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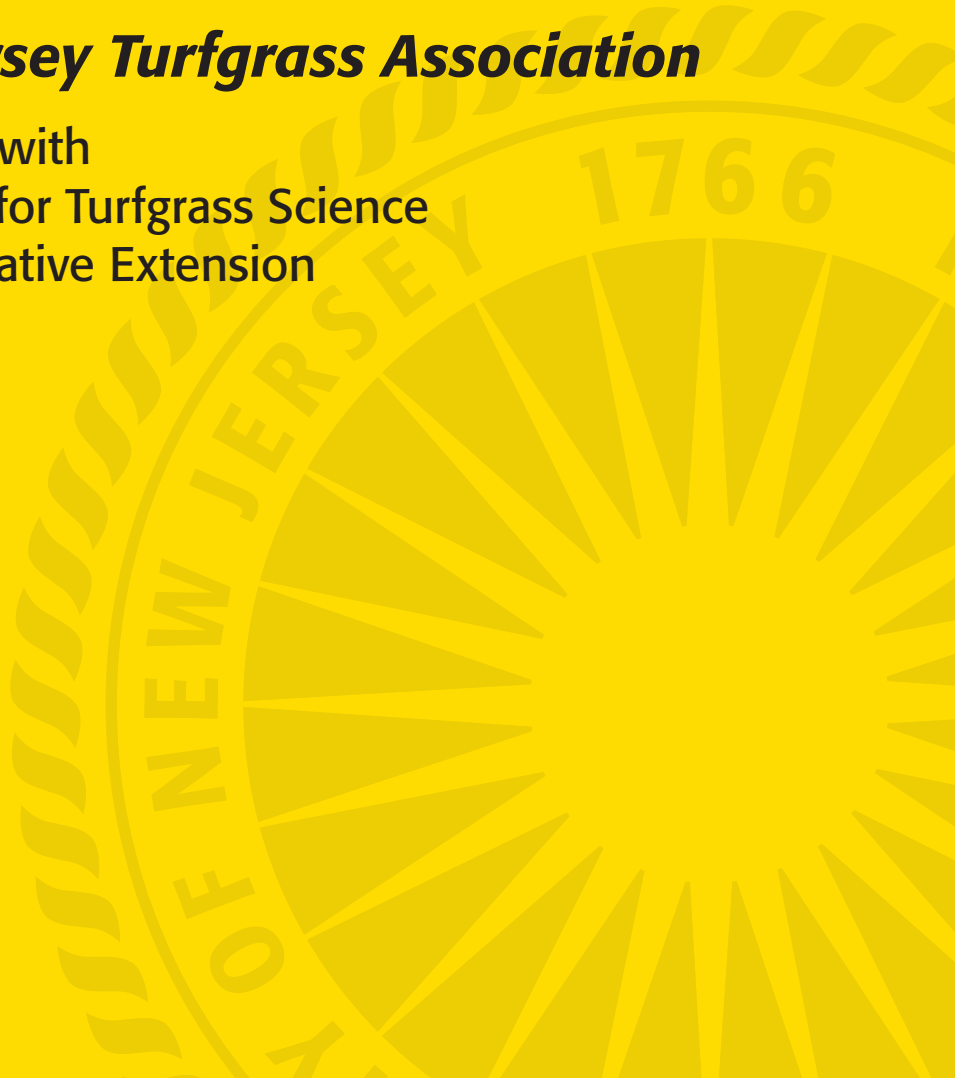

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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State 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 2007 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
Dr. Bruce B. Clarke, Coordinator

INFLUENCE OF SELECTED FUNGICIDES AND BIORATIONAL PRODUCTS ON THE DEVELOPMENT OF BROWN PATCH ON COLONIAL BENTGRASS

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Fungicides were evaluated in 2007 for their ability to control brown patch (caused by *Rhizoctonia solani*) at the Rutgers Turf Research Farm in North Brunswick, NJ on colonial bentgrass (*Agrostis capillaris* L.) cv. SR7100 maintained under golf course fairway conditions. Turf was established in 2000 on a Norton loam with a pH of 6.1. Mowing was performed three times per week at a height of 0.375 inches with clippings collected. The site was irrigated as needed to prevent drought stress. Fertilizer was applied as 15.5-0-0 (0.2 lb nitrogen (N)/1000 ft^2) on 12 and 26 May, 34-0-0 (0.3 lb N/1000 ft^2) on 9 and 23 June, and 46-0-0 (0.2 lb N/1000 ft^2) on 13 September.

Dimension 1E was applied on 17 May (24 fl oz/acre) and Dimension 40WP on 27 June (6.3 oz/acre) for pre-emergence weed control. Insect pests were suppressed with Merit 75WSP (0.185 oz/1000 ft^2) on 27 June and Talstar GC 0.67F (0.3 oz/1000 sq ft^2) on 14 June, 17 July, and 8 August. Daconil Ultrex 82.5WDG (4.8 oz/1000 ft^2) was sprayed on 12 May to control dollar spot (caused by *Sclerotinia homoeocarpa*) prior to the initiation of the study, and Emerald 70WG (0.18 oz/1000 ft^2) was applied to the entire test area to control this disease on 17 July. The site was aerified to a depth of 3.5 inches with 0.5-inch hollow tines on 4-inch centers and topdressed with a sand root zone mix on 3 June. 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 ft^2 with a CO_2 powered sprayer at 30 psi using TeeJet 8003VS flat fan nozzles. Treatments (trt) were initiated on 5 June when environmental conditions were conducive to brown patch development. Fungicides were reapplied at the appropriate intervals as indicated in Tables 1A and 1B. Turf was visually evaluated for percent turf area infested with brown patch on 20 and 30 June, 11 and 20 July, 3, 13, and 23 August, and 5 September, and yellow tuft (caused by *Sclerophthora macrospora*) on 23 August. Turf quality was rated on 22 August using a 1 to 9 scale, where 9 = best turf quality and 6 = acceptable quality. Data were subjected to analysis of variance and means were separated using the Waller-Duncan *k*-ratio *t*-test (*k* = 100).

Brown patch was first observed on 13 June and became uniform throughout the study by 20 June (Tabled 1A and 1B). Disease severity ranged from 25 to 80% turf area infested with *R. solani* on untreated turf (Tables 1A and 1B), which was considered a moderate to severe level of brown patch infestation, respectively. Less than 10% turf area infested per plot represented an acceptable level of disease control. Approximately one half of the treatments in this study provided good to excellent control of brown patch throughout the application period (5 June to 21 August). Tartan II 2SC (trts 1 to 3), Nativo 2.5SC (trts 4, 5), Headway 1.39EC (trt 6), Lynx 2SC @ 1.5 fl oz (trt 10) and 2.0 fl oz (trt 11), Disarm 480SC @ 0.18 oz every 14 days (trt 25), ARY 0534001 SC + Disarm 480SC every 14 days (trt 28), and Disarm 480SC + Spectator Ultra 1.3EC (trt 52) were particularly effective in providing season-long control (5 June to 5 September) during the severe brown patch epidemic in 2007.

Turf quality was acceptable (greater or equal to 6.0) for all products evaluated in this study on 22 August, except for Banner MAXX 1.3MC @ 1.0 fl oz every 21 days (trt 43), 3336 Plus 19.4F (trt 59), RU-Chin-A (trt 71), RU-Chin-B (trt 72), RU-Chin-E

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(trt 75), RU-Chin-F (trt 76), RU-Chin-G (trt 77), RU-Chin-I (trt 79), CX-2250 (trts 80, 81), and A12946B (trt 86) which had sustained extensive anthracnose damage during the season (Table 1B). Several entries including RU2125-D-07 WG + RU2125-B-07 (trt 17), RU2125-F-07 WG + RU2125-B-07 (trt 18), Disarm 480SC @ 0.18 oz every 21 days (trt 26), GF-1948 1.22EW + Daconil Ultrex 82.5WDG (trts 40, 41), Disarm 480SC + Spectator Ultra 1.3EC (trt 52), Insignia 20WG (trts 56, 57), LEM17 50WDG + DPX-YT669 22.5SC (trt 68), DPX-YT669 22.5SC (trt 69), Rutgers BP Program #1 (trt 85), and A12946B (trt 86) provided good to excellent suppression of yellow turf (i.e., less than 10 % turf area infested) on 23 August compared to untreated turf (Table 1B). No phytotoxicity was observed for any of the entries in this study.

Table 1A. Influence of selected fungicides and biorational products on the development of brown patch on colonial bentgrass: Rutgers University, 2007.

	Treatment	Rate per 1000 sq ft)	Spray Interval (days)[2]	Turf Area Infested (%) per Plot[1]				
				20 June	30 June	11 July	20 July	3 Aug.
1	Tartan II 2SC	1.0 fl oz	14	3.8 n-u	3.8 v-z	1.3 p	5.0 r-v	2.5 z'b'-c'
2	Tartan II 2SC	1.3 fl oz	14	2.5 p-u	1.0 yz	0.0 p	0.0 v	1.5 z'c'
3	Tartan II 2SC	1.9 fl oz	14	0.3 u	0.0 z	0.0 p	0.0 v	0.0 z'c'
4	Nativo 2.5SC	0.6 fl oz	14	6.5 l-u	2.0 x-z	0.8 p	6.3 q-v	2.3 z'c'
5	Nativo 2.5SC	1.2 fl oz	14	3.5 n-u	0.3 z	0.5 p	1.3 uv	0.8 z'c'
6	Headway 1.39EC	1.5 fl oz	14	3.8 n-u	0.8 yz	0.0 p	0.0 v	0.5 z'c'
7	Lynx 2SC	0.5 fl oz	14	10.0 k-s	4.3 u-z	3.8 op	2.5 t-v	12.8 w-z'c'
8	Lynx 2SC	0.75 fl oz	14	3.0 n-u	1.0 yz	1.8 p	1.3 uv	8.3 x-z'c'
9	Lynx 2SC	1.0 fl oz	14	2.5 p-u	1.5 xz	1.3 p	1.3 uv	3.0 z'a'-c'
10	Lynx 2SC	1.5 fl oz	14	2.5 p-u	0.8 yz	0.8 p	1.3 uv	2.0 z'c'
11	Lynx 2SC	2.0 fl oz	14	1.8 q-u	0.0 z	0.3 p	0.0 v	0.0 z'c'
12	Lynx 2SC + Chipco Signature 80WG	1.0 fl oz + 4.0 oz	14	10.3 k-r	2.5 x-z	0.0 p	6.3 q-v	3.8 z'a'-c'
13	Bayer Program #1	—	Alt[3]	2.3 q-u	0.3 z	0.0 p	0.0 v	2.8 z'b'-c'
14	Daconil Ultrex 82.5WG	3.2 oz	14	4.8 l-u	6.0 t-z	0.0 p	0.0 v	6.0 z-z'c'
15	RU2125D07 WG	4.0 oz	14	51.5 de	68.0 d	20.0 g-k	10.0 n-u	26.5 q-v
16	RU2125F07 WG	4.0 oz	14	52.8 de	48.8 gh	18.8 h-k	16.3 j-p	24.8 r-v
17	RU2125D07 WG + RU2125B07 WG	4.0 oz + 3.2 oz	14	3.0 n-u	1.8 x-z	0.0 p	1.3 uv	6.5 y-z'c'
18	RU2125F07 WG + RU2125B07 WG	4.0 oz + 3.2 oz	14	3.3 n-u	0.8 yz	0.0 p	0.0 v	11.0 w-z'c'
19	SARS346 40WP	0.5 oz	14	39.3 fg	55.5 fg	28.8 b-f	28.8 b-g	67.3 a-d
20	SARS346 40WP	0.75 oz	14	37.5 g	46.5 h-i	28.8 b-f	27.5 b-h	69.0 a-c
21	SARS346 40WP + 3336 50WP	0.4 oz + 1.44 oz	14	12.0 j-n	32.0 k-m	20.5 g-k	17.3 i-o	37.5 l-q
22	SARS346 40WP + 3336 50WP	0.4 oz + 2.0 oz	14	8.3 l-u	28.0 l-h	16.3 j-l	17.5 i-o	48.0 g-l
23	3336 50WP	1.44 oz	14	7.5 l-u	44.5 hi	30.0 b-e	26.3 c-i	29.3 o-u
24	3336 50WP	2.0 oz	14	11.8 k-o	44.8 hi	30.0 b-e	22.5 e-k	30.0 o-t

(Continued)

Table 1A (continued).

	Treatment	Rate per 1000 sq ft)	Spray Interval (days)[2]	Turf Area Infested (%) per Plot[1]				
				20 June	30 June	11 July	20 July	3 Aug.
25	Disarm 480SC	0.18 fl oz	14	6.0 l-u	1.8 x-z	0.0 p	7.5 p-v	1.0 z'c'
26	Disarm 480SC	0.18 fl oz	21	2.8 o-u	0.3 z	0.0 p	0.0 v	2.0 z'c'
27	Disarm 480SC	0.36 fl oz	28	7.0 l-u	3.0 x-z	1.3 p	2.5 t-v	7.3 y-z'c'
28	ARY 0534001 SC + Disarm 480SC	0.35 fl oz 0.1 fl oz	14	8.3 l-u	1.3 yz	0.0 p	0.0 v	0.0 z'c'
29	ARY 0534001 SC + Disarm 480SC	0.35 fl oz 0.1 fl oz	28	4.8 l-u	3.8 v-z	5.0 op	2.5 t-v	15.3 v-z'b'
30	Disarm 480SC + Daconil Ultrex 82.5WG	0.18 fl oz 1.8 oz	21	4.5 l-u	5.8 t-z	0.5 p	2.5 t-v	2.8 z'b'-c'
31	Disarm 480SC / Lynx 2SC	0.18 fl oz 0.5 fl oz	Alt[4]	4.3 m-u	0.8 yz	0.0 p	0.0 v	0.5 z'c'
32	Daconil Ultrex 82.5WG	1.8 oz	21	7.3 l-u	6.8 s-z	13.8 k-n	20.0 g-m	37.5 l-q
33	Tourney 50WDG	0.18 oz	14	6.3 l-u	4.8 t-z	5.0 op	15.0 k-q	26.3 q-v
34	Tourney 50WDG	0.37 oz	14	0.8 t-u	1.3 yz	2.5 op	3.8 s-v	3.8 z'a'-c'
35	EX190 2.5SC	0.26 fl oz	14	23.0 h	24.3 n-p	20.0 g-k	30.0 b-f	36.8 l-r
36	EX190 2.5SC	0.52 fl oz	14	22.5 hi	17.5 o-q	17.5 i-l	26.3 c-i	44.5 h-m
37	EX190 2.5SC	0.76 fl oz	14	21.0 h-j	9.0 r-x	16.3 j-l	22.5 e-k	43.3 i-n
38	GF1948 1.22EW	1.0 fl oz	14	18.3 h-k	14.0 q-s	21.3 f-k	27.5 b-h	34.8 m-r
39	GF1948 1.22EW	1.0 fl oz	21	13.5 i-l	26.0 mn	27.5 b-g	22.5 e-k	36.0 l-r
40	GF1948 1.22EW + Daconil Ultrex 82.5WG	1.0 fl oz 3.2 oz	14	3.3 n-u	0.8 yz	0.0 p	3.0 t-v	2.5 z'b'-c'
41	GF1948 1.22EW + Daconil Ultrex 82.5WG	1.0 fl oz 3.2 oz	21	5.5 l-u	0.8 yz	3.0 op	25.0 d-j	17.5 u-z
42	Banner MAXX 1.3MC	1.0 fl oz	14	10.8 k-q	16.0 qr	15.0 k-m	21.3 f-l	26.3 q-v
43	Banner MAXX 1.3MC	1.0 fl oz	21	10.8 k-q	17.0 pq	16.8 j-l	21.3 f-l	34.0 m-r
44	Banner MAXX 1.3MC + Daconil Ultrex 82.5WG	1.0 fl oz 3.2 oz	14	1.5 r-u	0.8 yz	2.5 op	2.5 t-v	2.0 z'c'
45	Banner MAXX 1.3MC + Daconil Ultrex 82.5WG	1.0 fl oz 3.2 oz	21	0.8 t-u	0.5 z	0.0 p	7.5 p-v	29.3 o-u
46	Daconil Ultrex 82.5WG	3.2 oz	21	1.8 q-u	1.5 x-z	10.0 l-o	21.3 f-l	28.3 p-u

(Continued)

Table 1A (continued).

	Treatment	Rate per 1000 sq ft)	Spray Interval (days)[2]	Turf Area Infested (%) per Plot[1]				
				20 June	30 June	11 July	20 July	3 Aug.
47	Spectator Ultra 1.3EC	2.0 fl oz	21	5.0 l-u	11.8 q-u	26.3 c-h	32.5 a-d	18.8 t-y
48	Manicure Ultra 82.5WDG	3.25 oz	14	7.5 l-u	4.3 u-z	0.0 p	2.5 t-v	6.0 z-z'c'
49	Manicure 6FL	3.6 fl oz	14	9.8 k-t	6.8 s-z	0.0 p	5.0 r-v	20.5 s-x
50	Spectator Ultra 1.3EC + Manicure Ultra 82.5WDG	2.0 fl oz 3.25 oz	14	3.0 n-u	0.0 z	0.0 p	2.5 t-v	3.5 z'a'-c'
51	Manicure Ultra 82.5WDG + Spectator Ultra 1.3EC	1.82 oz 1.0 fl oz	7	5.0 l-u	1.3 yz	0.0 p	5.0 r-v	3.3 z'a'-c'
52	Disarm 480SC + Spectator Ultra 1.3EC	0.18 fl oz 1.0 fl oz	14	4.8 l-u	1.0 yz	2.5 op	1.3 uv	1.3 z'c'
53	Disarm 480SC + Manicure Ultra 82.5WDG	0.18 fl oz 1.82 oz	14	2.0 q-u	0.0 z	0.0 p	0.0 v	2.3 z'c'
54	Spectator Ultra 1.3EC	1.0 fl oz	14	8.0 l-u	5.8 t-z	7.5 m-p	12.5 l-s	25.5 q-v
55	Manicure Ultra 82.5WDG	1.8 oz	14	23.3 h	11.0 q-w	6.3 n-p	17.5 i-o	21.0 s-w
56	Insignia 20WG	0.5 oz	14	2.8 o-u	1.0 yz	0.0 p	3.8 s-v	1.8 z'c'
57	Insignia 20WG	0.9 oz	28	9.0 l-u	2.5 x-z	2.5 op	3.8 s-v	12.0 w-z'c'
58	Trinity 1.67SC	1.0 fl oz	14	13.0 j-m	8.3 s-x	15.5 k-l	13.8 k-r	15.5 v-z'a'
59	3336 Plus 19.4F	6.0 fl oz	21	36.3 g	12.0 q-t	35.0 ab	41.3 a	78.0 a
60	3336 Plus 19.4F + Daconil Ultrex 82.5WG	4.0 fl oz 3.2 oz	21	4.8 l-u	5.0 t-z	5.0 op	31.3 b-e	34.0 m-r
61	CL EXP16 F	1.2 fl oz	21	2.0 q-u	3.5 w-z	3.0 op	15.0 k-q	12.3 w-z'c'
62	CL EXP16 F	2.3 fl oz	21	1.0 s-u	1.8 x-z	0.0 p	6.3 q-v	8.8 w-z'c'
63	CL EXP9 WG	1.2 oz	21	2.8 o-u	2.8 x-z	7.5 m-p	11.3 m-t	7.3 y-z'c'
64	LEM17 20SC	0.47 fl oz	14	1.5 r-u	0.0 z	0.0 p	2.5 t-v	2.0 z'c'
65	LEM17 50WDG	0.2 oz	14	4.5 l-u	3.5 w-z	0.8 p	2.5 t-v	10.8 w-z'c'
66	LEM17 50WDG	0.3 oz	14	2.8 o-u	0.8 yz	0.5 p	1.3 uv	3.0 z'a'-c'
67	LEM17 50WDG	0.4 oz	14	2.3 q-u	0.5 z	0.0 p	0.0 v	2.5 z'b'-c'
68	LEM17 50WDG + DPXYT669 22.5SC	0.2 oz 0.28 fl oz	14	2.0 q-u	0.3 z	0.0 p	3.8 s-v	6.5 y-z'c'
69	DPXYT669 22.5SC	0.28 fl oz	14	7.3 l-u	3.3 x-z	6.3 n-p	8.8 o-v	10.8 w-z'c'
70	Heritage TL 0.8ME	1.0 fl oz	14	4.5 l-u	1.3 yz	6.3 n-p	8.8 o-v	1.8 z'c'

(Continued)

Table 1A (continued).

	Treatment	Rate per 1000 sq ft)	Spray Interval (days)[2]	Turf Area Infested (%) per Plot[1] 20 June	30 June	11 July	20 July	3 Aug.
71	RUChinA	2.5 mM	7	71.3 a	75.8 a-c	35.0 ab	18.8 h-n	48.0 g-l
72	RUChinB	5.0 mM	7	69.5 ab	79.0 a	31.3 b-e	15.0 k-q	50.5 f-k
73	RUChinC	10.0 mM	7	47.0 ef	67.5 de	32.5 b-d	17.5 i-o	41.5 j-o
74	RUChinD	15.0 mM	7	47.8 ef	41.3 h-j	32.5 b-d	28.8 b-g	
75	RUChinE	0.5% v/v	7	44.0 e-g	70.3 b-d	41.3 a	20.0 g-m	51.8 f-k
76	RUChinF	2.5 mM	7	52.3 de	46.3 h-i	23.8 e-j	13.8 k-r	53.8 e-i
77	RUChinG	5.0 mM	7	52.0 de	39.0 i-k	23.8 e-j	8.8 o-v	33.8 m-r
78	RUChinH	10.0 mM	7	62.0 bc	35.5 j-l	30.0 b-e	20.0 g-m	47.8 g-l
79	RUChinI	15.0 mM	7	72.5 a	47.5 h	41.3 a	27.5 b-h	
80	CX2250	1.0 oz	7[5]	74.5 a	67.8 d	1.3 p	6.3 q-v	66.0 b-d
81	CX2250	2.0 oz	7[5]	59.8 cd	60.0 ef	0.0 p	7.5 p-v	69.8 ab
82	Heritage TL 0.8ME	2.0 fl oz	28	5.3 l-u	3.3 x-z	2.5 op	6.3 q-v	10.8 w-z'c'
83	ProStar 70W	2.2 oz	28	9.5 k-t	24.8 m-o	3.8 op	17.5 i-o	32.0 n-s
84	Endorse 2.5W	4.0 oz	14	11.5 k-p	11.3 q-v	1.8 p	3.8 s-v	34.8 m-r
85	Rutgers BP Program #1	—	Var[6]	3.3 n-u	1.5 x-z	0.0 p	5.0 r-v	1.3 z'c'
86	A12946B	0.188 fl oz	7	78.3 a	76.8 ab	28.8 b-f	20.0 g-m	40.0 k-p
87	Untreated check	—	—	73.5 a	77.5 ab	30.0 b-e	32.5 a-d	51.0 f-k
88	Untreated check	—	—	60.0 cd	80.3 a	27.5 b-g	31.3 b-e	52.8 e-j
89	Untreated check	—	—	71.8 a	67.0 de	33.8 a-c	33.8 a-d	56.0 d-h
90	Untreated check	—	—	76.3 a	68.3 cd	25.0 d-i	30.0 b-f	63.5 b-e
91	Untreated check	—	—	78.5 a	68.5 cd	28.8 b-f	35.0 a-c	60.3 b-f
92	Untreated check	—	—	62.0 bc	73.0 a-d	32.5 b-d	36.3 ab	58.0 c-g
			INT[7]	DAT[8]	DAT	DAT	DAT	DAT
			7	1	4	8	3	3
			14	1	11	8	3	3
			21	15	4	15	3	17
			28	15	25	8	17	3

(Continued)

Table 1A (continued).

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[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 5 June (all treatments), 12 June (7-day treatment), 19 June (7- and 14-day treatments), 26 June (7- and 21-day treatments), 3 July (7-, 14-, and 28-day treatments), 10 July (7-day treatment), 17 July (7-, 14-, and 21-day treatments), 24 July (7-day treatment), 31 July (7-, 14-, and 28-day treatments), 7 August (7- and 21-day treatments), 14 August (7- and 14-day treatments), and 21 August (7-day treatment).

[3] Alternation of fungicides on a 14-day schedule, where treatment 13 received Lynx 2SC (1.5 fl oz) + Chipco Signature 80WG (4.0 oz) on 5 June and 3 and 31 July and Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 19 June, 17 July, and 14 August.

[4] Alternation of fungicides on a 14-day schedule, where treatment 31 received Disarm 480SC (0.18 fl oz) on 5 June and 3 and 31 July and Lynx 2SC (0.5 fl oz) on 19 June, 17 July, and 14 August.

[5] Treatments 80 and 81 (CX-2250 at 1 and 2 oz/1,000 sq ft, respectively) were applied to wet foliage in 0.5 gal water per 3 x 5 ft plot with a watering can after 4:30 PM on a 21-day (5 June and 26 June) or 7-day (3, 10, 17, 24, and 31 July and 7, 14, and 21 August) schedule. Prior to the transition from a 21- to 7-day schedule on 3 July, turf receiving treatments 80 and 81 were oversprayed with Daconil Ultrex 82.5WDG (5.0 oz) on 29 June to enhance symptom remission.

[6] Variable spray program, where treatment 85 (Rutgers Program #1) consisted of Daconil Ultrex 82.5WDG (3.2 oz) on 5 June, Insignia 20WG (0.5 oz) on 19 June, ProStar 70W (2.2 oz) + Banner MAXX 1.3ME (0.5 fl oz) + Banol 6SC (1.0 fl oz) on 3 July, Endorse 2.5W (4.0 oz) + 3336 4F (4.0 fl oz) + Subdue MAXX 2ME (1.0 fl oz) on 17 July, Chipco 26GT 2SC (4.0 fl oz) + Chipco Signature 80WG (4.0 oz) on 31 July, and Emerald 70WG (0.13 oz) + ProStar 70W (2.2 oz) on 14 August.

[7] Spray intervals in days.

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

Table 1B. Influence of selected fungicides and biorational products on the development of brown patch on colonial bentgrass: Rutgers University, 2007.

	Treatment	Rate per 1000 sq ft)	Spray Interval (days)[4]	Turf Area Infested (%) per Plot[1] 13 Aug.	23 Aug.	5 Sept.	Yellow Tuft[2] 23 Aug.	Turf Quality[3] 22 Aug.
1	Tartan II 2SC	1.0 fl oz	14	0.0 w	0.0 w	3.8 z'j'-m'	52.3 c-n	8.3 a-d
2	Tartan II 2SC	1.3 fl oz	14	0.0 w	0.0 w	3.5 z'j'-m'	39.8 i-s	7.0 d-i
3	Tartan II 2SC	1.9 fl oz	14	0.0 w	0.0 w	0.8 z'm'	28.8 m-x	7.3 c-h
4	Nativo 2.5SC	0.6 fl oz	14	1.3 w	1.5 w	7.5 z'h'-m'	72.8 a-f	7.5 b-g
5	Nativo 2.5SC	1.2 fl oz	14	0.5 w	0.5 w	0.8 z'm'	48.8 e-p	7.8 a-f
6	Headway 1.39EC	1.5 fl oz	14	0.0 w	1.3 w	5.0 z'i'-m'	18.3 s-x	7.5 b-g
7	Lynx 2SC	0.5 fl oz	14	5.0 t-w	3.8 u-w	36.0 s-z'c'	68.8 a-g	7.0 d-i
8	Lynx 2SC	0.75 fl oz	14	1.3 w	1.5 w	35.8 t-z'c'	81.3 a	7.5 b-g
9	Lynx 2SC	1.0 fl oz	14	0.0 w	1.0 w	18.8 z'e'-k'	69.0 a-g	7.5 b-g
10	Lynx 2SC	1.5 fl oz	14	0.0 w	0.0 w	9.5 z'g'-m'	37.8 i-t	8.5 a-c
11	Lynx 2SC	2.0 fl oz	14	0.0 w	0.0 w	0.5 z'm'	36.0 j-u	8.8 ab
12	Lynx 2SC + Chipco Signature 80WG	1.0 fl oz 4.0 oz	14	1.3 w	0.0 w	14.0 z'f'-m'	37.5 j-t	8.8 ab
13	Bayer Program #1	—	Alt[5]	1.3 w	0.8 w	2.8 z'k'-m'	17.3 s-x	8.8 ab
14	Daconil Ultrex 82.5WG	3.2 oz	14	1.3 w	1.0 w	27.8 w-z'f'	18.3 s-x	8.8 ab
15	RU2125D07 WG	4.0 oz	14	25.0 i-n	39.3 i-m	42.5 l-x	14.0 s-x	7.0 d-i
16	RU2125F07 WG	4.0 oz	14	36.3 f-i	47.3 g-k	47.3 h-v	17.8 s-x	6.5 f-k
17	RU2125D07 WG + RU2125B07 WG	4.0 oz 3.2 oz	14	0.0 w	0.0 w	40.8 n-z	6.0 v-x	9.0 a
18	RU2125F07 WG + RU2125B07 WG	4.0 oz 3.2 oz	14	0.5 w	4.0 u-w	24.5 z-z'g'	4.5 wx	8.8 ab
19	SARS346 40WP	0.5 oz	14	33.8 g-j	45.5 g-l	65.3 a-g	60.8 a-j	6.8 e-j
20	SARS346 40WP	0.75 oz	14	38.8 e-h	45.5 g-l	56.0 b-n	49.3 e-o	6.3 g-l
21	SARS346 40WP + 3336 50WP	0.4 oz 1.44 oz	14	17.5 l-s	27.5 m-q	67.0 a-e	80.3 ab	7.5 b-g
22	SARS346 40WP + 3336 50WP	0.4 oz 2.0 oz	14	19.3 l-r	22.5 n-q	45.3 j-v	65.8 a-h	7.3 c-h
23	3336 50WP	1.44 oz	14	17.5 l-s	33.8 j-o	52.5 e-s	76.8 a-d	6.3 g-l
24	3336 50WP	2.0 oz	14	23.8 j-o	33.3 k-p	58.0 a-m	50.3 d-o	6.3 g-l

(Continued)

Table 1B (continued).

	Treatment	Rate per 1000 sq ft)	Spray Interval (days)[4]	Turf Area Infested (%) per Plot[1] 13 Aug.	23 Aug.	5 Sept.	Yellow Tuft[2] 23 Aug.	Turf Quality[3] 22 Aug.
25	Disarm 480SC	0.18 fl oz	14	0.0 w	0.0 w	6.8 z'h'-m'	15.0 s-x	8.0 a-e
26	Disarm 480SC	0.18 fl oz	21	0.0 w	0.0 w	26.5 x-z'f'	10.8 t-x	7.8 a-f
27	Disarm 480SC	0.36 fl oz	28	0.5 w	0.0 w	22.3 z'b'-h'	15.0 s-x	7.3 c-h
28	ARY 0534001 SC	0.35 fl oz						
	+ Disarm 480SC	0.1 fl oz	14	0.0 w	0.0 w	2.3 z'l'-m'	19.5 q-x	7.8 a-f
29	ARY 0534001 SC	0.35 fl oz						
	+ Disarm 480SC	0.1 fl oz	28	0.0 w	0.0 w	15.5 z'f'-m'	33.0 k-v	7.8 a-f
30	Disarm 480SC	0.18 fl oz						
	+ Daconil Ultrex 82.5WG	1.8 oz	21	0.0 w	0.5 w	25.8 y-z'g'	38.0 i-t	8.5 a-c
31	Disarm 480SC	0.18 fl oz						
	/ Lynx 2SC	0.5 fl oz	Alt[6]	0.0 w	0.0 w	12.8 z'f'-m'	29.8 l-w	8.3 a-d
32	Daconil Ultrex 82.5WG	1.8 oz	21	33.8 g-j	48.0 f-j	67.0 a-e	27.8 m-x	6.3 g-l
33	Tourney 50WDG	0.18 oz	14	11.3 p-w	5.3 t-w	47.8 h-v	52.8 c-n	6.8 e-j
34	Tourney 50WDG	0.37 oz	14	1.3 w	0.0 w	20.3 z'c'-i'	73.3 a-e	8.0 a-e
35	EX190 2.5SC	0.26 fl oz	14	26.3 i-m	33.3 k-p	58.5 a-l	35.8 j-u	6.3 g-l
36	EX190 2.5SC	0.52 fl oz	14	18.8 l-s	35.0 j-n	71.0 a-c	21.8 p-x	6.3 g-l
37	EX190 2.5SC	0.76 fl oz	14	21.3 k-q	28.8 m-q	73.5 a	32.3 k-v	6.5 f-k
38	GF1948 1.22EW	1.0 fl oz	14	12.5 o-w	23.3 n-q	43.8 k-w	29.8 l-w	6.3 g-l
39	GF1948 1.22EW	1.0 fl oz	21	23.8 j-o	44.8 g-l	62.3 a-i	33.3 k-v	6.5 f-k
40	GF1948 1.22EW	1.0 fl oz						
	+ Daconil Ultrex 82.5WG	3.2 oz	14	0.0 w	6.0 t-w	38.0 p-z'b'	7.3 v-x	8.0 a-e
41	GF1948 1.22EW	1.0 fl oz						
	+ Daconil Ultrex 82.5WG	3.2 oz	21	16.3 m-t	17.0 q-v	67.0 a-e	10.0 u-x	7.8 a-f
42	Banner MAXX 1.3MC	1.0 fl oz	14	28.8 h-l	29.0 m-q	47.3 h-v	31.0 l-w	7.0 d-i
43	Banner MAXX 1.3MC	1.0 fl oz	21	25.0 i-n	55.5 c-h	54.3 c-p	26.3 n-x	5.5 j-l
44	Banner MAXX 1.3MC	1.0 fl oz						
	+ Daconil Ultrex 82.5WG	3.2 oz	14	1.8 vw	7.8 s-w	39.3 o-z'a'	11.3 t-x	8.0 a-e
45	Banner MAXX 1.3MC	1.0 fl oz						
	+ Daconil Ultrex 82.5WG	3.2 oz	21	16.3 m-t	31.8 l-p	54.8 c-o	23.5 o-x	6.8 e-j
46	Daconil Ultrex 82.5WG	3.2 oz	21	15.0 m-u	24.3 n-q	72.3 ab	19.5 q-x	7.3 c-h

(Continued)

Table 1B (continued).

	Treatment	Rate per 1000 sq ft	Spray Interval (days)[4]	Turf Area Infested (%) per Plot[1] 13 Aug.	23 Aug.	5 Sept.	Yellow Tuft[2] 23 Aug.	Turf Quality[3] 22 Aug.
47	Spectator Ultra 1.3EC	2.0 fl oz	21	26.3 i-m	21.3 n-s	41.5 m-y	37.8 i-t	6.8 e-j
48	Manicure Ultra 82.5WDG	3.25 oz	14	3.0 u-w	6.3 t-w	40.8 n-z	14.8 s-x	7.8 a-f
49	Manicure 6FL	3.6 fl oz	14	3.8 u-w	8.3 r-w	51.3 e-u	16.3 s-x	7.8 a-f
50	Spectator Ultra 1.3EC + Manicure Ultra 82.5WDG	2.0 fl oz 3.25 oz	14	1.3 w	5.0 t-w	36.8 r-z'b'	18.8 r-x	7.8 a-f
51	Manicure Ultra 82.5WDG + Spectator Ultra 1.3EC	1.82 oz 1.0 fl oz	7	1.3 w	4.8 t-w	17.5 z'f'-l'	15.3 s-x	8.0 a-e
52	Disarm 480SC + Spectator Ultra 1.3EC	0.18 fl oz 1.0 fl oz	14	0.0 w	0.0 w	9.5 z'g'-m'	3.8 wx	7.5 b-g
53	Disarm 480SC + Manicure Ultra 82.5WDG	0.18 fl oz 1.82 oz	14	0.0 w	0.0 w	15.3 z'f'-m'	13.5 s-x	8.5 a-c
54	Spectator Ultra 1.3EC	1.0 fl oz	14	22.5 j-p	25.5 m-q	37.0 q-z'b'	45.5 g-r	7.3 c-h
55	Manicure Ultra 82.5WDG	1.8 oz	14	6.8 s-w	5.3 t-w	60.5 a-k	33.0 k-v	8.0 a-e
56	Insignia 20WG	0.5 oz	14	0.0 w	1.5 w	12.8 z'f'-m'	4.8 wx	8.5 a-c
57	Insignia 20WG	0.9 oz	28	1.3 w	4.3 u-w	24.0 z'a'-g'	9.0 u-x	7.3 c-h
58	Trinity 1.67SC	1.0 fl oz	14	10.0 q-w	6.5 t-w	37.8 p-z'b'	64.8 a-i	7.8 a-f
59	3336 Plus 19.4F	6.0 fl oz	21	53.8 a-c	55.8 c-h	48.5 g-v	50.5 d-o	5.3 kl
60	3336 Plus 19.4F + Daconil Ultrex 82.5WG	4.0 fl oz 3.2 oz	21	36.3 f-i	22.0 n-r	61.5 a-j	35.3 j-u	7.3 c-h
61	CL EXP16 F	1.2 fl oz	21	12.5 p-w	19.3 o-t	63.8 a-h	72.3 a-g	6.8 e-j
62	CL EXP16 F	2.3 fl oz	21	8.8 r-w	8.5 r-w	45.5 i-v	56.8 a-l	6.8 e-j
63	CL EXP9 WG	1.2 oz	21	5.0 t-w	6.3 t-w	53.5 d-q	35.0 j-u	6.3 g-l
64	LEM17 20SC	0.47 fl oz	14	1.3 w	1.3 w	19.8 z'd'-j'	54.0 b-m	8.0 a-e
65	LEM17 50WDG	0.2 oz	14	3.8 u-w	3.5 u-w	34.0 v-z'e'	81.3 a	8.0 a-e
66	LEM17 50WDG	0.3 oz	14	0.0 w	4.0 u-w	22.8 z'b'-h'	61.3 a-j	7.5 b-g
67	LEM17 50WDG	0.4 oz	14	0.0 w	1.3 w	25.5 y-z'g'	59.5 a-k	7.8 a-f
68	LEM17 50WDG + DPXYT669 22.5SC	0.2 oz 0.28 fl oz	14	5.0 t-w	4.8 t-w	15.5 z'f'-m'	7.3 v-x	8.0 a-e
69	DPXYT669 22.5SC	0.28 fl oz	14	0.0 w	3.3 vw	41.0 n-y	6.8 v-x	7.8 a-f
70	Heritage TL 0.8ME	1.0 fl oz	14	0.0 w	2.5 vw	16.3 z'f'-m'	18.3 s-x	8.3 a-d

(Continued)

Table 1B (continued).

	Treatment	Rate per 1000 sq ft)	Spray Interval (days)[4]	Turf Area Infested (%) per Plot[1] 13 Aug.	23 Aug.	5 Sept.	Yellow Tuft[2] 23 Aug.	Turf Quality[3] 22 Aug.
71	RUChinA	2.5 mM	7	41.3 d-g	51.5 d-i	50.0 f-v	48.5 e-p	5.0 l
72	RUChinB	5.0 mM	7	38.8 e-h	57.8 b-h	56.8 b-n	45.8 f-r	5.0 l
73	RUChinC	10.0 mM	7	46.3 b-f	47.0 g-k	66.0 a-f	50.8 d-o	6.3 g-l
74	RUChinD	15.0 mM	7	32.5 g-k	43.8 h-l	60.0 a-k	45.8 f-r	6.0 h-l
75	RUChinE	0.5% v/v	7	52.5 a-d	71.3 ab	52.5 e-s	45.8 f-r	5.3 kl
76	RUChinF	2.5 mM	7	33.8 g-j	67.0 a-c	56.8 b-n	48.8 e-p	5.3 kl
77	RUChinG	5.0 mM	7	42.5 c-g	49.8 e-i	52.3 e-t	50.0 e-o	5.5 j-l
78	RUChinH	10.0 mM	7	26.3 i-m	46.0 g-l	55.5 c-o	40.8 h-s	6.3 g-l
79	RUChinI	15.0 mM	7	25.0 i-n	59.3 b-g	74.0 a	46.8 e-p	5.0 l
80	CX2250	1.0 oz	7[7]	38.8 e-h	53.3 c-i	53.0 d-r	35.3 j-u	5.8 i-l
81	CX2250	2.0 oz	7[7]	50.0 a-e	62.0 a-f	59.8 a-k	30.0 l-w	5.3 kl
82	Heritage TL 0.8ME	2.0 fl oz	28	0.5 w	0.0 w	37.0 q-z'b'	18.8 r-x	8.0 a-e
83	ProStar 70W	2.2 oz	28	18.8 l-s	18.5 p-u	61.5 a-j	46.0 f-q	7.5 b-g
84	Endorse 2.5W	4.0 oz	14	13.8 n-v	23.3 n-q	35.3 u-z'd'	78.3 a-c	7.0 d-i
85	Rutgers BP Program #1	—	Var[8]	0.0 w	4.3 u-w	19.3 z'e'-j'	7.5 v-x	8.5 a-c
86	A12946B	0.188 fl oz	7	43.8 c-g	63.3 a-e	56.5 b-n	2.5 x	5.5 j-l
87	Untreated check	—	—	51.3 a-d	64.8 a-d	64.0 a-h	58.8 a-k	5.5 j-l
88	Untreated check	—	—	52.5 a-d	71.0 ab	69.5 a-d	54.8 b-m	5.0 l
89	Untreated check	—	—	31.3 g-j	64.5 a-d	58.8 a-l	47.0 e-p	5.0 l
90	Untreated check	—	—	57.5 ab	75.0 a	64.8 a-g	50.3 d-o	5.3 kl
91	Untreated check	—	—	60.0 a	67.5 a-c	58.5 a-l	51.8 d-n	5.3 kl
92	Untreated check	—	—	51.3 a-d	66.0 a-c	65.0 a-g	54.5 b-m	5.0 l

INT[9]	DAT[10]	DAT	DAT	DAT	DAT
7	6	1	15	2	1
14	13	9	22	9	8
21	6	16	29	16	15
28	13	23	36	23	22

(Continued)

Table 1B (continued).

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[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] Percent turf area infested with yellow tuft, caused by *Sclerophthora macrospora*.

[3] Turf quality on a 1 to 9 scale where 9 = best turf quality and 6 = commercially acceptable quality.

[4] Fungicides were applied on 5 June (all treatments), 12 June (7-day treatment), 19 June (7- and 14-day treatments), 26 June (7- and 21-day treatments), 3 July (7-, 14-, and 28-day treatments), 10 July (7-day treatment), 17 July (7-, 14-, and 21-day treatments), 24 July (7-day treatment), 31 July (7-, 14-, and 28-day treatments), 7 August (7- and 21-day treatments), 14 August (7- and 14-day treatments), and 21 August (7-day treatment).

[5] Alternation of fungicides on a 14-day schedule, where treatment 13 received Lynx 2SC (1.5 fl oz) + Chipco Signature 80WG (4.0 oz) on 5 June and 3 and 31 July and Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 19 June, 17 July, and 14 August.

[6] Alternation of fungicides on a 14-day schedule, where treatment 31 received Disarm 480SC (0.18 fl oz) on 5 June and 3 and 31 July and Lynx 2SC (0.5 fl oz) on 19 June, 17 July, and 14 August.

[7] Treatments 80 and 81 (CX-2250 at 1 and 2 oz/1,000 sq ft, respectively) were applied to wet foliage in 0.5 gal water per 3 x 5 ft plot with a watering can after 4:30 PM on a 21-day (5 June and 26 June) or 7-day (3, 10, 17, 24, and 31 July and 7, 14, and 21 August) schedule. Prior to the transition from a 21- to 7-day schedule on 3 July, turf receiving treatments 80 and 81 were oversprayed with Daconil Ultrex 82.5WDG (5.0 oz) on 29 June to enhance symptom remission.

[8] Variable spray program, where treatment 85 (Rutgers Program #1) consisted of Daconil Ultrex 82.5WDG (3.2 oz) on 5 June, Insignia 20WG (0.5 oz) on 19 June, ProStar 70W (2.2 oz) + Banner MAXX 1.3ME (0.5 fl oz) + Banol 6SC (1.0 fl oz) on 3 July, Endorse 2.5W (4.0 oz) + 3336 4F (4.0 fl oz) + Subdue MAXX 2ME (1.0 fl oz) on 17 July, Chipco 26GT 2SC (4.0 fl oz) + Chipco Signature 80WG (4.0 oz) on 31 July, and Emerald 70WG (0.13 oz) + ProStar 70W (2.2 oz) on 14 August.

[9] Spray intervals in days.

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

RUTGERS

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