 cd		
43 A9898A 0.83SC	0.6 fl oz	35	147.3 ef	17.0 a-h	40.3 ab	7.0 e-h	4.8 l-n	3.5 kl	1.5 b-d		
44 A9898A 0.83SC	0.95 fl oz	35	47.8 n-p	14.3 a-i	6.8 i-h	6.0 ij	5.3 j-m	5.8 de	1.8 bc		
45 A9898A 0.83SC	0.6 fl oz	28	131.5 f-h	13.0 b-i	28.5 a-h	6.8 f-i	5.5 i-l	3.8 j-l	1.3 cd		
46 A9898A 0.83SC	0.95 fl oz	28	110.8 hi	27.0 ab	15.3 d-l	6.8 f-i	6.0 g-j	4.5 g-j	1.3 cd		
47 A9898A 0.83SC	0.6 fl oz	21	61.5 k-o	18.3 a-f	24.3 a-l	6.8 f-i	6.3 f-i	4.8 f-i	1.5 b-d		
48 Concert 4.3SE.....	5.4 fl oz	21	52.8 m-o	1.3 i	18.0 d-l	7.3 d-g	5.8 h-k	5.3 d-g	1.0 d		
49 A13703 2.72SC.....	0.32 fl oz	14	104.0 i	3.0 f-i	17.0 d-l	6.8 f-i	6.8 d-g	4.3 h-k	1.0 d		

(Continued)

Table 1B (continued).

Treatment	Rate per 1000 sq ft	Spray Interval (days) ⁴	Number of Lesion Centers Per Plot ¹			Turf Quality ²			Phyto-toxicity ³
			21 Aug.	21 July	24 Aug.	18 June	10 Aug.	24 Aug.	18 June
50 A13703 2.72SC.....	0.49 fl oz	14	79.3 jk	5.0 e-i	14.0 e-l	7.0 e-h	7.8 a-c	5.5 d-f	1.0 d
51 A12910 2.34SC.....	0.48 fl oz	14	52.0 m-o	17.8 a-g	22.0 a-l	6.8 f-i	7.3 b-e	5.3 d-g	1.3 cd
52 A12910 2.34SC.....	0.76 fl oz	14	9.5 s-u	15.0 a-i	40.0 a-c	6.5 g-j	6.3 f-i	5.3 d-g	1.3 cd
53 Reserve 4.8SC.....	2.8 fl oz	7	0.8 u	0.0 i	8.5 g-l	8.3 a-c	8.5 a	8.5 a	1.0 d
54 SARS-351 20SC.....	0.125 fl oz	14 ⁶	82.8 j	21.5 a-d	12.3 f-l	8.0 a-d	5.8 h-k	5.3 d-g	1.0 d
55 SARS-351 20SC.....	0.25 fl oz	14 ⁶	60.8 k-o	21.5 a-d	25.0 a-l	7.5 c-f	7.5 b-d	5.5 d-f	1.0 d
56 SARS-351 20SC.....	0.5 fl oz	14 ⁶	27.5 p-s	10.8 c-i	12.5 f-l	7.8 b-e	7.8 a-c	7.0 b	1.0 d
57 Untreated Control.....	—	—	237.5 ab	20.8 a-d	36.5 a-d	7.0 e-h	3.5 p	3.3 l	1.0 d
		INT ⁷	DAT ⁸	DAT	DAT	DAT	DAT	DAT	DAT
		7	15	5	18	7	4	18	7
		14	22	5	25	14	11	25	14
		21	29	19	32	7	18	32	7
		28	36	5	39	28	25	39	28
		35	22	26	25	28	11	25	28
		VAR ⁵	22	5	25	7	11	25	7

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 Phytotoxicity on a 1 to 5 scale, where 1 = no discoloration, 2 = slight foliar chlorosis or necrosis, 3 = moderate chlorosis or necrosis, 4 = severe chlorosis or necrosis, and 5 = all turf dead.

⁴ Fungicides were applied on 21 May (all treatments, except treatments 54 to 56), 28 May (7-day treatment), 4 June (7- and 14-day treatments), 11 June (7- and 21-day treatments), 18 June (7-, 14-, and 28-day treatments and initiated treatments 54 to 56), 25 June (7- and 35-day treatments), 2 July (7-, 14-, and 21-day treatments), 9 July (7-day treatment), 16 July (7-, 14-, and 28-day treatments), 23 July (7- and 21-day treatments), 30 July (7-, 14-, and 35-day treatments), and 6 August (7-day treatment).

(Continued)

Table 1B (continued).

⁵ Variable spray schedule, where treatment 26 (Bayer Dollar Spot Program #1) consisted of Triton Flo 3.1SC (0.5 fl oz) + Signature 80WG (4 oz) applied on 21 May, 18 June, and 16 July, and Signature 80WG (4 oz) + Daconil Ultrex 82.5WDG (3.2 oz) applied on 4 June, 2 July, and 30 July.

⁶ Treatments 54 to 56 received Daconil Ultrex 82.5WDG (3.2 oz) on 27 May and SARS-351 20SC every 14 days from 18 June to 30 July.

⁷ Spray intervals in days.

⁸ Days after the last treatment.