

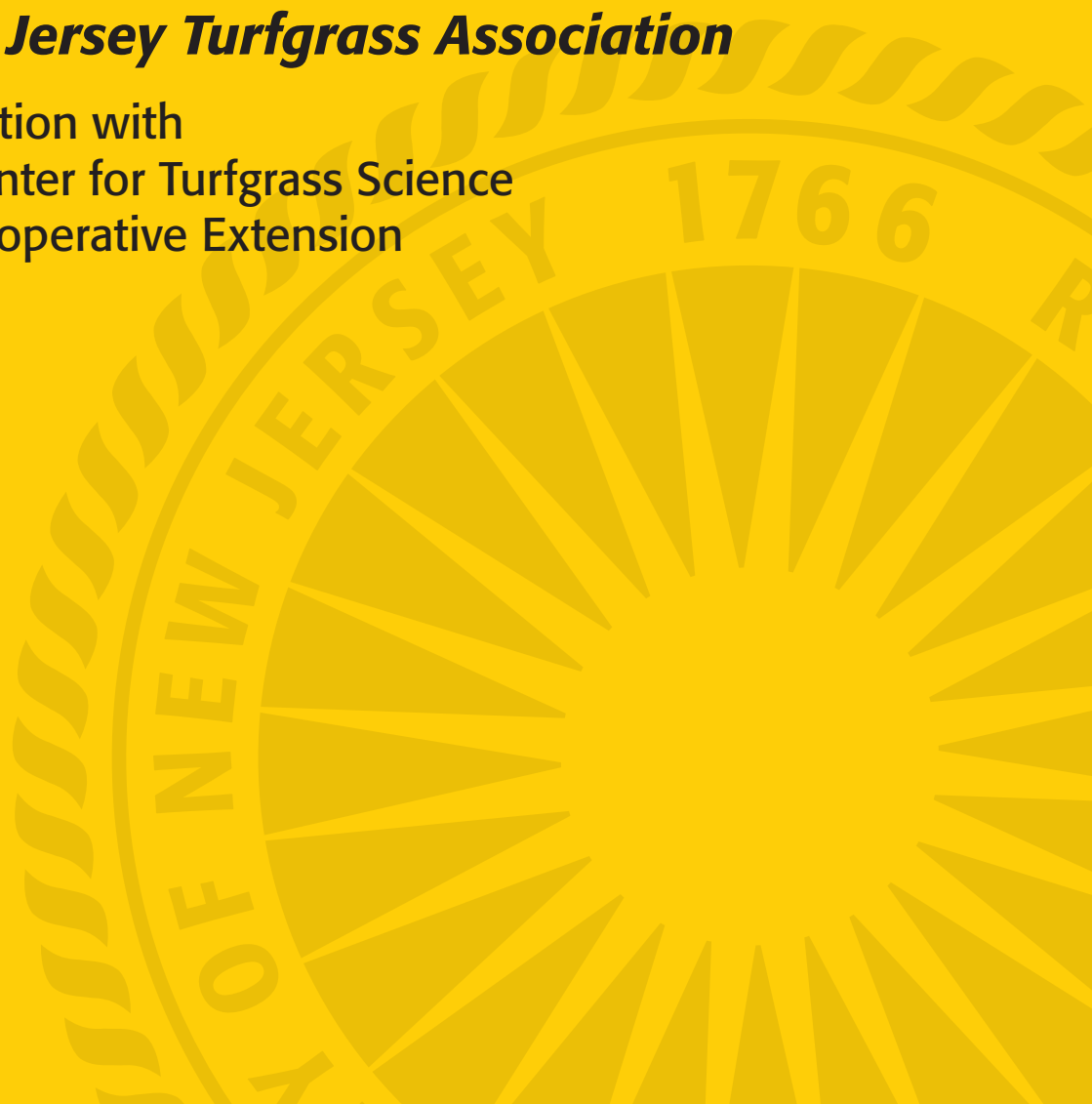
# RUTGERS

New Jersey Agricultural  
Experiment Station

## **2014 Turfgrass Proceedings**

***The New Jersey Turfgrass Association***

In Cooperation with  
Rutgers Center for Turfgrass Science  
Rutgers Cooperative Extension



# **2014 RUTGERS TURFGRASS PROCEEDINGS**

of the

## **GREEN EXPO Turf and Landscape Conference**

**December 9-11, 2014**

**Borgata Hotel**

**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 2014 GREEN EXPO Turf and Landscape Conference. 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.

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, Anne Diglio, and Ann Jenkins for administrative and secretarial support.

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

## UTILIZING FUNGICIDES, BIOCONTROL AGENTS, AND FERTILITY PROGRAMS TO PROTECT TURF FROM PHYTHIUM BLIGHT, 2014

Bruce B. Clarke, Pradip R. Majumdar, Samantha Flatley, Gerard Rappa, Michael Mus, Glen Groben, Mark Peacos, Joseph B. Clark, and Susan Butterworth<sup>1</sup>

Fungicides were evaluated in 2014 for their ability to control Pythium blight (caused by *Pythium aphanidermatum*) at the Rutgers Turf Research Farm in North Brunswick, NJ on perennial ryegrass (*Lolium perenne* cv. Flash II). Turf was established 2 June 2014 with 14 lb seed per 1000 ft<sup>2</sup> on a Norton Loam with a pH of 6.0. The pre-emergence herbicide Tupersan 4.7G (2.5 lb per 1000 ft<sup>2</sup>) was applied at seeding and on 17 June to suppress weed ingress. Mowing was performed weekly at a height of 3.0 inches with clippings returned. The site was irrigated as needed to prevent drought stress and to encourage disease. Brown patch (*Rhizoctonia solani*) was prevented with the application of Prostar 70WG (3.0 oz per 1000 ft<sup>2</sup>) on 30 June, 17 July, and 4 August. Gray leaf spot (*Pyricularia oryzae*) was prevented with the application of Cleary 3336 4F (6.0 fl oz per 1000 ft<sup>2</sup>) on 17 July and 4 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 4.0 gal per 1000 ft<sup>2</sup> with a CO<sub>2</sub> powered sprayer at 30 psi using 85025 air induction nozzles. Treatments (trt) were initiated on 27 June when environmental conditions were conducive to Pythium blight. Fungicides were reapplied as indicated in Tables 1A and 1B. Turf was visually evaluated for percent turf area infested with *P. aphanidermatum* on 30 June, 2, 6, 13, and 26 July, and 2, 12, and 22 August. Turf quality was rated on 25 July and 22 August using a 1 to 9 scale, where 9 = best turf quality and 5 = acceptable quality. Turf color was rated on 25 July and 22 August using a 1 to 10 scale, where 5 = color of healthy untreated turf, less than 5 = progressively

more chlorotic or necrotic turf, and greater than 5 = progressively darker green turf. On 25 July and 22 August turf was rated for density as the percent plot area with green cover. Data were subjected to analysis of variance and means were separated using the Waller-Duncan *k*-ratio *t*-test (*k* = 100).

Pythium blight was first observed on 28 June. Disease became uniform throughout the field by 30 June (Tables 1A and 1B). Disease severity ranged from 8 to 56% turf area infested on untreated turf, which was considered a high level of disease infestation. Less than 10% turf area infested per plot represented an acceptable level of disease control. Only two fungicide treatments in this study, Alude 5.17XL (trt 8) and Banol 6SC @ 3.5 fl oz (trt 53), provided acceptable season long control of Pythium blight (30 June to 22 August). Between 6 July and 13 July, when percent turf area infested more than doubled (35 to 82%) in the untreated control (trt 56), three treatments, experimental RU-22112-14H SC @ 0.4 oz (trt 26), RU-22112-14H SC @ 0.6 oz (trt 27), and RU-22112-14H SC @ 0.8 oz (trt 28), exhibited a decrease in disease severity and by 22 August still showed acceptable control. Other treatments that allowed turf to recover to an acceptable level (< 10%) by 22 August include Segway 3.3SC @ 0.75 fl oz (trt 5), Mildicut 0.21SC @ 12.0 fl oz (trt 7), RU-22112-14I SC (trt 29), Segway 3.33SC @ 0.9 fl oz (trt 32), and Banol 6SC @ 2.0 fl oz (trt 52). There was little difference in turf color between treatments. In general, treatments that had low turf density (e.g., < 50%) during the study also had unacceptable turf quality (< 5). No phytotoxicity was observed in this study.

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Table 1A. Utilizing fungicides, biocontrol agents, and fertility programs to protect turf from Pythium blight: Rutgers University, 2014.

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>2</sup>	Turf Area Infested per Plot (%) <sup>1</sup>					
			30 June	2 July	6 July	13 July	26 July	
1 Segway 3.3SC	0.45 fl oz	-						
+ Secure 4.2SC	0.5 fl oz	14	0.0 l	0.0 p	2.0 q-t	20.5 q-w	16.0 v-x	
2 Segway 3.3SC	0.65 fl oz	-						
+ Secure 4.2SC	0.5 fl oz	14	0.0 l	0.5 op	1.0 st	17.8 s-x	15.0 w-z	
3 Segway 3.3SC	0.45 fl oz	14	0.0 l	1.8 m-p	3.3 q-t	25.8 n-t	23.0 o-x	
4 Segway 3.3SC	0.65 fl oz	14	0.0 l	1.0 n-p	1.3 r-t	24.5 o-t	19.3 r-y	
5 Segway 3.3SC	0.75 fl oz	14	0.0 l	1.0 n-p	0.8 t	17.8 s-x	16.5 v-z	
6 Mildicut 0.21SC	7.16 fl oz	14	0.0 l	0.5 op	1.8 q-t	22.3 q-v	18.5 t-z	
7 Mildicut 0.21SC	12.0 fl oz	14	0.0 l	0.3 op	0.8 t	13.0 t-x	13.8 x-z	
8 Alude 5.17XL	7.5 fl oz	14	0.0 l	0.3 op	0.3 t	10.3 v-x	11.8 x-z	
9 A21008A SC	0.055 fl oz	14	14.5 c-g	25.0 bc	33.8 a-c	72.0 ab	67.8 ab	
10 A21008A SC	0.11 fl oz	14	15.0 c-f	24.0 b-d	33.5 a-c	68.3 bc	56.3 c-f	
11 A21008A SC	0.22 fl oz	14	19.5 b-d	22.5 b-e	24.5 c-h	40.5 i-m	50.5 d-h	
12 A21008A SC	0.44 fl oz	14	9.5 e-k	21.3 b-f	20.8 e-i	43.8 h-l	51.3 d-h	
13 Subdue MAXX 2ME	1.0 fl oz	14	11.3 d-j	16.8 d-h	26.0 b-f	60.3 b-f	51.8 d-h	
14 Heritage 50WG	0.4 oz	14	0.0 l	0.8 n-p	3.3 q-t	50.8 e-j	44.3 g-k	
15 Secure 4.2SC	0.5 fl oz	14	3.8 i-l	22.3 b-e	22.5 d-i	58.0 c-f	55.5 c-f	
16 RU-2125-14ZD WG	2.0 oz	7	4.8 h-l	10.3 h-l	15.8 g-m	26.8 n-s	22.0 p-x	
17 RU-2125-14ZD WG	3.0 oz	14	5.0 h-l	13.8 f-i	15.3 h-n	62.5 b-e	63.5 a-c	
18 RU-2125-14ZD WG	3.3 oz	14	3.8 i-l	11.5 g-k	15.8 g-m	62.5 b-e	58.8 b-e	
19 RU-2125-14ZD WG	4.0 oz	14	0.5 kl	9.3 h-m	10.3 k-s	37.8 k-n	31.5 l-p	
20 RU-2125-14ZD WG	6.0 oz	14	0.8 kl	2.0 m-p	2.3 q-t	29.8 m-s	28.8 m-t	
21 RU-2125-14ZB WG	4.0 oz	14	4.5 h-l	14.5 e-i	16.8 f-l	46.8 g-k	41.0 h-l	
22 RU-2125-14ZD WG	3.3 oz	-						
+ RU-2125-14P XL	5.0 fl oz	14	1.3 kl	8.0 i-p	10.8 j-q	36.0 k-p	30.8 l-q	
23 RU-2125-14ZC SL	2.2 fl oz	14	0.0 l	0.8 n-p	2.0 q-t	19.8 r-w	18.8 s-y	
24 RU-2125-14I SC	1.5 fl oz	7	31.8 a	36.0 a	39.0 a	64.8 b-d	69.3 ab	
25 Stellar 5.272SC	1.2 fl oz	14	0.0 l	0.5 op	3.5 q-t	26.3 n-s	28.0 m-u	
26 RU-22112-14H SC	0.4 oz	14	15.0 c-f	27.5 b	22.0 d-i	9.3 wx	17.3 u-z	
27 RU-22112-14H SC	0.6 oz	14	18.8 b-d	23.5 b-d	19.8 f-j	8.5 wx	9.8 yz	

(Continued)

Table 1A. Pythium blight control on a perennial ryegrass turf, 2014 (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>2</sup>	Turf Area Infested per Plot (%) <sup>1</sup>				
			30 June	2 July	6 July	13 July	26 July
28 RU-22112-14H SC	0.8 oz	14	25.3 ab	27.3 bc	14.0 i-p	6.5 x	8.8 yz
29 RU-22112-14I SC	0.75 fl oz	14	1.8 kl	0.8 n-p	4.0 q-t	23.5 p-u	13.3 x-z
30 RU-22112-14H SC	0.6 oz	CUR-14 <sup>3</sup>	15.3 c-e	20.5 b-f	16.8 fl	23.5 p-u	14.8 w-z
31 Subdue MAXX 2ME	2.0 fl oz	14	5.5 g-l	5.0 k-p	14.5 i-o	59.8 b-f	58.5 b-f
32 Segway 3.33SC	0.9 fl oz	21 <sup>4</sup>	0.0 l	1.8 m-p	2.3 q-t	26.5 n-s	26.0 n-w
33 2014 Pyth Program #1	Plant food	14 <sup>5</sup>	0.5 kl	1.0 n-p	4.5 q-t	38.3 j-h	29.3 m-t
34 2014 Pyth Program #2	Plant food	14 <sup>6</sup>	0.0 l	0.5 op	3.0 q-t	37.3 k-o	26.0 n-w
35 A20964A WG	0.4 oz	14	0.0 l	3.5 k-p	7.0 m-t	37.8 k-n	34.5 k-n
36 2014 Pyth Program #3	BioWorks	ALT <sup>7</sup>	13.5 c-h	19.5 b-g	33.5 a-c	52.0 d-i	37.5 i-m
37 2014 Pyth Program #4	BioWorks	ALT <sup>8</sup>	3.8 i-j	7.8 i-p	18.3 f-k	53.8 d-h	48.0 e-i
38 2014 Pyth Program #5	BioWorks	ALT <sup>9</sup>	2.3 j-l	5.8 j-p	14.3 i-o	72.0 ab	72.5 a
39 2014 Pyth Program #6	BioWorks	ALT <sup>10</sup>	0.0 l	1.5 m-p	6.3 n-t	43.5 h-l	27.0 m-v
40 Wingman 4LC	14.0 fl oz	-					
+ Viceroy 70DF	4.6 oz	14	1.0 kl	4.0 k-p	4.8 p-t	31.5 l-r	36.0 j-n
41 2014 Pyth Program #7	4.0 fl oz	14 <sup>11</sup>	1.8 kl	2.8 l-p	4.8 p-t	26.5 n-s	27.0 m-v
42 2014 Pyth Program #8	2.0 fl oz	14 <sup>12</sup>	0.3 l	4.5 k-p	5.8 o-t	48.0 f-k	52.3 c-h
43 2014 Pyth Program #9	4.0 fl oz	14 <sup>13</sup>	0.0 l	1.0 n-p	4.0 q-t	32.0 l-r	19.5 q-y
44 Varnimo WP	0.735 oz	-					
+ KaPre Remede8 LC	3.0 fl oz	VAR <sup>14</sup>	11.8 d-i	19.3 c-g	29.3 b-e	59.3 b-g	53.0 c-g
45 Varnimo WP	0.735 oz	-					
+ KaPre Remede8 LC	3.0 fl oz	-					
+ Pennamin Driver-P DF	1.5 oz	VAR <sup>15</sup>	21.0 bc	27.5 b	30.3 a-c	62.8 b-e	58.5 b-f
46 Companion LC	6.0 fl oz	14	6.0 f-l	8.8 h-m	9.3 k-t	53.5 d-h	47.3 f-j
47 Companion LC	6.0 fl oz	-					
+ TKO Phosphite (0-29-26) DF	5.0 fl oz	14	1.3 kl	8.3 i-o	6.5 m-t	35.3 k-p	30.5 l-r
48 Turf Labs Phosphite 2 LC	1.5 fl oz	14	0.5 kl	3.8 k-p	7.0 m-t	33.3 l-q	30.0 l-s
49 Turf Labs Phosphite 1LC	3.0 fl oz	14	0.8 kl	3.0 l-p	4.8 p-t	19.8 r-w	17.0 u-z
50 Chipco Signature 80WG	4.0 oz	14	1.0 kl	6.5 i-p	7.3 m-t	27.5 n-s	22.3 p-x
51 Chipco Signature 80WG	4.0 oz	-					
+ Daconil Action 6.1SC	3.6 fl oz	14	0.3 l	2.3 l-p	5.8 o-t	19.3 r-x	21.8 p-x

(Continued)

Table 1A. Pythium blight control on a perennial ryegrass turf, 2014 (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>2</sup>	Turf Area Infested per Plot (%) <sup>1</sup>				
			30 June	2 July	6 July	13 July	26 July
52 Banol 6SC.....	2.0 fl oz	14	0.0 l	0.0 p	7.0 m-t	26.3 n-s	19.0 s-y
53 Banol 6SC.....	3.5 fl oz	14	0.0 l	0.0 p	2.8 q-t	11.3 u-x	7.5 z
54 Insignia Intrinsic 2.1SC .....	0.7 fl oz	14	1.3 kl	6.5 i-p	10.5 j-r	41.0 h-m	33.8 k-o
55 Daconil Action 6.1SC .....	3.6 fl oz	14	5.5 g-l	11.5 g-k	25.0 c-g	70.5 a-c	60.3 b-d
56 Untreated Check.....	—	—	18.8 b-d	24.8 b-d	34.8 ab	81.5 a	72.0 a
57 Turf Labs Phosphite 3LC .....	3.0 fl oz	14	7.5 e-l	7.5 i-p	8.8 l-t	52.0 d-i	38.0 i-m

	INT <sup>16</sup>	DAT <sup>17</sup>	DAT	DAT	DAT
	7	3	5	2	5
	14	3	5	9	12
	21	3	5	9	16

<sup>1</sup> Values are means of four replicates. Means followed by the same letter are not significantly different according to Waller-Duncan k-ratio t-test ( $k=100$ ). Brown patch (*Rhizotonia solani*) and gray leaf spot (*Pyricularia oryzae*) were prevented with the application of Prostar 70WG (3.0 oz) and Cleary 3336 4F (6.0 fl oz), respectively, every 14 days from 11 July to 15 August.

<sup>2</sup> Fungicides were applied on 27 June (all treatments; except treatments 26 to 28, 30, and 57), 1 July (treatments 26 to 28, 30, and 57), 4 July (7-day treatment), 11 July (7- and 14-day treatments), 18 July (7- and 21-day treatments), 25 July (7- and 14-day treatments), 1 August (7-day treatment), 8 August (7-, 14-, and 21-day treatments), and 15 August (7-day treatment).

<sup>3</sup> Treatment 30 was applied on a curative basis starting on 28 June and was repeated every 14 days thereafter.

<sup>4</sup> Treatment 32 was applied on 27 June and 18 July only.

<sup>5</sup> Treatment 33 (2014 Plant Food Pythium Program #1) consisted of Phosphite 30LC (3.0 fl oz) + Impulse GT (3.0 fl oz) + Mg 4% LC (3.0 fl oz) + Mn 5% LC (2.0 fl oz) + Omega LC (0.7 fl oz) + Green Blade LC (0.14 fl oz) applied every 14 days.

<sup>6</sup> Treatment 34 (2014 Plant Food Pythium Program #2) consisted of Phosphite 30LC (3.0 fl oz) + Impulse GT (3.0 fl oz) + Mg 4% LC (3.0 fl oz) + Mn 5% LC (2.0 fl oz) + Omega LC (0.7 fl oz) + Flo Thru LC (2.0 fl oz) + Green Blade LC (0.14 fl oz) applied every 14 days.

<sup>7</sup> ALT = alternation treatment where treatment 36 (2014 BioWorks Pythium Program #3) consisted of Turfshield Plus G (64.0 oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.

<sup>8</sup> ALT = alternation treatment where treatment 37 (2014 BioWorks Pythium Program #4) consisted of Turfshield Plus WP (2.5 oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.

(Continued)

Table 1A. Pythium blight control on a perennial ryegrass turf, 2014 (continued).

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- <sup>9</sup> ALT = alternation treatment where treatment 38 (2014 BioWorks Pythium Program #5) consisted of Turfshield Plus WP (2.5 oz) + Subdue MAXX 2ME (1.0 fl oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) + Subdue MAXX 2ME (0.5 fl oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>10</sup> ALT = alternation treatment where treatment 39 (2014 BioWorks Pythium Program #6) consisted of Turfshield Plus WP (2.5 oz) + Fosetyl-AI 80WG (8.0 oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) + Fosetyl-AI 80WG (4.0 oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>11</sup> Treatment 41 (2014 Plant Food Pythium Program #7) consisted of IF25 applied at 4.0 fl oz every 14 days.
- <sup>12</sup> Treatment 42 (2014 Plant Food Pythium Program #8) consisted of IP27 applied at 2.0 fl oz every 14 days.
- <sup>13</sup> Treatment 43 (2014 Plant Food Pythium Program #9) consisted of IH28 applied at 4.0 fl oz every 14 days.
- <sup>14</sup> VAR= Variable spray schedule where treatment 44 consisted of Varnimo WP (0.735 oz) + KaPre Remed8 LC (3.0 fl oz) applied on 27 June, 4 and 11 July, and every 14 days thereafter. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>15</sup> VAR= Variable spray schedule where treatment 45 consisted of Varnimo WP (0.735 oz) + KaPre Remed8 LC (3.0 fl oz) + Pennamin Driver-P DF (1.5 oz) applied on 27 June, 4 and 11 July, and every 14 days thereafter. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>16</sup> INT = Spray interval in days.
- <sup>17</sup> DAT = Days after the last treatment.

Table 1B. Utilizing fungicides, biocontrol agents, and fertility programs to protect turf from Pythium blight: Rutgers University, 2014.

	Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>3</sup>	Turf Area Infested per Plot (%) <sup>1,2</sup>		
				2 Aug.	12 Aug.	22 Aug.
1	Segway 3.3SC	0.45 fl oz	-			
	+ Secure 4.2SC	0.5 fl oz	14	14.0 q-v	17.8 q-x	12.8 q-w
2	Segway 3.3SC	0.65 fl oz	-			
	+ Secure 4.2SC	0.5 fl oz	14	13.5 r-v	14.0 s-y	12.3 r-w
3	Segway 3.3SC	0.45 fl oz	14	19.0 o-t	20.5 o-u	16.3 m-t
4	Segway 3.3SC	0.65 fl oz	14	16.0 p-u	17.3 r-y	13.8 o-w
5	Segway 3.3SC	0.75 fl oz	14	13.8 r-v	13.5 t-y	10.0 s-w
6	Mildicut 0.21SC	7.16 fl oz	14	15.0 q-v	18.0 q-x	13.0 p-w
7	Mildicut 0.21SC	12.0 fl oz	14	13.0 s-v	12.3 u-y	9.0 t-w
8	Alude 5.17XL	7.5 fl oz	14	7.3 uv	5.8 y	5.3 vw
9	A21008A SC	0.055 fl oz	14	59.3 ab	59.3 ab	45.0 ab
10	A21008A SC	0.11 fl oz	14	53.8 b-d	51.0 a-f	40.0 a-e
11	A21008A SC	0.22 fl oz	14	46.8 c-f	46.0 c-h	34.5 c-h
12	A21008A SC	0.44 fl oz	14	44.3 d-i	40.0 f-k	31.0 e-j
13	Subdue MAXX 2ME	1.0 fl oz	14	49.5 b-e	47.8 b-g	37.3 a-g
14	Heritage 50WG	0.4 oz	14	37.5 f-l	36.8 g-l	33.0 d-i
15	Secure 4.2SC	0.5 fl oz	14	44.5 d-i	45.8 d-h	34.8 b-h
16	RU-2125-14ZD WG	2.0 oz	7	15.0 q-v	14.0 s-y	12.3 r-w
17	RU-2125-14ZD WG	3.0 oz	14	50.5 b-e	55.5 a-d	44.3 a-c
18	RU-2125-14ZD WG	3.3 oz	14	49.0 b-e	48.5 b-g	40.8 a-e
19	RU-2125-14ZD WG	4.0 oz	14	29.8 l-o	30.3 k-p	23.5 i-o
20	RU-2125-14ZD WG	6.0 oz	14	27.0 l-p	24.8 m-t	20.3 k-s
21	RU-2125-14ZB WG	4.0 oz	14	32.5 j-n	39.3 f-k	28.8 f-k
22	RU-2125-14ZD WG	3.3 oz	-			
	+ RU-2125-14P XL	5.0 fl oz	14	28.5 l-o	26.5 l-r	20.5 k-r
23	RU-2125-14ZC SL	2.2 fl oz	14	18.8 o-t	15.5 r-y	15.3 n-v
24	RU-2125-14I SC	1.5 fl oz	7	54.3 b-d	62.5 a	42.0 a-d
25	Stellar 5.272SC	1.2 fl oz	14	24.8 m-r	25.5 l-s	21.0 j-r
26	RU-22112-14H SC	0.4 oz	14	15.3 q-v	11.0 u-y	9.5 t-w
27	RU-22112-14H SC	0.6 oz	14	7.0 uv	8.0 v-y	4.5 w

(Continued)



Table 1B. Pythium blight control on a perennial ryegrass turf, 2014 (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>3</sup>	Turf Area Infested per Plot (%) <sup>1,2</sup>	
			2 Aug.	12 Aug. 22 Aug.
28 RU-22112-14H SC	0.8 oz	14	9.0 t-v	6.3 xy 4.3 w
29 RU-22112-14I SC	0.75 fl oz	14	13.3 s-v	10.5 u-y 8.5 u-w
30 RU-22112-14H SC	0.6 oz	CUR-14 <sup>4</sup>	14.3 q-v	14.8 r-y 12.3 r-w
31 Subdue MAXX 2ME	2.0 fl oz	14	50.3 b-c	49.0 b-f 40.8 a-e
32 Segway 3.33SC	0.9 fl oz	21 <sup>5</sup>	21.3 n-s	19.0 o-v 8.8 t-w
33 2014 Pyth Program #1	Plant food	14 <sup>6</sup>	29.5 l-o	26.3 l-r 23.0 i-q
34 2014 Pyth Program #2	Plant food	14 <sup>7</sup>	23.5 m-s	18.5 p-w 15.3 n-v
35 A20964A WG	0.4 oz	14	31.5 k-n	33.3 i-m 25.0 h-n
36 2014 Pyth Program #3	BioWorks	ALT <sup>8</sup>	34.8 g-m	35.8 h-m 27.3 g-l
37 2014 Pyth Program #4	BioWorks	ALT <sup>9</sup>	43.0 d-j	42.5 e-j 37.3 a-g
38 2014 Pyth Program #5	BioWorks	ALT <sup>10</sup>	66.5 a	59.5 ab 40.0 a-e
39 2014 Pyth Program #6	BioWorks	ALT <sup>11</sup>	25.3 m-q	20.8 n-u 16.0 n-u
40 Wingman 4LC	14.0 fl oz	-		
+ Viceroy 70DF	4.6 oz	14	34.5 h-m	32.5 j-n 26.5 h-m
41 2014 Pyth Program #7	4.0 fl oz	14 <sup>12</sup>	21.5 n-s	20.3 o-u 19.0 k-t
42 2014 Pyth Program #8	2.0 fl oz	14 <sup>13</sup>	43.5 d-j	45.0 d-i 43.5 a-c
43 2014 Pyth Program #9	4.0 fl oz	14 <sup>14</sup>	19.3 o-t	20.0 o-u 16.0 n-t
44 Varnimo WP	0.735 oz	-		
+ KaPre Remed8 LC	3.0 fl oz	VAR <sup>15</sup>	46.0 d-g	46.5 c-h 38.3 a-f
45 Varnimo WP	0.735 oz	-		
+ KaPre Remed8 LC	3.0 fl oz	-		
+ Pennamin Driver-P DF	1.5 oz	VAR <sup>16</sup>	50.3 b-e	42.3 e-j 37.0 a-g
46 Companion LC	6.0 fl oz	14	45.0 d-h	47.8 b-g 37.0 a-g
47 Companion LC	6.0 fl oz	-		
+ TKO Phosphite (0-29-26) DF	5.0 fl oz	14	33.3 i-m	29.3 k-q 20.5 k-r
48 Turf Labs Phosphite 2 LC	1.5 fl oz	14	28.3 l-o	20.5 o-u 17.0 l-t
49 Turf Labs Phosphite 1LC	3.0 fl oz	14	15.3 q-v	15.3 r-y 12.3 r-w
50 Chipco Signature 80WG	4.0 oz	14	27.3 l-p	25.8 l-s 20.0 k-s
51 Chipco Signature 80WG	4.0 oz	-		
+ Daconil Action 6.1SC	3.6 fl oz	14	19.5 o-t	19.3 o-v 12.5 r-w

(Continued)

Table 1B. Pythium blight control on a perennial ryegrass turf, 2014 (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>3</sup>	Turf Area Infested per Plot (%) <sup>1,2</sup>	
			2 Aug.	12 Aug. 22 Aug.
52 Banol 6SC.....	2.0 fl oz	14	12.5 s-v	12.0 u-y 7.8 u-w
53 Banol 6SC.....	3.5 fl oz	14	4.5 v	7.3 w-y 4.8 w
54 Insignia Intrinsic 2.1SC .....	0.7 fl oz	14	28.5 l-o	30.8 j-o 23.3 i-p
55 Daconil Action 6.1SC .....	3.6 fl oz	14	57.5 a-c	52.8 a-e 39.0 a-f
56 Untreated Check.....	—	—	59.3 ab	57.8 a-c 46.5 a
57 Turf Labs Phosphite 3LC .....	3.0 fl oz	14	42.0 e-k	56.3 a-d 38.8 a-f

	INT <sup>17</sup>	DAT <sup>18</sup>	DAT	DAT
	7	7	4	7
	14	14	4	14
	21	21	4	14

<sup>1</sup> Values are means of four replicates. Means followed by the same letter are not significantly different according to Waller-Duncan k-ratio t-test ( $k=100$ ). Brown patch (*Rhizotonia solani*) and gray leaf spot (*Pyricularia oryzae*) were prevented with the application of Prostar 70WG (3.0 oz) and Cleary 3336 4F (6.0 fl oz), respectively, every 14 days from 11 July to 15 August.

<sup>2</sup> Phytotoxicity as a percentage of turf area per plot with visible foliar chlorosis or necrosis. No phytotoxicity was observed in this study.

<sup>3</sup> Fungicides were applied on 27 June (all treatments; except treatments 26 to 28, 30, and 57), 1 July (treatments 26 to 28, 30, and 57), 4 July (7-day treatment), 11 July (7- and 14-day treatments), 18 July (7- and 21-day treatments), 25 July (7- and 14-day treatments), 1 August (7-day treatment), 8 August (7-, 14-, and 21-day treatments), and 15 August (7-day treatment).

<sup>4</sup> Treatment 30 was applied on a curative basis starting on 28 June and was repeated every 14 days thereafter.

<sup>5</sup> Treatment 32 was applied on 27 June and 18 July only.

<sup>6</sup> Treatment 33 (2014 Plant Food Pythium Program #1) consisted of Phosphite 30LC (3.0 fl oz) + Impulse GT (3.0 fl oz) + Mg 4% LC (3.0 fl oz) + Mn 5% LC (2.0 fl oz) + Omega LC (0.7 fl oz) + Green Blade LC (0.14 fl oz) applied every 14 days.

<sup>7</sup> Treatment 34 (2014 Plant Food Pythium Program #2) consisted of Phosphite 30LC (3.0 fl oz) + Impulse GT (3.0 fl oz) + Mg 4% LC (3.0 fl oz) + Mn 5% LC (2.0 fl oz) + Omega LC (0.7 fl oz) + Flo Thru LC (2.0 fl oz) + Green Blade LC (0.14 fl oz) applied every 14 days.

<sup>8</sup> ALT = alternation treatment where treatment 36 (2014 BioWorks Pythium Program #3) consisted of Turfshield Plus G (64.0 oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.

(Continued)

Table 1B. Pythium blight control on a perennial ryegrass turf, 2014 (continued).

- <sup>9</sup> ALT = alternation treatment where treatment 37 (2014 BioWorks Pythium Program #4) consisted of Turfshield Plus WP (2.5 oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>10</sup> ALT = alternation treatment where treatment 38 (2014 BioWorks Pythium Program #5) consisted of Turfshield Plus WP (2.5 oz) + Subdue MAXX 2ME (1.0 fl oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) + Subdue MAXX 2ME (0.5 fl oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>11</sup> ALT = alternation treatment where treatment 39 (2014 BioWorks Pythium Program #6) consisted of Turfshield Plus WP (2.5 oz) + Fosetyl-AI 80WG (8.0 oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) + Fosetyl-AI 80WG (4.0 oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>12</sup> Treatment 41 (2014 Plant Food Pythium Program #7) consisted of IF25 applied at 4.0 fl oz every 14 days.
- <sup>13</sup> Treatment 42 (2014 Plant Food Pythium Program #8) consisted of IP27 applied at 2.0 fl oz every 14 days.
- <sup>14</sup> Treatment 43 (2014 Plant Food Pythium Program #9) consisted of IH28 applied at 4.0 fl oz every 14 days.
- <sup>15</sup> VAR = Variable spray schedule where treatment 44 consisted of Varnimo WP (0.735 oz) + KaPre Remede8 LC (3.0 fl oz) applied on 27 June, 4 and 11 July, and every 14 days thereafter. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>16</sup> VAR = Variable spray schedule where treatment 45 consisted of Varnimo WP (0.735 oz) + KaPre Remede8 LC (3.0 fl oz) + Pennamin Driver-P DF (1.5 oz) applied on 27 June, 4 and 11 July, and every 14 days thereafter. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>17</sup> INT = Spray interval in days.
- <sup>18</sup> DAT = Days after the last treatment.

Table 1C. Utilizing fungicides, biocontrol agents, and fertility programs to protect turf from Pythium blight: Rutgers University, 2014.

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>5</sup>	Turf Quality <sup>1,2</sup>		Color <sup>3</sup>		Density <sup>4</sup>	
			25 July	22 Aug.	25 July	22 Aug.	25 July	22 Aug.
1 Segway 3.3SC	0.45 fl oz	-	7.3 a-d	7.2 a-g	5.3 a	4.9 e-g	93.0 a-c	87.8 a-f
+ Secure 4.2SC	0.5 fl oz	14						
2 Segway 3.3SC	0.65 fl oz	-	7.7 ab	7.4 a-f	5.4 a	4.9 e-g	92.3 a-d	89.8 a-f
+ Secure 4.2SC	0.5 fl oz	14						
3 Segway 3.3SC	0.45 fl oz	14	6.2 b-j	6.0 f-m	5.4 a	5.0 d-f	82.8 a-i	80.0 d-k
4 Segway 3.3SC	0.65 fl oz	14	7.5 a-c	6.8 b-i	5.5 a	4.5 fg	91.3 a-e	88.5 a-f
5 Segway 3.3SC	0.75 fl oz	14	7.1 a-f	6.8 b-i	5.3 a	4.8 fg	86.8 a-g	84.0 a-h
6 Mildicut 0.21SC	7.16 fl oz	14	7.1 a-e	6.8 b-i	5.1 a	4.9 d-g	90.3 a-f	86.3 a-f
7 Mildicut 0.21SC	12.0 fl oz	14	7.7 ab	7.7 a-c	5.3 a	4.9 e-g	90.0 a-f	93.3 a-c
8 Alude 5.17XL	7.5 fl oz	14	7.6 a-c	7.7 a-c	5.0 a	4.7 fg	93.0 a-c	95.3 a
9 A21008A SC	0.055 fl oz	14	2.5 qr	3.9 o-q	5.0 a	5.0 d-f	43.8 st	57.5 rs
10 A21008A SC	0.11 fl oz	14	2.9 qr	4.1 o-q	5.1 a	5.0 d-f	52.0 p-t	59.5 p-s
11 A21008A SC	0.22 fl oz	14	3.0 o-r	4.2 n-q	5.0 a	5.1 c-f	52.8 p-s	65.0 o-s
12 A21008A SC	0.44 fl oz	14	3.7 l-r	4.5 n-q	5.0 a	5.4 a-d	60.8 l-r	67.5 k-s
13 Subdue MAXX 2ME	1.0 fl oz	14	3.7 l-r	4.4 n-q	5.1 a	5.0 d-f	56.0 n-s	65.0 o-s
14 Heritage 50WG	0.4 oz	14	4.6 j-p	4.8 l-q	5.3 a	5.0 d-f	66.0 j-q	70.0 i-r
15 Secure 4.2SC	0.5 fl oz	14	4.0 k-q	4.6 m-q	5.1 a	5.0 d-f	63.3 k-q	66.8 l-s
16 RU-2125-14ZD WG	2.0 oz	7	6.5 b-i	7.6 a-d	5.4 a	5.4 a-d	86.8 a-g	91.3 a-e
17 RU-2125-14ZD WG	3.0 oz	14	3.2 n-r	4.5 n-q	5.3 a	5.6 ab	53.3 o-s	65.8 m-s
18 RU-2125-14ZD WG	3.3 oz	14	3.4 m-r	5.1 k-o	5.1 a	5.6 ab	53.0 o-s	71.0 h-q
19 RU-2125-14ZD WG	4.0 oz	14	5.4 g-k	5.7 g-n	5.0 a	5.3 b-e	77.0 c-l	79.3 d-l
20 RU-2125-14ZD WG	6.0 oz	14	5.4 f-k	5.7 g-n	5.4 a	5.5 a-c	74.5 f-m	80.8 c-j
21 RU-2125-14ZB WG	4.0 oz	14	5.1 h-l	5.3 j-o	5.1 a	5.0 d-f	64.8 k-q	72.0 g-p
22 RU-2125-14ZD WG	3.3 oz	-						
+ RU-2125-14P XL	5.0 fl oz	14	5.1 h-l	6.0 f-m	5.3 a	5.4 a-d	65.3 k-q	78.3 e-n
23 RU-2125-14ZC SL	2.2 fl oz	14	7.0 a-g	7.1 a-h	5.0 a	4.9 e-g	89.8 a-f	87.0 a-f
24 RU-2125-14I SC	1.5 fl oz	7	2.4 qr	3.3 q	5.1 a	5.4 a-d	46.5 r-t	60.5 p-s
25 Stellar 5.272SC	1.2 fl oz	14	5.0 i-m	6.1 e-m	5.0 a	5.0 d-f	74.3 f-m	81.8 b-i
26 RU-22112-14H SC	0.4 oz	14	7.3 a-d	7.7 a-c	5.1 a	4.9 e-g	88.5 a-f	93.8 a-c
27 RU-22112-14H SC	0.6 oz	14	8.2 a	8.0 ab	5.4 a	4.8 fg	93.8 ab	95.8 a

(Continued)

Table 1C. Pythium blight control on a perennial ryegrass turf, 2014 (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>5</sup>	Turf Quality <sup>1,2</sup>		Color <sup>3</sup>		Density <sup>4</sup>	
			25 July	22 Aug.	25 July	22 Aug.	25 July	22 Aug.
28 RU-22112-14H SC	0.8 oz	14	7.8 ab	8.3 a	5.1 a	4.9 e-g	91.5 a-d	93.3 a-c
29 RU-22112-14I SC	0.75 fl oz	14	6.8 a-h	7.7 a-c	5.1 a	4.9 e-g	89.5 a-f	90.5 a-f
30 RU-22112-14H SC	0.6 oz	CUR-14 <sup>6</sup>	6.9 a-g	7.3 a-f	5.0 a	4.8 e-g	82.0 a-j	87.5 a-f
31 Subdue MAXX 2ME	2.0 fl oz	14	3.2 n-r	3.5 pq	5.1 a	5.3 b-e	43.8 st	58.3 q-s
32 Segway 3.33SC	0.9 fl oz	21 <sup>7</sup>	5.9 c-j	7.0 a-i	5.1 a	4.9 e-g	74.8 e-m	83.8 a-h
33 2014 Pyth Program #1	Plant food	14 <sup>8</sup>	5.0 i-m	5.6 h-n	5.3 a	5.1 c-f	70.5 g-n	78.0 f-o
34 2014 Pyth Program #2	Plant food	14 <sup>9</sup>	6.1 b-j	6.9 a-i	5.1 a	5.0 d-f	82.3 a-j	88.8 a-f
35 A20964A WG	0.4 oz	14	5.5 e-k	5.6 i-n	5.4 a	4.9 e-g	71.0 g-n	78.8 d-m
36 2014 Pyth Program #3	BioWorks	ALT <sup>10</sup>	4.0 k-q	4.9 l-p	5.0 a	5.3 b-e	62.8 k-r	72.3 g-p
37 2014 Pyth Program #4	BioWorks	ALT <sup>11</sup>	3.6 l-r	4.0 o-q	5.0 a	5.0 d-f	60.3 m-s	59.8 p-s
38 2014 Pyth Program #5	BioWorks	ALT <sup>12</sup>	2.2 r	3.8 o-q	5.1 a	5.3 b-e	35.8 t	60.8 p-s
39 2014 Pyth Program #6	BioWorks	ALT <sup>13</sup>	5.1 h-l	7.1 a-g	5.0 a	4.9 e-g	75.8 d-m	90.3 a-f
40 Wingman 4LC	14.0 fl oz	-	4.7 j-o	6.2 d-l	5.5 a	5.8 a	67.0 i-p	81.3 c-i
+ Viceroy 70DF	4.6 oz	14	5.8 d-j	6.1 e-m	5.1 a	5.0 d-f	79.0 b-k	83.3 a-h
41 2014 Pyth Program #7	4.0 fl oz	14 <sup>14</sup>	3.2 n-r	3.5 pq	5.1 a	5.0 d-f	55.0 n-s	60.5 p-s
42 2014 Pyth Program #8	2.0 fl oz	14 <sup>15</sup>	6.2 b-j	7.1 a-h	5.1 a	4.9 e-g	84.3 a-h	89.0 a-f
43 2014 Pyth Program #9	4.0 fl oz	14 <sup>16</sup>	3.2 n-r	4.1 o-q	5.0 a	5.3 b-e	50.0 q-t	60.8 p-s
44 Varnimo WP	0.735 oz	-	3.2 n-r	4.1 o-q	5.0 a	5.3 b-e	50.0 q-t	60.8 p-s
+ KaPre Remed8 LC	3.0 fl oz	VAR <sup>17</sup>	2.7 qr	4.0 o-q	5.1 a	5.5 a-c	52.0 p-t	67.8 j-s
45 Varnimo WP	0.735 oz	-	3.5 l-r	3.5 pq	5.1 a	5.3 b-e	55.0 n-s	64.5 p-s
+ KaPre Remed8 LC	3.0 fl oz	-	4.8 i-n	6.7 b-j	5.1 a	5.1 c-f	67.3 i-p	81.3 c-i
+ Pennamin Driver-P DF	1.5 oz	VAR <sup>18</sup>	4.9 i-m	6.5 c-k	5.3 a	5.0 d-f	70.0 h-n	84.5 a-g
46 Companion LC	6.0 fl oz	14	6.4 b-i	6.9 a-i	5.0 a	5.1 c-f	84.8 a-h	91.8 a-d
47 Companion LC	6.0 fl oz	-	6.2 b-j	6.7 b-j	5.0 a	5.4 a-d	78.0 b-k	88.3 a-f
+ TKO Phosphite (0-29-26) DF	5.0 fl oz	14	6.2 b-j	6.7 b-j	5.0 a	5.4 a-d	78.0 b-k	88.3 a-f
48 Turf Labs Phosphite 2 LC	1.5 fl oz	14	6.2 b-j	6.7 b-j	5.0 a	5.4 a-d	78.0 b-k	88.3 a-f
49 Turf Labs Phosphite 1LC	3.0 fl oz	14	6.2 b-j	6.7 b-j	5.0 a	5.4 a-d	78.0 b-k	88.3 a-f
50 Chipco Signature 80WG	4.0 oz	14	6.2 b-j	6.7 b-j	5.0 a	5.4 a-d	78.0 b-k	88.3 a-f
51 Chipco Signature 80WG	4.0 oz	-	6.2 b-j	6.7 b-j	5.0 a	5.4 a-d	78.0 b-k	88.3 a-f
+ Daconil Action 6.1SC	3.6 fl oz	14	6.2 b-j	6.7 b-j	5.0 a	5.4 a-d	78.0 b-k	88.3 a-f

(Continued)

Table 1C. Pythium blight control on a perennial ryegrass turf, 2014 (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>5</sup>	Turf Quality <sup>1,2</sup>		Color <sup>3</sup>		Density <sup>4</sup>	
			25 July	22 Aug.	25 July	22 Aug.	25 July	22 Aug.
52 Banol 6SC.....	2.0 fl oz	14	7.1 a-e	7.7 a-c	5.1 a	5.0 d-f	88.5 a-f	88.3 a-f
53 Banol 6SC.....	3.5 fl oz	14	8.3 a	8.3 a	5.0 a	4.9 e-g	95.8 a	94.5 ab
54 Insignia Intrinsic 2.1SC .....	0.7 fl oz	14	4.6 j-o	4.9 l-p	5.0 a	5.0 d-f	69.5 h-o	69.5 i-r
55 Daconil Action 6.1SC .....	3.6 fl oz	14	3.4 m-r	4.0 o-q	5.1 a	5.5 a-c	46.3 r-t	62.5 p-s
56 Untreated Check.....	—	—	3.7 l-r	4.0 o-q	5.0 a	5.1 c-f	46.5 r-t	56.3 s
57 Turf Labs Phosphite 3LC .....	3.0 fl oz	14	3.8 k-r	4.3 n-q	5.3 a	5.3 b-e	64.0 k-q	65.5 n-s

	INT <sup>19</sup>	DAT <sup>20</sup>	DAT	DAT	DAT	DAT	DAT
	7	7	7	7	7	7	7
	14	14	14	14	14	14	14
	21	7	14	7	14	7	14

<sup>1</sup> 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). Brown patch (*Rhizotonia solani*) and gray leaf spot (*Pyricularia oryzae*) were prevented with the application of Prostar 70WG (3.0 oz) and Cleary 3336 4F (6.0 fl oz), respectively, every 14 days from 11 July to 15 August.

<sup>2</sup> Turf quality on a scale of 1 to 9, where 9 = best turf quality and 5 = acceptable quality.

<sup>3</sup> Color of foliage on a 1 to 10 scale, where 5 = color of healthy untreated turf, less than 5 = progressively more chlorotic or necrotic turf, and greater than 5 = progressively darker green turf.

<sup>4</sup> Percent area with green cover per plot.

<sup>5</sup> Fungicides were applied on 27 June (all treatments; except treatments 26 to 28, 30, and 57), 1 July (treatments 26 to 28, 30, and 57), 4 July (7-day treatment), 11 July (7- and 14-day treatments), 18 July (7- and 21-day treatments), 25 July (7- and 14-day treatments), 1 August (7-day treatment), 8 August (7-, 14-, and 21-day treatments), and 15 August (7-day treatment).

<sup>6</sup> Treatment 30 was applied on a curative basis starting on 28 June and was repeated every 14 days thereafter.

<sup>7</sup> Treatment 32 was applied on 27 June and 18 July only.

<sup>8</sup> Treatment 33 (2014 Plant Food Pythium Program #1) consisted of Phosphite 30LC (3.0 fl oz) + Impulse GT (3.0 fl oz) + Mg 4% LC (3.0 fl oz) + Mn 5% LC (2.0 fl oz) + Omega LC (0.7 fl oz) + Green Blade LC (0.14 fl oz) applied every 14 days.

<sup>9</sup> Treatment 34 (2014 Plant Food Pythium Program #2) consisted of Phosphite 30LC (3.0 fl oz) + Impulse GT (3.0 fl oz) + Mg 4% LC (3.0 fl oz) + Mn 5% LC (2.0 fl oz) + Omega LC (0.7 fl oz) + Flo Thru LC (2.0 fl oz) + Green Blade LC (0.14 fl oz) applied every 14 days.

(Continued)

Table 1C. Pythium blight control on a perennial ryegrass turf, 2014 (continued).

- <sup>10</sup> ALT = alternation treatment where treatment 36 (2014 BioWorks Pythium Program #3) consisted of Turfshield Plus G (64.0 oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>11</sup> ALT = alternation treatment where treatment 37 (2014 BioWorks Pythium Program #4) consisted of Turfshield Plus WP (2.5 oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>12</sup> ALT = alternation treatment where treatment 38 (2014 BioWorks Pythium Program #5) consisted of Turfshield Plus WP (2.5 oz) + Subdue MAXX 2ME (1.0 fl oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) + Subdue MAXX 2ME (0.5 fl oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>13</sup> ALT = alternation treatment where treatment 39 (2014 BioWorks Pythium Program #6) consisted of Turfshield Plus WP (2.5 oz) + Fosetyl-AI 80WG (8.0 oz) applied once on 27 June, and Turfshield Plus WP (1.5 oz) + Fosetyl-AI 80WG (4.0 oz) on 27 June and 18 July. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>14</sup> Treatment 41 (2014 Plant Food Pythium Program #7) consisted of IF25 applied at 4.0 fl oz every 14 days.
- <sup>15</sup> Treatment 42 (2014 Plant Food Pythium Program #8) consisted of IP27 applied at 2.0 fl oz every 14 days.
- <sup>16</sup> Treatment 43 (2014 Plant Food Pythium Program #9) consisted of IH28 applied at 4.0 fl oz every 14 days.
- <sup>17</sup> VAR = Variable spray schedule where treatment 44 consisted of Varnimo WP (0.735 oz) + KaPre Remede8 LC (3.0 fl oz) applied on 27 June, 4 and 11 July, and every 14 days thereafter. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>18</sup> VAR = Variable spray schedule where treatment 45 consisted of Varnimo WP (0.735 oz) + KaPre Remede8 LC (3.0 fl oz) + Pennamin Driver-P DF (1.5 oz) applied on 27 June, 4 and 11 July, and every 14 days thereafter. Each application was immediately irrigated with 0.5 gal of H<sub>2</sub>O per plot.
- <sup>19</sup> INT = Spray interval in days.
- <sup>20</sup> DAT = Days after the last treatment.