

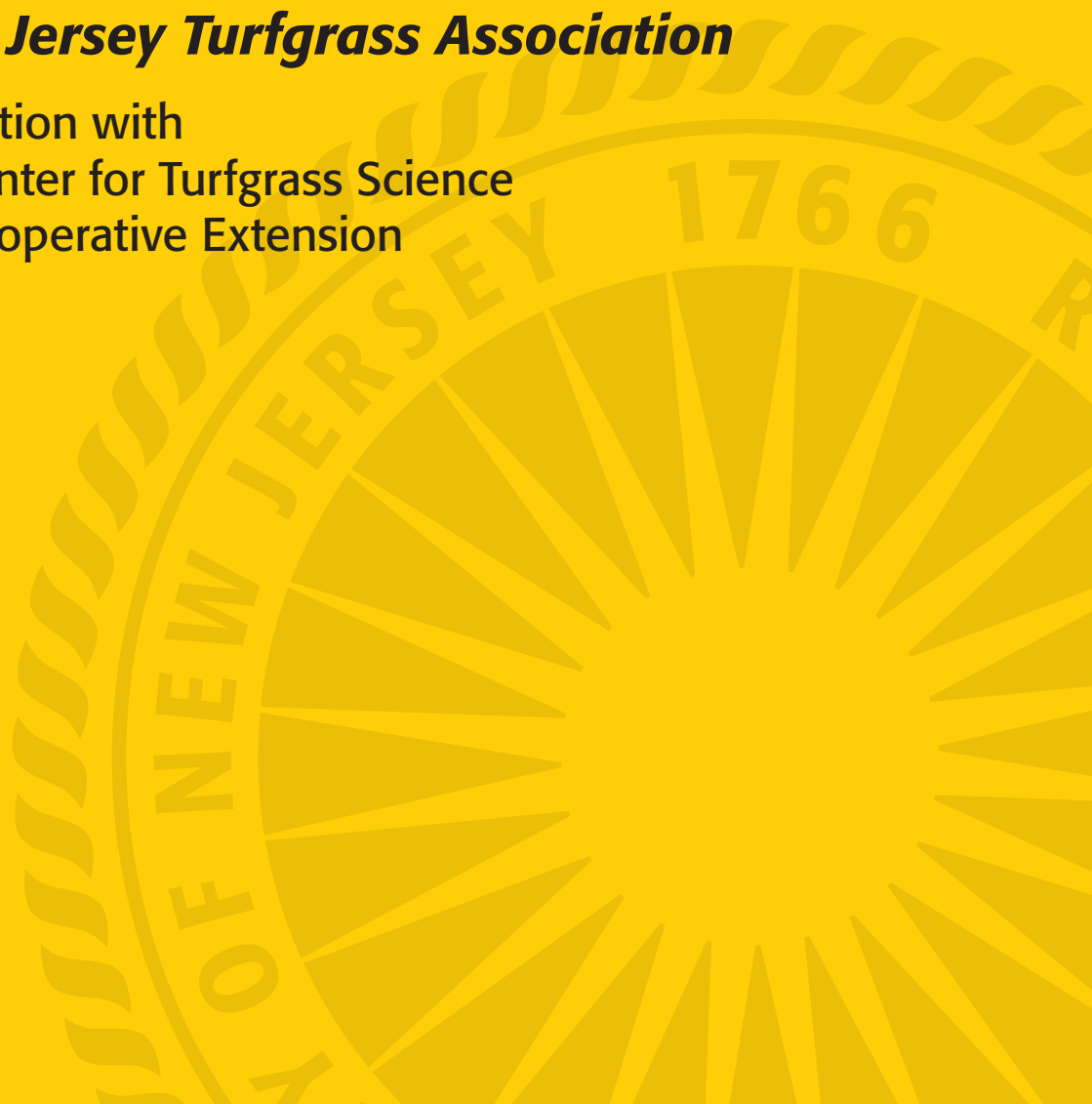
# RUTGERS

New Jersey Agricultural  
Experiment Station

## **2011 Turfgrass Proceedings**

***The New Jersey Turfgrass Association***

In Cooperation with  
Rutgers Center for Turfgrass Science  
Rutgers Cooperative Extension



# **2011 RUTGERS TURFGRASS PROCEEDINGS**

of the

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

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**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 2011 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

# IMPACT OF SELECTED FUNGICIDES ON THE SUPPRESSION OF ANTHRACNOSE ON ANNUAL BLUEGRASS PUTTING GREEN TURF, 2011

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Fungicides were evaluated in 2011 for their ability to control anthracnose basal rot (caused by *Colletotrichum cereale*) on an annual bluegrass (*Poa annua*) putting green at the Rutgers Turf Research Farm in North Brunswick, NJ. The green was established October 2004 on a Nixon loam with a pH of 6.3 by killing the existing stand of creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass with Roundup Pro 3LC (3 qt per A) and then core aerifying the site in two directions to bring dormant annual bluegrass seed to the soil surface. The site was inoculated with *C. cereale* isolate ValP-04 on 17 July 2005 using a 2 gal per 1,000 ft<sup>2</sup> spore suspension (4 x 10<sup>5</sup> conidia per ml); the disease has developed naturally on the site each year thereafter. Plots were 3 x 5 ft and were arranged in a randomized complete block with four replications. Mowing was performed daily at a height of 0.110-inch with clippings collected. The site was irrigated as needed to prevent drought stress.

Fertilizer was applied as 34-0-0 (0.1 lb N per 1000 ft<sup>2</sup>) on 7 and 19 April, 46-0-0 (0.2 lb N per 1000 ft<sup>2</sup>) on 27 April and 5 and 25 May, 46-0-0 (0.1 lb N per 1000 ft<sup>2</sup>) on 12 May, 14 and 27 June, 15 and 24 July, and 13, 26, and 31 August, and 20-20-20 (0.2 lb N per 1000 ft<sup>2</sup>) on 31 August. The growth regulators Primo MAXX 1ME (0.125 fl oz per 1000 ft<sup>2</sup>) + Proxy 2SL (5.0 fl oz per 1000 ft<sup>2</sup>) were sprayed over the trial on 22 March and 6 and 25 April to suppress seedheads, and Primo MAXX 1ME (0.125 fl oz per 1000 ft<sup>2</sup>) was continued every 14 days from 1 May to 26 October.

Dollar spot (caused by *Sclerotinia homoeocarpa*) was suppressed with Emerald 70WG (0.18 oz per 1000 ft<sup>2</sup>) on 14 April, 15 May, 10 June, 10 July, and 6 August and Curalan 50EG (1.0 oz per 1000 ft<sup>2</sup>) on 1 and 28 May, 26 June, 22 July, and 20 August. Brown

patch (caused by *Rhizoctonia solani*) was prevented with ProStar 70W (3.0 oz per 1000 ft<sup>2</sup>) on 6 and 26 May, 10 and 24 June, 8 and 22 July, and 5 and 19 August. Previous research by the authors has shown that Curalan 50EG, ProStar 70W, and Emerald 70WG did not affect anthracnose development on the site at the rates used in this study. Insect pests were controlled with Acelypryn 1.67SC (0.275 fl oz per A) on 3 May and Telstar GC 0.67F (0.5 fl oz per 1000 ft<sup>2</sup>) on 22 June. Turf was topdressed with a sand (2 ft<sup>3</sup> per 1,000 ft<sup>2</sup>) on 22 May, 4 June, 27 July, and 26 August.

Fungicides were applied in water equivalent to 1.9 gal per 1000 ft<sup>2</sup> with a CO<sub>2</sub> powered sprayer at 30 psi using Tee Jet 8003E nozzles. Treatments (trt) were initiated on 15 May, prior to the development of anthracnose. Fungicides were reapplied at the appropriate intervals until 23 August as indicated in Tables 1A to 1C. Turf was visually evaluated for percent turf area infested with anthracnose on 8, 20, and 29 July, 5, 16, and 26 August, and 2 September. Phytotoxicity was determined on 11 June, 8 July, and 5 August 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. Turf quality was evaluated on 13 June, 8 July, 5 August, and 2 September using a 1 to 9 scale, where 9 = best turf quality and 5 = acceptable quality. Color of foliage was visually estimated on 13 June, 8 July, 5 August, and 2 September using a 1 to 5 scale, where 1 = very chlorotic turf, 2 = slight reduction in green color, 3 = normal color of untreated turf, 4 = slight dark green color, and 5 = very dark green color. Data were subjected to analysis of variance and means were separated by Waller-Duncan *k*-ratio *t*-test (*k* = 100).

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Anthrachnose developed on 28 June as a natural infection and became uniformly distributed throughout the green by 8 July. Disease severity peaked on 26 August (93% turfgrass area infested on non-fungicide treated turf). Due to the extreme severity of this natural epidemic, only 18% of the treatments provided season-long control of anthracnose (i.e., less than 15% turf area infested from 15 May through 2 September; Tables 1A and 1B). These treatments included products containing chlorothalonil [i.e., Reserve 4.8SC @ 1.6 and 2.5 fl oz every 7 days (trts 47, 48), Reserve 4.8SC @ 2.5 and 3.6 fl oz every 14 days (trts 49, 50), and Concert 4.3SE (trt 51)]; programs containing phosphonates [i.e., Bayer 2011 Anth Program #1 (trt 52) and Bayer 2011 Anth Program #2 (trt 53)]; the DMI fungicide Tourney 50WDG (trt 63); and the experimental fungicides RU192514-11A SC + RU192514-11B SL (trt 2), RU192514-11I SE (trt 6), RU192514-11I SE + RU192514-11B SL (trt 7), RU192514-11M SC (trt 15), RU192514-11N WG (trt 16), and ARY-0534-002 LC (trt 56).

Several other products and product combinations adequately suppressed anthracnose throughout the treatment period (17 May to 23 August; see 26 August evaluation date, Table 1A) [i.e., RU 192514-11D SC (trt 4), Daconil Weather Stik 6F + Chipco Signature 80WG (trt 9), RU 192514-11Q LC (trt 21), RU 192514-11S LC + RU 192514-11J SC (trt 37), RU 192514-11Q LC + RU 192514-11F ME (trt 38), RU 192514-11Q LC + RU 192514-11F ME + RU 192514-11T 6F (trt 40), Torque 3.6SC alternated with Daconil Ultrex 82.5WDG (trt 62), Velista 50WDG + Daconil Ultrex 82.5WDG (trt 69), two experimental 2011 Anth Programs (#5 and 6; trts 75, 76, respectively), the DuPont Anth Program #3 (trt 74), and two Gary's Green Anth Programs (#6 and 7; trts 77, 78, respectively)] with only a slight reduction in control on the last evaluation date (2 September; Table 1B).

Fungicides in the QoI (e.g., trts 23, 43 to 46, 54, 55, 66), benzimidazole (e.g., trt 24), antibiotic [e.g.,

polyoxin-D (trt 60)], and phenylpyrrole (e.g., trts 10, 11) groups did not adequately control anthracnose during the severe epidemic in 2011 (Tables 1A and 1B). As in past anthracnose efficacy studies at Rutgers University, tank mixtures often controlled this disease better than the individual components [e.g., Daconil Weather Stik 6F + Chipco Signature 80WG (trt 9) was more efficacious than the individual components Chipco Signature 80WG (trt 61) or Daconil Ultrex 82.5WDG (trt 42) when used alone at the same active ingredient rates].

Several treatments resulted in visually darker green foliage (greater or equal to a color rating of 4) on at least 50% of the evaluation dates [i.e., RU192514-11A SC + RU192514-11B SL (trt 2), RU 192514-11D SC (trt 4), RU192514-11I SE + RU192514-11B SL (trt 7), RU192514-11N WG (trt 16), Insignia 2.1SC @ 0.54 fl oz + Trinity 1.67SC @ 1.0 fl oz (trt 45), Reserve 4.8SC @ 1.6 and 2.5 fl oz every 7 days (trts 47, 48), Reserve 4.8SC @ 2.5 and 3.6 fl oz every 14 days (trts 49, 50), and Concert 4.3SE (trt 51), Bayer 2011 Anth Program #1 (trt 52) and Bayer 2011 Anth Program #2 (trt 53), ARY-0534-002 LC (trt 56), Tourney 50WDG (trt 63), experimental 2011 Anth Program #4 (trt 75), and Gary's Green Anth Programs #6 (trt 77) and 7 (trt 78)], presumably because they contained either a pigment, a plant growth regulator, and/or a fertilizer (Table 1B).

Slight foliar chlorosis was noted between 11 June and 5 August for turf treated with RU 192514-11M SC (trt 15), RU192514-11N WG (trt 16), Insignia 2.1SC + Trinity 1.67SC (trt 45, 46), Concert 4.3SE (trt 51), ARY-0534-002 LC (trt 56), and Tourney 50WDG (trt 63) (Table 1B). Turf quality evaluated on 13 June, 8 July, 4 August, and 2 Sept was closely associated with the degree of anthracnose control; treatments affording good protection from this disease had good turf quality (Tables 1B and 1C).

Table 1A. Impact of selected fungicides on the suppression of anthracnose on annual bluegrass putting green turf: Rutgers University, 2011.

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>2</sup>	Turf Area Infested (%) per Plot <sup>1</sup>					
			8 July	20 July	29 July	5 Aug.	16 Aug.	26 Aug.
1 RU 192514-11A SC.....	3.6 fl oz	14	12.3 d-q	9.5 k-v	17.5 l-n	14.3 p-u	20.5 m-q	27.3 j-q
2 RU 192514-11A SC.....	3.6 fl oz	—						
+ RU 192514-11 B SL.....	6.0 fl oz	14	0.0 s	0.0 x	0.5 v	0.8 z'd'	2.3 z	0.8 z'h'
3 RU 192514-11C SC.....	3.6 fl oz	14	7.5 i-s	3.5 r-x	0.8 v	6.5 t-z'd'	20.3 m-q	21.8 m-v
4 RU 192514- 11D SC.....	8.0 fl oz	14	1.5 rs	2.3 s-x	1.5 uv	4.8 w-z'd'	3.5 x-z	4.3 z'c'-h'
5 RU 192514-11H SC.....	3.6 fl oz	14	12.5 d-q	7.8 n-x	8.3 n-v	10.5 q-z'b'	14.0 p-w	25.3 k-t
6 RU 192514-11I SE.....	4.0 fl oz	14	4.5 m-s	2.0 t-x	3.3 s-v	9.0 q-z'd'	4.0 w-z	11.0 v-z'h'
7 RU 192514-11I SE.....	4.0 fl oz	—						
+ RU 192514-11B SL.....	6.0 fl oz	14	1.5 rs	2.8 s-x	0.8 v	1.3 z'c'd'	1.8 z	1.0 z'g'h'
8 RU 192514-11K SC.....	1.27 fl oz	14	10.3 e-s	10.0 k-t	8.3 n-v	16.0 o-s	26.8 k-n	48.3 f
9 Daconil Weather Stik 6F.....	3.6 fl oz	—						
+ Chipco Signature 80WG.....	4.0 oz	14	5.8 l-s	5.3 p-x	5.8 q-v	7.0 s-z'd'	7.3 u-z	12.3 u-z'g'
10 Medallion 50WP.....	0.25 oz	14	6.8 j-s	3.0 s-x	5.5 q-v	14.8 o-t	34.5 i-k	35.0 h-k
11 Medallion 50WP.....	0.33 oz	14	4.8 m-s	2.5 s-x	4.0 s-v	13.8 p-w	31.5 i-l	36.5 g-k
12 RU 192514-11E ME.....	0.494 fl oz	—						
/ RU 192514-11A SC.....	3.6 fl oz	14-ALT <sup>3</sup>	7.5 i-s	7.8 n-x	6.0 q-v	9.8 q-z'd'	12.8 p-y	19.3 n-x
13 RU 192514-11L EC.....	1.6 fl oz	—						
/ RU 192514-11A SC.....	3.6 fl oz	14-ALT <sup>3</sup>	8.0 h-s	3.5 r-x	7.8 o-v	7.8 s-z'd'	11.0 q-z	17.0 o-z
14 RU 192514-11E ME.....	0.494 fl oz	14	3.5 p-s	2.0 t-x	10.5 n-u	17.8 m-q	34.3 i-k	33.8 i-l
15 RU 192514-11M SC.....	1.0 fl oz	14	12.3 d-q	6.8 o-x	3.8 s-v	5.3 u-z'd'	5.8 v-z	15.5 r-z'c'
16 RU 192514-11N WG.....	0.37 oz	14	0.3 s	0.8 wx	1.0 v	3.5 x-z'd'	2.3 z	5.3 z'a'-h'
17 RU 192514-11O SC.....	3.0 fl oz	14	7.3 i-s	3.5 r-x	6.0 q-v	12.3 q-x	9.8 r-z	22.5 l-u
18 RU 192514-11J SC.....	0.5 fl oz	14	9.3 f-s	9.0 l-w	11.5 m-s	23.8 k-o	32.0 i-l	52.0 ef
19 RU 192514-11J SC.....	1.0 fl oz	14	3.3 p-s	2.5 s-x	3.0 s-v	5.0 v-z'd'	5.8 v-z	21.0 n-w
20 RU 192514-11F ME.....	1.0 fl oz	14	15.0 d-m	24.3 d-f	48.3 cd	51.5 d-f	74.3 bc	78.0 bc
21 RU 192514-11Q LC.....	0.236 fl oz	14	2.5 q-s	3.0 s-x	4.0 s-v	6.5 t-z'd'	7.3 u-z	10.3 w-z'h'
22 RU 192514-11J SC.....	0.5 fl oz	—						
+ RU 192514-11Q LC.....	0.236 fl oz	14	8.0 h-s	13.8 g-p	13.5 m-r	11.3 q-z	10.5 q-z	21.8 m-v
23 Insignia Intrinsic 2.18SC.....	0.4 fl oz	14	18.8 b-g	27.0 de	40.0 d-h	48.0 e-g	62.5 ef	63.8 d
24 Cleary 3336 4F.....	4.0 fl oz	14	15.8 d-l	21.3 e-g	46.0 de	60.0 cd	74.0 b-d	72.0 b-d

(Continued)

Table 1A (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>2</sup>	Turf Area Infested (%) per Plot <sup>1</sup>					
			8 July	20 July	29 July	5 Aug.	16 Aug.	26 Aug.
25 Daconil Ultrex 82.5WDG.....	1.8 oz	14	13.5 d-p	17.5 f-l	17.0 l-o	18.0 m-q	20.5 m-q	33.0 i-m
26 RU 192514-11P-A LC .....	1.67 fl oz	14	14.8 d-n	16.0 f-n	27.3 i-k	39.0 g-i	56.8 fg	62.8 de
27 RU 192514-11P-B LC .....	1.67 fl oz	14	14.5 d-o	27.5 c-e	32.5 g-j	55.3 c-e	74.8 bc	70.5 cd
28 RU 192514-11P-C LC .....	1.67 fl oz	14	15.0 d-m	20.5 e-i	30.8 h-j	34.3 h-j	39.3 h-j	45.8 f-h
29 RU 192514-11P-D LC .....	1.67 fl oz	14	2.5 q-s	4.8 q-x	11.3 n-s	22.0 l-p	35.0 i-k	50.3 f
30 RU 192514-11P-E LC .....	1.67 fl oz	14	20.0 b-e	17.8 f-k	17.0 l-o	25.3 j-n	26.0 k-o	44.0 f-i
31 RU 192514-11J LC .....	0.5 fl oz	—						
+ RU 192514-11A LC.....	2.0 fl oz	14	9.5 e-s	5.5 o-x	9.0 n-v	9.0 q-z'd'	18.5 n-r	25.8 j-t
32 RU 192514-11Q LC .....	0.157 fl oz	14	7.8 i-s	14.0 g-o	11.0 n-t	15.0 o-t	10.3 q-z	19.8 n-x
33 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11R SL.....	0.32 fl oz	14	5.5 l-s	6.5 o-x	5.8 q-v	11.0 q-z'a'	15.8 o-v	18.8 n-x
34 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11E ME.....	0.494 fl oz	14	10.3 e-s	19.0 e-j	15.8 l-p	11.8 q-y	15.5 p-v	16.5 p-z'a'
35 RU 192514-11S LC.....	1.0 fl oz	14	9.8 e-s	8.8 m-w	8.5 n-v	4.8 w-z'd'	11.5 q-z	15.3 s-z'd'
36 RU 192514-11S LC.....	1.0 fl oz	—						
+RU 192514-11T 6F .....	2.06 fl oz	14	8.8 g-s	5.5 o-x	2.8 s-v	13.0 p-w	14.5 p-v	17.5 n-z
37 RU 192514-11S LC.....	1.0 fl oz	—						
+ RU 192514-11J SC.....	0.5 fl oz	14	17.3 c-j	10.8 j-s	9.5 n-v	14.3 p-u	8.8 r-z	13.0 u-z'f'
38 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11F ME.....	1.0 fl oz	14	2.5 q-s	4.0 q-x	4.5 r-v	8.3 s-z'd'	9.5 r-z	12.0 u-z'h'
39 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11F ME.....	1.0 fl oz	—						
+ RU 192514-11J SC.....	0.5 fl oz	14	6.5 k-s	4.8 q-x	9.3 n-v	10.8 q-z'a'	13.3 p-x	19.0 n-x
40 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11F ME.....	1.0 fl oz	—						
+RU 192514-11T 6F .....	2.06 fl oz	14	6.3 l-s	6.3 o-x	5.8 q-v	6.5 t-z'd'	7.8 t-z	8.5 x-z'h'
41 RU 192514-11G WG.....	0.83 oz	14	22.5 b-d	35.8 bc	43.0 d-f	60.0 cd	71.8 b-e	71.5 b-d
42 Daconil Ultrex 82.5WDG.....	3.2 oz	14	9.0 g-s	1.8 t-x	2.5 s-v	7.3 s-z'd'	17.0 n-u	27.8 j-p
43 Insignia 2.1SC.....	0.7 fl oz	14	14.5 d-o	21.0 e-h	37.0 e-h	58.0 cd	77.0 bc	79.0 bc
44 Honor 28WG.....	1.1 oz	14	29.0 b	41.0 b	59.3 b	44.0 fg	68.3 c-e	77.0 bc

(Continued)

Table 1A (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>2</sup>	Turf Area Infested (%) per Plot <sup>1</sup>						
			8 July	20 July	29 July	5 Aug.	16 Aug.	26 Aug.	
45 Insignia 2.1SC.....0.54 fl oz		—							
+ Trinity 1.67SC.....1.0 fl oz		14	6.0 l-s	1.5 t-x	5.8 q-v	10.5 q-z'b'	15.3 p-v	22.5 l-u	
46 Insignia 2.1SC.....0.7 fl oz		—							
+ Trinity 1.67SC.....1.0 fl oz		14	6.0 l-s	4.0 q-x	7.5 p-v	10.5 q-z'b'	18.0 n-t	18.3 n-x	
47 Reserve 4.8SC.....1.6 fl oz		7	0.8 s	12.5 h-q	2.3 s-v	3.0 y-z'd'	2.5 yz	2.0 z'f'-h'	
48 Reserve 4.8SC.....2.5 fl oz		7	1.0 s	2.0 t-x	1.3 uv	1.3 z'c'd'	1.5 z	1.8 z'f'-h'	
49 Reserve 4.8SC.....2.5 fl oz		14	2.8 q-s	1.3 u-x	1.3 uv	2.0 z'a'-d'	2.3 z	6.3 z-z'h'	
50 Reserve 4.8SC.....3.6 fl oz		14	2.0 q-s	0.8 wx	0.8 v	2.3 z-z'd'	1.8 z	2.0 z'f'-h'	
51 Concert 4.3SE.....3.0 fl oz		7	1.3 rs	1.5 t-x	3.3 s-v	7.8 s-z'd'	8.8 r-z	6.5 y-z'h'	
52 2011 Anth Program #1.....Bayer		14-VAR <sup>4</sup>	1.0 s	1.8 t-x	1.8 t-v	7.8 s-z'd'	3.3 x-z	2.3 z'e'-h'	
53 2011 Anth Program #2.....Bayer		14-VAR <sup>5</sup>	3.0 p-s	5.0 q-x	2.5 s-v	3.0 y-z'd'	3.8 w-z	9.3 x-z'h'	
54 Disarm C 4.25SC.....5.9 fl oz		14	12.5 d-q	9.8 k-u	15.8 l-p	26.8 j-m	41.8 hi	47.5 fg	
55 Disarm M 3.9SC.....1.0 fl oz		14	4.0 o-s	2.0 t-x	20.8 k-m	27.5 j-l	31.5 i-l	40.8 f-i	
56 ARY-0534-002 LC.....0.9 fl oz		14	4.3 n-s	2.3 s-x	3.0 s-v	2.0 z'a'-d'	2.5 yz	4.8 z'b'-h'	
57 SP8010-DEC LC.....0.72 fl oz		—							
+ Daconil Ultrex 82.5WDG.....1.8 oz		14 <sup>6</sup>	19.8 b-f	20.3 e-i	24.3 j-l	25.5 j-n	22.8 l-p	28.0 j-o	
58 SP8010-DEC LC.....1.44 fl oz		14	11.8 e-r	22.0 e-g	41.8 d-g	43.8 fg	71.8 b-e	72.0 b-d	
59 SP8010-DEC LC.....2.87 fl oz		14	27.8 bc	31.8 cd	56.3 bc	74.0 b	79.3 b	82.0 ab	
60 Affirm 11.3WG.....0.9 oz		14	9.3 f-s	10.8 j-s	11.5 m-s	17.5 n-r	17.5 n-u	28.5 j-n	
61 Chipco Signature 80WG.....4.0 oz		14	13.5 d-p	17.3 f-m	36.5 f-i	31.3 i-k	37.8 h-j	47.0 fg	
62 Torque 3.6SC.....0.6 fl oz		—							
/ Daconil Ultrex 82.5WDG.....3.2 oz		14-ALT <sup>3</sup>	6.8 j-s	6.8 o-x	5.0 r-v	7.5 s-z'd'	7.3 u-z	12.8 u-z'f'	
63 Tourney 50WDG.....0.28 oz		14	0.8 s	0.8 wx	1.8 t-v	1.5 z'b'-d'	2.8 yz	4.3 z'c'-h'	
64 NB37904 20SC.....0.75 fl oz		14 <sup>7</sup>	9.5 e-s	16.3 f-n	20.8 k-m	25.5 j-n	39.3 h-j	45.5 f-h	
65 NB37904 20SC.....1.10 fl oz		14 <sup>8</sup>	18.5 b-h	21.3 e-g	34.8 f-i	41.0 gh	63.8 d-f	63.8 d	
66 Heritage 50WG.....0.2 oz		14	16.0 d-l	21.5 e-g	48.8 cd	61.8 c	70.5 b-e	73.8 b-d	
67 IKF-205 28WP.....0.9 oz		14	17.0 d-k	22.8 ef	34.3 f-i	29.5 j-l	48.0 gh	47.0 fg	
68 IKF-205 28WP.....1.1 oz		14	17.5 c-i	27.0 de	32.0 h-j	29.5 j-l	30.0 j-m	36.8 g-j	
69 Velista 50WDG.....0.3 oz		—							
+ Daconil Ultrex 82.5WDG.....3.25 oz		14	4.8 m-s	8.8 m-w	5.3 q-v	8.5 r-z'd'	13.3 p-x	10.0 w-z'h'	

(Continued)



Table 1A (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>2</sup>	Turf Area Infested (%) per Plot <sup>1</sup>					
			8 July	20 July	29 July	5 Aug.	16 Aug.	26 Aug.
70 Velista 50WDG.....	0.3 oz	—						
+ Chipco Signature 80WG .....	4.0 oz	14	0.8 s	0.8 wx	3.3 s-v	5.3 u-z'd'	5.8 v-z	16.0 q-z'b'
71 Velista 50WDG.....	0.3 oz	—						
+ Heritage 50WG .....	0.2 oz	14	3.3 p-s	5.5 o-x	2.8 s-v	10.8 q-z'a'	12.8 p-y	26.5 j-s
72 Velista 50WDG.....	0.3 oz	14	6.5 k-s	12.0 i-r	14.5 m-q	14.0 p-v	18.3 n-s	26.8 j-r
73 Velista 50WDG.....	0.5 oz	14	5.5 l-s	10.0 k-t	8.0 o-v	10.5 q-z'b'	16.0 o-v	17.8 n-y
74 2011 Anth Program #3 .....	DuPont	14-VAR <sup>9</sup>	2.3 q-s	1.5 t-x	4.5 r-v	7.5 s-z'd'	3.3 x-z	4.0 z'd'-h'
75 2011 Anth Program #4 .....	Experimental	14-VAR <sup>10</sup>	0.8 s	1.0 v-x	4.3 r-v	4.8 w-z'd'	4.0 w-z	2.3 z'e'-h'
76 2011 Anth Program #5 .....	Experimental	14-VAR <sup>11</sup>	3.8 p-s	4.5 q-x	8.3 n-v	9.0 q-z'd'	11.8 q-z	14.5 t-z'd'
77 2011 Anth Program #6 .....	Gary's Green	14-VAR <sup>12</sup>	1.0 s	1.3 u-x	5.3 q-v	5.3 u-z'd'	9.8 r-z	10.0 w-z'h'
78 2011 Anth Program #7 .....	Gary's Green	14-VAR <sup>13</sup>	2.8 q-s	8.5 n-x	4.8 r-v	10.0 q-z'c'	8.0 s-z	13.5 u-z'e'
79 Untreated check.....	—	—	48.3 a	57.8 a	84.5 a	91.3 a	92.8 a	93.0 a
		INT <sup>14</sup>	DAT <sup>15</sup>	DAT	DAT	DAT	DAT	DAT
		7	3	1	3	3	7	3
		14	10	8	3	10	7	3

<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).

<sup>2</sup> Fungicides were applied on 17 May (all treatments, except treatments 77 and 78), 24 May (7-day treatment), 31 May (7- and 14-day treatments; initiated treatments 77 and 78), 7 June (7-day treatment), 14 June (7- and 14-day treatments), 21 June (7-day treatment), 28 June (7- and 14-day treatments), 5 July (7-day treatment), 12 July (7- and 14-day treatments), 19 July (7-day treatment), 26 July (7- and 14-day treatments), 2 August (7-day treatment), 9 August (7- and 14-day treatments), 16 August (7-day treatment), and 23 August (7- and 14-day treatments).

<sup>3</sup> ALT = Alternation treatment, where treatment 12 consisted of RU 192514-11E ME (0.494 fl oz) applied on 17 May, 14 June, 12 July, and 9 August and RU 192514-11A SC (3.6 fl oz) on 31 May, 28 June, 26 July, and 23 August; treatment 13 consisted of RU 192514-11L EC (1.6 fl oz) applied on 17 May, 14 June, 12 July, and 9 August and RU 192514-11A SC (3.6 fl oz) on 31 May, 28 June, 26 July, and 23 August; and treatment 62 consisted of Torque 3.6SC (0.6 fl oz) applied on 17 May, 14 June, 12 July, and 9 August and Daconil Ultrex 82.5WDG (3.2 oz) on 31 May, 28 June, 26 July, and 23 August.

(Continued)



Table 1A (continued).

- <sup>4</sup> VAR = Variable spray schedule, where treatment 52 (Bayer Anth Program #1) consisted of Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) applied on 17 May; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 31 May; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 14 June; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 28 June; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 12 July; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 26 July; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 9 August; and Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 23 August.
- <sup>5</sup> VAR = Variable spray schedule, where treatment 53 (Bayer Anth Program #2) consisted of Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) applied on 17 May; Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 31 May; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 14 June; Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 28 June; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 12 July; Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 26 July; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 9 August; and Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 23 August.
- <sup>6</sup> Treatment 57 consisted of SP8010-DEC LC (0.72 fl oz) on 17 May and then SP8010-DEC LC (0.72 fl oz) + Daconil Ultrex 82.5WDG (1.8 oz) every 14 days thereafter.
- <sup>7</sup> Treatment 64 was only applied on 17 May at 0.41 fl oz and then 31 May and 14 June at 0.75 fl oz.
- <sup>8</sup> Treatment 65 was only applied on 17 May at 0.82 fl oz and then 31 May at 1.1 fl oz.
- <sup>9</sup> VAR = Variable spray schedule, where treatment 74 (DuPont Anth Program #3) consisted of Chipco Signature 80WG (4.0 oz) + Banner MAXX 1.3ME (1.0 fl oz) applied on 17 May; Velista 50WDG (0.5 oz) + Chipco Signature 80WG (4.0 oz) on 31 May; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 14 June; Velista 50WDG (0.5 oz) + Chipco Signature 80WG (4.0 oz) on 28 June; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 12 July; Velista 50WDG (0.5 oz) + Chipco Signature 80WG (4.0 oz) on 26 July; and Velista 50WDG (0.5 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 9 August.
- <sup>10</sup> VAR = Variable spray schedule, where treatment 75 (Experimental Anth Program #4) consisted of RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (3.6 fl oz) applied on 17 May; RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 31 May; RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (3.6 fl oz) on 14 June; RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 28 June; RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (4.0 fl oz) on 12 July; RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 26 July; RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (3.6 fl oz) on 9 August; and RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 23 August.
- <sup>11</sup> VAR = Variable spray schedule, where treatment 76 (Experimental Anth Program #5) consisted of RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) applied on 17 May; RU 192514-11A SC (3.6 fl oz) + RU 192514-11K ME (1.26 fl oz) on 31 May; RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) on 14 June; RU 192514-11A SC (3.6 fl oz) + RU 192514-11K ME (1.26 fl oz) on 28 June; RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) on 12 July; RU 192514-11A SC (3.6 fl oz) + RU 192514-11K ME (1.26 fl oz) on 26 July; and RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) on 9 August.
- <sup>12</sup> VAR = Variable spray schedule, where treatment 77 (Gary's Green Anth Program #6) consisted of Gary's Green (13-2-3; 12.0 fl oz) + Nutra Green (5-10-5; 4.0 fl oz) + PK Plus (3-7-18 + 14% H<sub>2</sub>PO<sub>3</sub>; 6.0 fl oz) + Medallion 50WP (0.25 oz) applied every 14 days for 17 May to 9 August.
- <sup>13</sup> VAR = Variable spray schedule, where treatment 78 (Gary's Green Anth Program #7) consisted of Gary's Green (13-2-3; 12.0 fl oz) + Nutra Green (5-10-5; 4.0 fl oz) + PK Plus (3-7-18 + 14% H<sub>2</sub>PO<sub>3</sub>; 6.0 fl oz) + Daconil Ultrex 82.5WDG (1.8 oz) applied every 14 days for 17 May to 9 August.
- <sup>14</sup> Spray interval in days.
- <sup>15</sup> Days after the last treatment.

Table 1B. Impact of selected fungicides on the suppression of anthracnose on annual bluegrass putting green turf: Rutgers University, 2011.

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>4</sup>	Anthracnose <sup>1</sup> (%)		Color <sup>2</sup>			Turf Quality <sup>3</sup>
			2 Sept.	13 June	8 July	5 Aug.	2 Sept.	13 June
1 RU 192514-11A SC.....	3.6 fl oz	14	37.8 n-u	3.0 fg	2.3 h	3.1 l-n	2.6 i-l	6.5 b-e
2 RU 192514-11A SC.....	3.6 fl oz	—						
+ RU 192514-11 B SL.....	6.0 fl oz	14	10.5 z'f'-k'	4.3 ab	4.0 a-d	4.4 c-f	3.0 hi	7.8 ab
3 RU 192514-11C SC.....	3.6 fl oz	14	40.3 l-r	3.3 ef	3.0 e-h	3.4 j-l	2.6 i-l	7.0 a-e
4 RU 192514- 11D SC.....	8.0 fl oz	14	24.0 v-z'e'	4.3 ab	4.0 a-d	3.9 g-i	3.0 hi	8.0 a
5 RU 192514-11H SC.....	3.6 fl oz	14	48.3 i-n	3.0 fg	3.0 e-h	2.9 m-p	2.6 i-l	7.0 a-e
6 RU 192514-11I SE.....	4.0 fl oz	14	10.5 z'f'-k'	3.3 ef	3.3 d-g	4.1 e-h	3.8 e-g	6.8 a-e
7 RU 192514-11I SE.....	4.0 fl oz	—						
+ RU 192514-11B SL.....	6.0 fl oz	14	8.3 z'g'-k'	4.5 a	4.8 a	4.8 a-c	4.4 b-d	8.0 a
8 RU 192514-11K SC.....	1.27 fl oz	14	53.8 g-k	3.0 fg	2.8 f-h	2.8 n-q	2.8 h-k	6.8 a-e
9 Daconil Weather Stik 6F.....	3.6 fl oz	—						
+ Chipco Signature 80WG.....	4.0 oz	14	19.0 z-z'g'	3.0 fg	3.0 e-h	3.4 j-l	2.8 h-k	7.0 a-e
10 Medallion 50WP.....	0.25 oz	14	47.0 i-n	3.0 fg	3.5 c-f	3.1 l-n	2.6 i-l	7.0 a-e
11 Medallion 50WP.....	0.33 oz	14	44.5 j-o	3.0 fg	3.0 e-h	3.0 l-o	2.5 i-m	7.0 a-e
12 RU 192514-11E ME.....	0.494 fl oz	—						
/ RU 192514-11A SC.....	3.6 fl oz	14-ALT <sup>5</sup>	16.8 z'b'-i'	3.0 fg	2.8 f-h	3.1 l-n	3.0 hi	6.8 a-e
13 RU 192514-11L EC.....	1.6 fl oz	—						
/ RU 192514-11A SC.....	3.6 fl oz	14-ALT <sup>5</sup>	16.5 z'c'-i'	3.3 ef	2.8 f-h	3.0 l-o	3.0 hi	7.3 a-d
14 RU 192514-11E ME.....	0.494 fl oz	14	40.8 l-q	3.0 fg	3.0 e-h	3.1 l-n	2.5 i-m	7.3 a-d
15 RU 192514-11M SC.....	1.0 fl oz	14	10.8 z'f'-k'	3.0 fg	3.0 e-h	4.1 e-h	3.8 e-g	5.8 e
16 RU 192514-11N WG.....	0.37 oz	14	1.5 z'k'	4.0 bc	4.0 a-d	4.5 b-e	4.8 ab	7.5 a-c
17 RU 192514-11O SC.....	3.0 fl oz	14	22.0 y-z'e'	3.0 fg	3.3 d-g	3.1 l-n	3.0 hi	6.8 a-e
18 RU 192514-11J SC.....	0.5 fl oz	14	60.3 f-h	3.0 fg	2.8 f-h	2.8 n-q	2.4 j-n	6.8 a-e
19 RU 192514-11J SC.....	1.0 fl oz	14	33.3 p-x	3.0 fg	3.0 e-h	3.1 l-n	2.6 i-l	7.3 a-d
20 RU 192514-11F ME.....	1.0 fl oz	14	81.8 a-c	3.3 ef	2.8 f-h	2.6 o-r	1.9 n-p	7.0 a-e
21 RU 192514-11Q LC.....	0.236 fl oz	14	28.5 t-z'a'	3.0 fg	3.0 e-h	2.9 m-p	2.6 i-l	6.8 a-e
22 RU 192514-11J SC.....	0.5 fl oz	—						
+ RU 192514-11Q LC.....	0.236 fl oz	14	23.0 w-z'e'	3.0 fg	2.5 gh	2.6 o-r	2.6 i-l	6.8 a-e
23 Insignia Intrinsic 2.18SC.....	0.4 fl oz	14	67.5 d-f	3.0 fg	2.3 h	2.6 o-r	2.0 m-p	6.8 a-e

(Continued)

Table 1B (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>4</sup>	Anthracnose <sup>1</sup> (%)		Color <sup>2</sup>			Turf Quality <sup>3</sup>
			2 Sept.	13 June	8 July	5 Aug.	2 Sept.	13 June
24 Cleary 3336 4F .....	4.0 fl oz	14	78.0 b-d	3.0 fg	3.0 e-h	2.5 p-r	2.0 m-p	6.8 a-e
25 Daconil Ultrex 82.5WDG.....	1.8 oz	14	50.3 h-l	3.0 fg	2.5 gh	2.9 m-p	2.8 h-k	6.8 a-e
26 RU 192514-11P-A LC .....	1.67 fl oz	14	72.3 c-e	3.0 fg	2.3 h	3.0 l-o	2.1 l-o	7.3 a-d
27 RU 192514-11P-B LC .....	1.67 fl oz	14	87.5 ab	3.0 fg	2.8 f-h	3.0 l-o	2.0 m-p	7.0 a-e
28 RU 192514-11P-C LC .....	1.67 fl oz	14	61.5 e-g	3.3 ef	2.8 f-h	3.1 l-n	2.5 i-m	7.3 a-d
29 RU 192514-11P-D LC .....	1.67 fl oz	14	54.3 g-k	3.0 fg	3.0 e-h	2.9 m-p	2.8 h-k	7.3 a-d
30 RU 192514-11P-E LC .....	1.67 fl oz	14	43.5 k-p	3.0 fg	2.5 gh	3.0 l-o	2.8 h-k	6.8 a-e
31 RU 192514-11J LC .....	0.5 fl oz	—						
+ RU 192514-11A LC.....	2.0 fl oz	14	35.0 o-v	3.0 fg	3.3 d-g	3.0 l-o	2.4 j-n	7.0 a-e
32 RU 192514-11Q LC .....	0.157 fl oz	14	24.8 v-z'd'	3.0 fg	2.8 f-h	2.8 n-q	2.8 h-k	7.3 a-d
33 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11R SL.....	0.32 fl oz	14	15.0 z'd'-j'	3.0 fg	2.3 h	3.1 l-n	3.0 hi	7.0 a-e
34 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11E ME.....	0.494 fl oz	14	29.0 s-z'a'	3.0 fg	2.8 f-h	2.9 m-p	3.0 hi	7.3 a-d
35 RU 192514-11S LC.....	1.0 fl oz	14	25.5 v-z'd'	3.0 fg	3.0 e-h	3.0 l-o	2.8 h-k	7.0 a-e
36 RU 192514-11S LC.....	1.0 fl oz	—						
+RU 192514-11T 6F .....	2.06 fl oz	14	34.3 o-v	3.3 ef	3.5 c-f	2.9 m-p	2.9 h-j	7.3 a-d
37 RU 192514-11S LC.....	1.0 fl oz	—						
+ RU 192514-11J SC.....	0.5 fl oz	14	21.5 y-z'f'	2.8 g	2.8 f-h	2.9 m-p	2.8 h-k	6.5 b-e
38 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11F ME .....	1.0 fl oz	14	18.5 z-z'h'	3.0 fg	3.0 e-h	2.9 m-p	3.3 gh	7.3 a-d
39 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11F ME .....	1.0 fl oz	—						
+ RU 192514-11J SC.....	0.5 fl oz	14	25.5 v-z'd'	3.0 fg	2.8 f-h	3.0 l-o	3.0 hi	6.8 a-e
40 RU 192514-11Q LC .....	0.236 fl oz	—						
+ RU 192514-11F ME .....	1.0 fl oz	—						
+RU 192514-11T 6F .....	2.06 fl oz	14	25.0 v-z'd'	3.0 fg	3.0 e-h	3.1 l-n	3.0 hi	7.0 a-e
41 RU 192514-11G WG.....	0.83 oz	14	78.3 b-d	3.0 fg	2.8 f-h	2.4 qr	1.8 op	7.0 a-e
42 Daconil Ultrex 82.5WDG.....	3.2 oz	14	33.3 p-x	3.0 fg	3.0 e-h	3.4 j-l	2.8 h-k	7.0 a-e

(Continued)

Table 1B (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>4</sup>	Anthracnose <sup>1</sup> (%)		Color <sup>2</sup>			Turf Quality <sup>3</sup>
			2 Sept.	13 June	8 July	5 Aug.	2 Sept.	13 June
43 Insignia 2.1SC.....	0.7 fl oz	14	81.8 a-c	3.0 fg	2.5 gh	2.5 p-r	2.1 l-o	7.0 a-e
44 Honor 28WG.....	1.1 oz	14	88.3 ab	3.0 fg	2.5 gh	2.4 qr	2.0 m-p	6.0 de
45 Insignia 2.1SC.....	0.54 fl oz	—						
+ Trinity 1.67SC.....	1.0 fl oz	14	22.0 y-z'e'	3.3 ef	3.5 c-f	4.1 e-h	4.3 b-e	6.8 a-e
46 Insignia 2.1SC.....	0.7 fl oz	—						
+ Trinity 1.67SC.....	1.0 fl oz	14	18.5 z-z'h'	2.8 g	2.5 gh	3.8 h-j	4.0 c-f	6.3 c-e
47 Reserve 4.8SC.....	1.6 fl oz	7	6.8 z'i'-k'	3.8 cd	4.5 ab	4.9 ab	4.6 ab	7.8 ab
48 Reserve 4.8SC.....	2.5 fl oz	7	4.3 z'j'-k'	3.8 cd	4.5 ab	5.0 a	5.0 a	7.3 a-d
49 Reserve 4.8SC.....	2.5 fl oz	14	13.3 z'e'-j'	4.0 bc	3.8 b-e	4.1 e-h	3.6 fg	8.0 a
50 Reserve 4.8SC.....	3.6 fl oz	14	7.8 z'h'-k'	4.0 bc	4.0 a-d	4.5 b-e	4.4 b-d	7.5 a-c
51 Concert 4.3SE.....	3.0 fl oz	7	10.5 z'f'-k'	4.3 ab	4.0 a-d	4.6 a-d	3.9 d-f	7.0 a-e
52 2011 Anth Program #1.....	Bayer	14-VAR <sup>6</sup>	6.0 z'i'-k'	3.3 ef	3.8 b-e	4.3 d-g	4.6 ab	7.8 ab
53 2011 Anth Program #2.....	Bayer	14-VAR <sup>7</sup>	13.5 z'e'-j'	3.5 de	4.3 a-c	4.5 b-e	4.6 ab	7.8 ab
54 Disarm C 4.25SC.....	5.9 fl oz	14	49.5 h-m	3.0 fg	3.0 e-h	3.0 l-o	2.3 k-o	7.0 a-e
55 Disarm M 3.9SC.....	1.0 fl oz	14	40.0 l-s	3.3 ef	4.0 a-d	3.6 i-k	2.9 h-j	7.3 a-d
56 ARY-0534-002 LC.....	0.9 fl oz	14	8.0 z'g'-k'	3.0 fg	3.3 d-g	4.1 e-h	4.3 b-e	7.0 a-e
57 SP8010-DEC LC.....	0.72 fl oz	—						
+ Daconil Ultrex 82.5WDG.....	1.8 oz	14 <sup>8</sup>	39.0 m-t	3.0 fg	2.5 gh	2.9 m-p	2.9 h-j	7.3 a-d
58 SP8010-DEC LC.....	1.44 fl oz	14	80.5 a-c	3.0 fg	2.8 f-h	2.8 n-q	2.0 m-p	7.3 a-d
59 SP8010-DEC LC.....	2.87 fl oz	14	87.8 ab	3.0 fg	2.8 f-h	2.4 qr	1.5 p	6.5 b-e
60 Affirm 11.3WG.....	0.9 oz	14	34.0 o-w	3.0 fg	3.0 e-h	2.6 o-r	2.5 i-m	7.0 a-e
61 Chipco Signature 80WG.....	4.0 oz	14	54.8 g-j	3.3 ef	3.0 e-h	2.4 qr	2.3 k-o	7.0 a-e
62 Torque 3.6SC.....	0.6 fl oz	—						
/ Daconil Ultrex 82.5WDG.....	3.2 oz	14-ALT <sup>5</sup>	20.5 y-z'f'	3.0 fg	3.3 d-g	4.0 f-i	3.6 fg	7.3 a-d
63 Tourney 50WDG.....	0.28 oz	14	6.0 z'i'-k'	3.0 fg	3.5 c-f	4.1 e-h	4.6 ab	7.8 ab
64 NB37904 20SC.....	0.75 fl oz	14 <sup>9</sup>	50.0 h-m	3.0 fg	2.8 f-h	2.8 n-q	2.5 i-m	7.5 a-c
65 NB37904 20SC.....	1.10 fl oz	14 <sup>10</sup>	72.0 c-e	3.0 fg	2.8 f-h	2.6 o-r	2.1 l-o	6.8 a-e
66 Heritage 50WG.....	0.2 oz	14	87.8 ab	2.8 g	2.8 f-h	3.0 l-o	1.9 n-p	7.0 a-e
67 IKF-205 28WP.....	0.9 oz	14	66.8 ef	3.0 fg	2.5 gh	2.9 m-p	2.3 k-o	7.3 a-d

(Continued)

Table 1B (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>4</sup>	Anthracnose <sup>1</sup> (%)		Color <sup>2</sup>			Turf Quality <sup>3</sup>
			2 Sept.	13 June	8 July	5 Aug.	2 Sept.	13 June
68 IKF-205 28WP .....	1.1 oz	14	57.0 f-i	3.0 fg	2.8 f-h	2.8 n-q	2.9 h-j	6.8 a-e
69 Velista 50WDG.....	0.3 oz	–						
+ Daconil Ultrex 82.5WDG.....	3.25 oz	14	29.5 r-z	3.3 ef	3.0 e-h	3.3 k-m	2.9 h-j	7.5 a-c
70 Velista 50WDG.....	0.3 oz	–						
+ Chipco Signature 80WG .....	4.0 oz	14	23.0 w-z'e'	3.0 fg	3.5 c-f	2.8 n-q	2.8 h-k	7.8 ab
71 Velista 50WDG.....	0.3 oz	–						
+ Heritage 50WG .....	0.2 oz	14	27.8 u-z'b'	3.0 fg	3.3 d-g	3.3 k-m	3.0 hi	7.5 a-c
72 Velista 50WDG.....	0.3 oz	14	26.8 u-z'c'	3.0 fg	3.0 e-h	2.9 m-p	2.8 h-k	6.8 a-e
73 Velista 50WDG.....	0.5 oz	14	22.3 x-z'e'	3.0 fg	2.5 gh	2.8 n-q	2.6 i-l	7.0 a-e
74 2011 Anth Program #3 .....	DuPont	14-VAR <sup>11</sup>	18.3 z'a'-h'	3.8 cd	4.0 a-d	3.1 l-n	2.6 i-l	8.0 a
75 2011 Anth Program #4 .....	Experimental	14-VAR <sup>12</sup>	30.3 q-y	3.0 fg	4.3 a-c	4.0 f-i	4.5 a-c	7.5 a-c
76 2011 Anth Program #5 .....	Experimental	14-VAR <sup>13</sup>	29.3 r-z'a'	3.0 fg	3.3 d-g	3.0 l-o	2.9 h-j	7.3 a-d
77 2011 Anth Program #6 .....	Gary's Green	14-VAR <sup>14</sup>	16.8 z'b'-i'	4.0 bc	4.3 a-c	4.0 f-i	3.0 hi	8.0 a
78 2011 Anth Program #7 .....	Gary's Green	14-VAR <sup>15</sup>	20.0 y-z'f1	4.0 bc	4.3 a-c	4.1 e-h	3.3 gh	8.0 a
79 Untreated check.....	–	–	91.5 a	3.0 fg	2.5 gh	2.3 r	1.5 p	5.8 e
		INT <sup>16</sup>	DAT <sup>17</sup>	DAT	DAT	DAT	DAT	DAT
		7	10	6	3	3	10	6
		14	10	13	10	10	10	13

<sup>1</sup> Anthracnose (%) = percent turf area infested with *Colletotrichum cereale*, the causal agent of anthracnose. 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).

<sup>2</sup> Color of foliage, where 1 = very chlorotic, 2 = slightly chlorotic, 3 = normal green color, 4 = slight dark green color, and 5 = very dark green color.

<sup>3</sup> Turf quality on a scale of 1 to 9, where 9 = best turf quality and 5 = commercially acceptable quality.

<sup>4</sup> Fungicides were applied on 17 May (all treatments, except treatments 77 and 78), 24 May (7-day treatment), 31 May (7- and 14-day treatments; initiated treatments 77 and 78), 7 June (7-day treatment), 14 June (7- and 14-day treatments), 21 June (7-day treatment), 28 June (7- and 14-day treatments), 5 July (7-day treatment), 12 July (7- and 14-day treatments), 19 July (7-day treatment), 26 July (7- and 14-day treatments), 2 August (7-day treatment), 9 August (7- and 14-day treatments), 16 August (7-day treatment), and 23 August (7- and 14-day treatments).

(Continued)

Table 1B (continued).

- <sup>5</sup> ALT = Alternation treatment, where treatment 12 consisted of RU 192514-11E ME (0.494 fl oz) applied on 17 May, 14 June, 12 July, and 9 August and RU 192514-11A SC (3.6 fl oz) on 31 May, 28 June, 26 July, and 23 August; treatment 13 consisted of RU 192514-11L EC (1.6 fl oz) applied on 17 May, 14 June, 12 July, and 9 August and RU 192514-11A SC (3.6 fl oz) on 31 May, 28 June, 26 July, and 23 August; and treatment 62 consisted of Torque 3.6SC (0.6 fl oz) applied on 17 May, 14 June, 12 July, and 9 August and Daconil Ultrex 82.5WDG (3.2 oz) on 31 May, 28 June, 26 July, and 23 August.
- <sup>6</sup> VAR = Variable spray schedule, where treatment 52 (Bayer Anth Program #1) consisted of Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) applied on 17 May; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 31 May; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 14 June; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 28 June; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 12 July; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 26 July; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 9 August; and Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 23 August.
- <sup>7</sup> VAR = Variable spray schedule, where treatment 53 (Bayer Anth Program #2) consisted of Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) applied on 17 May; Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 31 May; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 14 June; Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 28 June; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 12 July; Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 26 July; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 9 August; and Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 23 August.
- <sup>8</sup> Treatment 57 consisted of SP8010-DEC LC (0.72 fl oz) on 17 May and then SP8010-DEC LC (0.72 fl oz) + Daconil Ultrex 82.5WDG (1.8 oz) every 14 days thereafter.
- <sup>9</sup> Treatment 64 was only applied on 17 May at 0.41 fl oz and then 31 May and 14 June at 0.75 fl oz.
- <sup>10</sup> Treatment 65 was only applied on 17 May at 0.82 fl oz and then 31 May at 1.1 fl oz.
- <sup>11</sup> VAR = Variable spray schedule, where treatment 74 (DuPont Anth Program #3) consisted of Chipco Signature 80WG (4.0 oz) + Banner MAXX 1.3ME (1.0 fl oz) applied on 17 May; Velista 50WDG (0.5 oz) + Chipco Signature 80WG (4.0 oz) on 31 May; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 14 June; Velista 50WDG (0.5 oz) + Chipco Signature 80WG (4.0 oz) on 28 June; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 12 July; Velista 50WDG (0.5 oz) + Chipco Signature 80WG (4.0 oz) on 26 July; and Velista 50WDG (0.5 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 9 August.
- <sup>12</sup> VAR = Variable spray schedule, where treatment 75 (Experimental Anth Program #4) consisted of RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (3.6 fl oz) applied on 17 May; RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 31 May; RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (3.6 fl oz) on 14 June; RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 28 June; RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (4.0 fl oz) on 12 July; RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 26 July; RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (3.6 fl oz) on 9 August; and RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 23 August.
- <sup>13</sup> VAR = Variable spray schedule, where treatment 76 (Experimental Anth Program #5) consisted of RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) applied on 17 May; RU 192514-11A SC (3.6 fl oz) + RU 192514-11K ME (1.26 fl oz) on 31 May; RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) on 14 June; RU 192514-11A SC (3.6 fl oz) + RU 192514-11K ME (1.26 fl oz) on 28 June; RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) on 12 July; RU 192514-11A SC (3.6 fl oz) + RU 192514-11K ME (1.26 fl oz) on 26 July; and RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) on 9 August.

Table 1B (continued).

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<sup>14</sup> VAR = Variable spray schedule, where treatment 77 (Gary's Green Anth Program #6) consisted of Gary's Green (13-2-3; 12.0 fl oz) + Nutra Green (5-10-5; 4.0 fl oz) + PK Plus (3-7-18 + 14% H<sub>2</sub>PO<sub>3</sub>; 6.0 fl oz) + Medallion 50WP (0.25 oz) applied every 14 days for 17 May to 9 August.

<sup>15</sup> VAR = Variable spray schedule, where treatment 78 (Gary's Green Anth Program #7) consisted of Gary's Green (13-2-3; 12.0 fl oz) + Nutra Green (5-10-5; 4.0 fl oz) + PK Plus (3-7-18 + 14% H<sub>2</sub>PO<sub>3</sub>; 6.0 fl oz) + Daconil Ultrex 82.5WDG (1.8 oz) applied every 14 days for 17 May to 9 August.

<sup>16</sup> Spray interval in days.

<sup>17</sup> Days after the last treatment.



Table 1C. Impact of selected fungicides on the suppression of anthracnose on annual bluegrass putting green turf: Rutgers University, 2011.

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>4</sup>	Turf Quality <sup>1,2</sup>			Phytotoxicity <sup>3</sup>		
			8 July	5 Aug.	2 Sept.	11 June	8 July	5 Aug.
1 RU 192514-11A SC.....	3.6 fl oz	14	5.5 h-k	5.6 k-r	5.5 n-r	1.0 b	1.0 g	1.0 d
2 RU 192514-11A SC.....	3.6 fl oz	—						
+ RU 192514-11 B SL.....	6.0 fl oz	14	8.5 a	8.5 a	7.5 b-h	1.0 b	1.0 g	1.0 d
3 RU 192514-11C SC.....	3.6 fl oz	14	5.8 g-j	6.8 e-i	5.8 m-q	1.0 b	1.0 g	1.0 d
4 RU 192514- 11D SC.....	8.0 fl oz	14	7.5 a-d	7.6 a-e	5.9 l-q	1.0 b	1.0 g	1.0 d
5 RU 192514-11H SC.....	3.6 fl oz	14	6.3 e-i	6.0 h-o	5.8 m-q	1.0 b	1.0 g	1.0 d
6 RU 192514-11I SE.....	4.0 fl oz	14	6.0 f-j	6.0 h-o	6.4 h-o	1.0 b	1.0 g	1.3 cd
7 RU 192514-11I SE.....	4.0 fl oz	—						
+ RU 192514-11B SL.....	6.0 fl oz	14	8.3 ab	8.3 a	7.8 a-f	1.0 b	1.0 g	1.0 d
8 RU 192514-11K SC.....	1.27 fl oz	14	6.0 f-j	5.5 l-s	4.4 r-v	1.0 b	1.0 g	1.0 d
9 Daconil Weather Stik 6F.....	3.6 fl oz	—						
+ Chipco Signature 80WG.....	4.0 oz	14	5.8 g-j	6.4 f-l	5.0 p-t	1.0 b	1.0 g	1.0 d
10 Medallion 50WP.....	0.25 oz	14	7.0 c-f	5.6 k-r	5.0 p-t	1.0 b	1.0 g	1.0 d
11 Medallion 50WP.....	0.33 oz	14	6.8 d-g	5.6 k-r	4.3 s-w	1.0 b	1.0 g	1.0 d
12 RU 192514-11E ME.....	0.494 fl oz	—						
/ RU 192514-11A SC.....	3.6 fl oz	14-ALT <sup>5</sup>	5.5 h-k	6.0 h-o	5.9 l-q	1.0 b	1.0 g	1.0 d
13 RU 192514-11L EC.....	1.6 fl oz	—						
/ RU 192514-11A SC.....	3.6 fl oz	14-ALT <sup>5</sup>	5.8 g-j	6.5 f-k	6.0 k-q	1.0 b	1.0 g	1.0 d
14 RU 192514-11E ME.....	0.494 fl oz	14	6.8 d-g	5.5 l-s	5.0 p-t	1.0 b	1.0 g	1.0 d
15 RU 192514-11M SC.....	1.0 fl oz	14	5.5 h-k	6.4 f-l	7.4 c-i	1.0 b	2.0 a	1.8 b
16 RU 192514-11N WG.....	0.37 oz	14	7.0 c-f	6.9 d-h	8.5 a-c	2.0 a	1.6 d	1.9 ab
17 RU 192514-11O SC.....	3.0 fl oz	14	6.5 d-h	6.3 f-m	6.3 i-o	1.0 b	1.0 g	1.0 d
18 RU 192514-11J SC.....	0.5 fl oz	14	6.3 e-i	4.8 r-w	3.8 u-z'a'	1.0 b	1.0 g	1.0 d
19 RU 192514-11J SC.....	1.0 fl oz	14	5.8 g-j	6.8 e-i	5.9 l-q	1.0 b	1.0 g	1.0 d
20 RU 192514-11F ME.....	1.0 fl oz	14	5.3 i-l	3.6 yz	2.8 z-z'c'	1.0 b	1.0 g	1.0 d
21 RU 192514-11Q LC.....	0.236 fl oz	14	6.5 d-h	6.6 f-j	6.3 i-o	1.0 b	1.0 g	1.0 d
22 RU 192514-11J SC.....	0.5 fl oz	—						
+ RU 192514-11Q LC.....	0.236 fl oz	14	5.8 g-j	5.9 i-p	6.0 k-q	1.0 b	1.0 g	1.0 d
23 Insignia Intrinsic 2.18SC.....	0.4 fl oz	14	5.8 g-j	3.5 z-z'a'	3.0 x-z'c'	1.0 b	1.0 g	1.0 d

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(Continued)

Table 1C (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>4</sup>	Turf Quality <sup>1,2</sup>			Phytotoxicity <sup>3</sup>		
			8 July	5 Aug.	2 Sept.	11 June	8 July	5 Aug.
24 Cleary 3336 4F .....	4.0 fl oz	14	5.8 g-j	3.8 x-z	2.8 z-z'c'	1.0 b	1.0 g	1.0 d
25 Daconil Ultrex 82.5WDG.....	1.8 oz	14	5.5 h-k	5.5 l-s	4.9 q-u	1.0 b	1.0 g	1.0 d
26 RU 192514-11P-A LC .....	1.67 fl oz	14	6.0 f-j	4.3 u-z	3.4 v-z'b'	1.0 b	1.0 g	1.0 d
27 RU 192514-11P-B LC .....	1.67 fl oz	14	5.3 i-l	3.6 yz	2.9 y-z'c'	1.0 b	1.0 g	1.0 d
28 RU 192514-11P-C LC .....	1.67 fl oz	14	5.8 g-j	4.8 r-w	3.9 t-z	1.0 b	1.0 g	1.0 d
29 RU 192514-11P-D LC .....	1.67 fl oz	14	7.5 a-d	5.6 k-r	4.0 t-y	1.0 b	1.0 g	1.0 d
30 RU 192514-11P-E LC .....	1.67 fl oz	14	5.0 j-l	5.5 l-s	4.3 s-w	1.0 b	1.0 g	1.0 d
31 RU 192514-11J LC .....	0.5 fl oz	-						
+ RU 192514-11A LC.....	2.0 fl oz	14	6.3 e-i	5.5 l-s	5.5 n-r	1.0 b	1.0 g	1.0 d
32 RU 192514-11Q LC .....	0.157 fl oz	14	6.5 d-h	6.1 g-n	6.3 i-o	1.0 b	1.0 g	1.0 d
33 RU 192514-11Q LC .....	0.236 fl oz	-						
+ RU 192514-11R SL.....	0.32 fl oz	14	5.8 g-j	6.0 h-o	7.1 e-k	1.0 b	1.0 g	1.0 d
34 RU 192514-11Q LC .....	0.236 fl oz	-						
+ RU 192514-11E ME.....	0.494 fl oz	14	5.8 g-j	5.8 j-q	6.3 i-o	1.0 b	1.0 g	1.0 d
35 RU 192514-11S LC.....	1.0 fl oz	14	6.5 d-h	6.4 f-l	6.1 j-p	1.0 b	1.0 g	1.0 d
36 RU 192514-11S LC.....	1.0 fl oz	-						
+RU 192514-11T 6F .....	2.06 fl oz	14	5.5 h-k	5.3 n-t	5.5 n-r	1.0 b	1.0 g	1.0 d
37 RU 192514-11S LC.....	1.0 fl oz	-						
+ RU 192514-11J SC.....	0.5 fl oz	14	5.0 j-l	6.1 g-n	6.5 g-n	1.0 b	1.0 g	1.0 d
38 RU 192514-11Q LC .....	0.236 fl oz	-						
+ RU 192514-11F ME .....	1.0 fl oz	14	6.0 f-j	6.9 d-h	6.9 f-m	1.0 b	1.0 g	1.0 d
39 RU 192514-11Q LC .....	0.236 fl oz	-						
+ RU 192514-11F ME .....	1.0 fl oz	-						
+ RU 192514-11J SC.....	0.5 fl oz	14	5.8 g-j	6.8 e-i	7.3 d-j	1.0 b	1.0 g	1.0 d
40 RU 192514-11Q LC .....	0.236 fl oz	-						
+ RU 192514-11F ME .....	1.0 fl oz	-						
+RU 192514-11T 6F .....	2.06 fl oz	14	6.3 e-i	6.8 e-i	6.5 g-n	1.0 b	1.0 g	1.0 d
41 RU 192514-11G WG.....	0.83 oz	14	5.5 h-k	3.6 yz	3.0 x-z'c'	1.0 b	1.0 g	1.0 d
42 Daconil Ultrex 82.5WDG.....	3.2 oz	14	6.8 d-g	6.3 f-m	5.3 o-s	1.0 b	1.0 g	1.0 d
43 Insignia 2.1SC.....	0.7 fl oz	14	5.3 i-l	3.6 yz	2.9 y-z'c'	1.0 b	1.0 g	1.0 d

(Continued)

Table 1C (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>4</sup>	Turf Quality <sup>1,2</sup>			Phytotoxicity <sup>3</sup>		
			8 July	5 Aug.	2 Sept.	11 June	8 July	5 Aug.
44 Honor 28WG .....	1.1 oz	14	4.5 kl	3.6 yz	2.6 z'a'-c'	1.0 b	1.0 g	1.0 d
45 Insignia 2.1SC.....	0.54 fl oz	—						
+ Trinity 1.67SC .....	1.0 fl oz	14	6.0 f-j	5.6 k-r	6.0 k-q	1.0 b	1.6 d	1.4 c
46 Insignia 2.1SC.....	0.7 fl oz	—						
+ Trinity 1.67SC .....	1.0 fl oz	14	5.8 g-j	6.1 g-n	6.5 g-n	1.0 b	1.9 b	2.1 a
47 Reserve 4.8SC.....	1.6 fl oz	7	7.5 a-d	7.8 a-d	8.6 ab	1.0 b	1.0 g	1.0 d
48 Reserve 4.8SC.....	2.5 fl oz	7	7.5 a-d	8.0 ab	8.9 a	1.0 b	1.0 g	1.0 d
49 Reserve 4.8SC.....	2.5 fl oz	14	7.5 a-d	7.6 a-e	7.8 a-f	1.0 b	1.0 g	1.0 d
50 Reserve 4.8SC.....	3.6 fl oz	14	6.5 d-h	7.9 a-c	7.6 b-g	1.0 b	1.0 g	1.0 d
51 Concert 4.3SE.....	3.0 fl oz	7	6.5 d-h	6.6 f-j	7.6 b-g	2.0 a	1.4 f	1.8 b
52 2011 Anth Program #1 .....	Bayer	14-VAR <sup>6</sup>	7.3 b-e	7.1 b-f	8.4 a-d	1.0 b	1.0 g	1.0 d
53 2011 Anth Program #2 .....	Bayer	14-VAR <sup>7</sup>	6.3 e-i	8.0 ab	8.5 a-c	1.0 b	1.0 g	1.0 d
54 Disarm C 4.25SC .....	5.9 fl oz	14	6.0 f-j	5.0 p-v	4.1 s-x	1.0 b	1.0 g	1.0 d
55 Disarm M 3.9SC.....	1.0 fl oz	14	7.3 b-e	4.6 s-x	5.0 p-t	1.0 b	1.0 g	1.0 d
56 ARY-0534-002 LC.....	0.9 fl oz	14	6.0 f-j	6.3 f-m	8.4 a-d	1.0 b	1.5 e	1.3 cd
57 SP8010-DEC LC.....	0.72 fl oz	—						
+ Daconil Ultrex 82.5WDG.....	1.8 oz	14 <sup>8</sup>	5.5 h-k	5.0 p-v	4.5 r-v	1.0 b	1.0 g	1.0 d
58 SP8010-DEC LC.....	1.44 fl oz	14	6.0 f-j	3.9 w-z	3.1 w-z'c'	1.0 b	1.0 g	1.0 d
59 SP8010-DEC LC.....	2.87 fl oz	14	4.3 l	2.6 z'a'b'	2.3 z'b'c'	1.0 b	1.0 g	1.0 d
60 Affirm 11.3WG.....	0.9 oz	14	6.0 f-j	5.4 m-t	4.9 q-u	1.0 b	1.0 g	1.0 d
61 Chipco Signature 80WG .....	4.0 oz	14	5.5 h-k	5.1 o-u	4.1 s-x	1.0 b	1.0 g	1.1 cd
62 Torque 3.6SC .....	0.6 fl oz	—						
/ Daconil Ultrex 82.5WDG.....	3.2 oz	14-ALT <sup>5</sup>	6.0 f-j	6.5 f-k	7.0 f-l	1.0 b	1.0 g	1.0 d
63 Tourney 50WDG .....	0.28 oz	14	6.8 d-g	7.1 b-f	8.3 a-e	1.0 b	1.8 c	2.0 ab
64 NB37904 20SC.....	0.75 fl oz	14 <sup>9</sup>	6.5 d-h	5.3 n-t	4.1 s-x	1.0 b	1.0 g	1.0 d
65 NB37904 20SC.....	1.10 fl oz	14 <sup>10</sup>	5.3 i-l	4.1 v-z	3.4 v-z'b'	1.0 b	1.0 g	1.0 d
66 Heritage 50WG .....	0.2 oz	14	5.5 h-k	3.9 w-z	2.6 z'a'-c'	1.0 b	1.0 g	1.0 d
67 IKF-205 28WP .....	0.9 oz	14	5.3 i-l	4.9 q-v	3.8 u-z'a'	1.0 b	1.0 g	1.0 d
68 IKF-205 28WP .....	1.1 oz	14	5.0 j-l	4.5 t-y	4.0 t-y	1.0 b	1.0 g	1.0 d

(Continued)

Table 1C (continued).

Treatment	Rate per 1000 sq ft	Application Schedule (days) <sup>4</sup>	Turf Quality <sup>1,2</sup>			Phytotoxicity <sup>3</sup>		
			8 July	5 Aug.	2 Sept.	11 June	8 July	5 Aug.
69 Velista 50WDG.....	0.3 oz	–						
+ Daconil Ultrex 82.5WDG.....	3.25 oz	14	5.8 g-j	6.1 g-n	6.0 k-q	1.0 b	1.0 g	1.0 d
70 Velista 50WDG.....	0.3 oz	–						
+ Chipco Signature 80WG.....	4.0 oz	14	7.3 b-e	6.6 f-j	5.9 l-q	1.0 b	1.0 g	1.0 d
71 Velista 50WDG.....	0.3 oz	–						
+ Heritage 50WG.....	0.2 oz	14	7.0 c-f	6.6 f-j	5.9 l-q	1.0 b	1.0 g	1.0 d
72 Velista 50WDG.....	0.3 oz	14	6.8 d-g	5.9 i-p	5.5 n-r	1.0 b	1.0 g	1.0 d
73 Velista 50WDG.....	0.5 oz	14	5.5 h-k	5.9 i-p	4.9 q-u	1.0 b	1.0 g	1.0 d
74 2011 Anth Program #3.....	DuPont	14-VAR <sup>11</sup>	7.5 a-d	6.0 h-o	6.6 f-n	1.0 b	1.0 g	1.0 d
75 2011 Anth Program #4.....	Experimental	14-VAR <sup>12</sup>	8.0 a-c	7.8 a-d	6.5 g-n	1.0 b	1.0 g	1.0 d
76 2011 Anth Program #5.....	Experimental	14-VAR <sup>13</sup>	6.8 d-g	6.3 f-m	6.4 h-o	1.0 b	1.0 g	1.0 d
77 2011 Anth Program #6.....	Gary's Green	14-VAR <sup>14</sup>	8.3 ab	7.0 c-g	6.4 h-o	1.0 b	1.0 g	1.0 d
78 2011 Anth Program #7.....	Gary's Green	14-VAR <sup>15</sup>	7.5 a-d	7.1 b-f	6.0 k-q	1.0 b	1.0 g	1.0 d
79 Untreated check.....	–	–	4.3 l	2.1 z'b'	2.0 z'c'	1.0 b	1.0 g	1.0 d
		INT <sup>16</sup>	DAT <sup>17</sup>	DAT	DAT	DAT	DAT	DAT
		7	3	3	10	4	3	3
		14	10	10	10	11	10	10

<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 ( $k=100$ ).

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

<sup>3</sup> Phytotoxicity on a scale of 1 to 5, 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. No phytotoxicity was observed on 2 September.

<sup>4</sup> Fungicides were applied on 17 May (all treatments, except treatments 77 and 78), 24 May (7-day treatment), 31 May (7- and 14-day treatments; initiated treatments 77 and 78), 7 June (7-day treatment), 14 June (7- and 14-day treatments), 21 June (7-day treatment), 28 June (7- and 14-day treatments), 5 July (7-day treatment), 12 July (7- and 14-day treatments), 19 July (7-day treatment), 26 July (7- and 14-day treatments), 2 August (7-day treatment), 9 August (7- and 14-day treatments), 16 August (7-day treatment), and 23 August (7- and 14-day treatments).

(Continued)

Table 1C (continued).

- <sup>5</sup> ALT = Alternation treatment, where treatment 12 consisted of RU 192514-11E ME (0.494 fl oz) applied on 17 May, 14 June, 12 July, and 9 August and RU 192514-11A SC (3.6 fl oz) on 31 May, 28 June, 26 July, and 23 August; treatment 13 consisted of RU 192514-11L EC (1.6 fl oz) applied on 17 May, 14 June, 12 July, and 9 August and RU 192514-11A SC (3.6 fl oz) on 31 May, 28 June, 26 July, and 23 August; and treatment 62 consisted of Torque 3.6SC (0.6 fl oz) applied on 17 May, 14 June, 12 July, and 9 August and Daconil Ultrex 82.5WDG (3.2 oz) on 31 May, 28 June, 26 July, and 23 August.
- <sup>6</sup> VAR = Variable spray schedule, where treatment 52 (Bayer Anth Program #1) consisted of Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) applied on 17 May; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 31 May; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 14 June; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 28 June; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 12 July; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 26 July; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 9 August; and Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 23 August.
- <sup>7</sup> VAR = Variable spray schedule, where treatment 53 (Bayer Anth Program #2) consisted of Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) applied on 17 May; Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 31 May; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 14 June; Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 28 June; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 12 July; Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 26 July; Chipco Signature 80WG (4.0 oz) + Triton Flo 3.1SC (0.5 fl oz) on 9 August; and Chipco Signature 80WG (4.0 oz) + Interface 2.27SC (3.0 fl oz) on 23 August.
- <sup>8</sup> Treatment 57 consisted of SP8010-DEC LC (0.72 fl oz) on 17 May and then SP8010-DEC LC (0.72 fl oz) + Daconil Ultrex 82.5WDG (1.8 oz) every 14 days thereafter.
- <sup>9</sup> Treatment 64 was only applied on 17 May at 0.41 fl oz and then 31 May and 14 June at 0.75 fl oz.
- <sup>10</sup> Treatment 65 was only applied on 17 May at 0.82 fl oz and then 31 May at 1.1 fl oz.
- <sup>11</sup> VAR = Variable spray schedule, where treatment 74 (DuPont Anth Program #3) consisted of Chipco Signature 80WG (4.0 oz) + Banner MAXX 1.3ME (1.0 fl oz) applied on 17 May; Velista 50WDG (0.5 oz) + Chipco Signature 80WG (4.0 oz) on 31 May; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 14 June; Velista 50WDG (0.5 oz) + Chipco Signature 80WG (4.0 oz) on 28 June; Chipco Signature 80WG (4.0 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 12 July; Velista 50WDG (0.5 oz) + Chipco Signature 80WG (4.0 oz) on 26 July; and Velista 50WDG (0.5 oz) + Daconil Ultrex 82.5WDG (3.2 oz) on 9 August.
- <sup>12</sup> VAR = Variable spray schedule, where treatment 75 (Experimental Anth Program #4) consisted of RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (3.6 fl oz) applied on 17 May; RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 31 May; RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (3.6 fl oz) on 14 June; RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 28 June; RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (4.0 fl oz) on 12 July; RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 26 July; RU 192514-11U SC (4.5 fl oz) + RU192514-11B SC (3.6 fl oz) on 9 August; and RU 192514-11A SC (3.6 fl oz) + RU 192514-11E ME (0.5 fl oz) + RU 192514-11B SC (4.0 fl oz) on 23 August.
- <sup>13</sup> VAR = Variable spray schedule, where treatment 76 (Experimental Anth Program #5) consisted of RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) applied on 17 May; RU 192514-11A SC (3.6 fl oz) + RU 192514-11K ME (1.26 fl oz) on 31 May; RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) on 14 June; RU 192514-11A SC (3.6 fl oz) + RU 192514-11K ME (1.26 fl oz) on 28 June; RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) on 12 July; RU 192514-11A SC (3.6 fl oz) + RU 192514-11K ME (1.26 fl oz) on 26 July; and RU 192514-11L EC (1.6 fl oz) + RU192514-11A SC (3.6 fl oz) on 9 August.

Table 1C (continued).

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<sup>14</sup> VAR = Variable spray schedule, where treatment 77 (Gary's Green Anth Program #6) consisted of Gary's Green (13-2-3; 12.0 fl oz) + Nutra Green (5-10-5; 4.0 fl oz) + PK Plus (3-7-18 + 14% H<sub>2</sub>PO<sub>3</sub>; 6.0 fl oz) + Medallion 50WP (0.25 oz) applied every 14 days for 17 May to 9 August.

<sup>15</sup> VAR = Variable spray schedule, where treatment 78 (Gary's Green Anth Program #7) consisted of Gary's Green (13-2-3; 12.0 fl oz) + Nutra Green (5-10-5; 4.0 fl oz) + PK Plus (3-7-18 + 14% H<sub>2</sub>PO<sub>3</sub>; 6.0 fl oz) + Daconil Ultrex 82.5WDG (1.8 oz) applied every 14 days for 17 May to 9 August.

<sup>16</sup> Spray interval in days.

<sup>17</sup> Days after the last treatment.