

Preventive control of dollar spot on a golf course putting green with various fungicides

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INTRODUCTION

Fungicides are commonly used for preventive and curative control of dollar spot (*Sclerotinia homoeocarpa*). As new fungicides are developed, their efficacy must be evaluated in both laboratory and field situations. In addition, field evaluation of these fungicides in various parts of the country is important. The objective of this study was to evaluate the relative efficacy and turf safety of commercially available and confidential fungicides against dollar spot on a golf course putting green.

MATERIALS & METHODS

This study was initiated at the University of Connecticut Plant Science Research and Education Facility located in Storrs, CT. The site consisted of an 'A-4' creeping bentgrass on a native soil putting green that had been topdressed for a period of 1 year. Underlying soil was a loam with a pH of 5.9 and 7.2% OM and topdressing mixture was Holliston's "40 mix". The sand topdressing was within USGA specifications and is routinely used as a topdressing sand for putting greens in the Northeast. The area was maintained as a bentgrass putting green and mowed five times per week to a height of 0.125 to 0.140 in. All treatments were applied with a CO₂ pressurized (40 psi) sprayer equipped with an air-induction flat fan nozzle, and calibrated to deliver 2.0 gal water per 1000 ft². Initial treatments were applied on 2 Jun and individual treatments were reapplied on either a 14- or 21-d interval. All treatments and application dates are listed in the tables.

Plots measured 3 ft x 6 ft and were arranged in a randomized complete block with four replications. Dollar spot severity was assessed every 2 weeks throughout the study. Initial dollar spot severity was rated by counting the number of *S. homoeocarpa* infection centers per plot. As disease severity increased, percent plot area affected by *Sclerotinia homoeocarpa* was visually rated on a 0 to 100 scale where 0 = entire plot void of dollar spot and 100 = entire plot area covered with dollar spot symptoms. Other observations included quality, injury and color.

RESULTS

Dollar spot. Dollar spot pressure was low throughout the study. Treatments were initiated on 2 Jun and final treatments were applied on 4 and 12 Aug for 21 and 14-d interval timings, respectively. During the month of Jun, dollar spot incidence was low and all plots had ≤ 2 infection centers (Table 1). In early Jul, dollar spot incidence increased and the untreated control plots had an average of 6 to 10 infection centers. Between 7 Jul and 25 Aug, all treatments suppressed dollar spot symptoms and all treatments had <1 infection center per plot. On 8 Sep, approximately 3 to 4 weeks after the last application, dollar spot incidence increased in select plots. Although no significant differences were observed among any fungicide-treated plot, plots treated with Daconil Ultrex (2.4 oz; 14-d interval) and A7402T (both rates; 21-d interval) had unacceptable levels (>5 infection centers per plot) of dollar spot on 8 Sep. On the final rating date (22 Sep), moderate to poor disease suppression was observed within plots treated with Leagacy + Signature alternated with Daconil + Signature, Daconil (2.4 oz; 14-d), and A7402T (0.625 fl oz; 21-d interval). Plots treated with the following fungicides, however, continued to provide complete control of the dollar spot on 22 Sep (6 to 7 weeks after last application): Legacy B (1.1 fl oz; 14-d), Legacy C (5.4 fl oz; 14-d), Daconil + Banner MAXX (14-d), A6780 (1.5 fl oz; 14-d), and A16841 (both rates; 14-d).

Quality and color. Quality and color (visual and NDVI) were assessed throughout the study. Few agronomic differences in quality and color were observed for most the study. In general, quality was lower during Jul and Aug and few treatments had quality ratings that were consistently considered acceptable (≥ 7.5) (Table 3). Plots treated with A7402T (0.625 fl oz; 14-d) and Legacy C + Signature (14-d) had the greatest number of dates with acceptable quality (8 and 7 dates, respectively) over the entire study period (14 rating dates total).

Take all patch. A natural infestation of take-all patch was observed within the study site in 2008. During this period, few differences in percent plot area affected by take-all were observed and no differences in disease severity occurred. Data presented in this report represents changes in take-all during the 2008 study year. Differences observed among treatments on the final rating date (11 Aug) offer little insight into the efficacy of the products evaluated in this study. Further analyses are required to assess the change in percent take-all patch within each plot when treatments were first initiated until the final rating date. Depending on the recurrence of take-all in 2009, spring data may better represent the level of control that can be expected from the various treatments.

DISCUSSION

In this study, dollar spot was considered low to moderate during the period in which fungicides were applied. Despite the low disease pressure, few infection centers are required for the disease severity to be considered unacceptable for a golf course putting green. In this study, numerous treatments provided excellent control during the period of fungicide application. When fungicide treatments ceased, control was provided for between 3 and 7 weeks. During this period, dollar spot activity increased immediately following the final applications, but began to naturally subside approximately about the time that the residual efficacy of the fungicides would naturally decline.

While all treatments provided good to excellent control of dollar spot in this study, the repeated application of the same fungicides or fungicides within the same chemical class is generally not recommended. Future research from the various products evaluated in this study would benefit from the examination of alternated fungicide applications as part of a program approach to managing dollar spot. Additionally, the field studies should be developed that investigate the impact of repeated applications of fungicides with the potential for growth regulation, such as those in the DMI class. The use of PGRs and the tank-mixing of various products are increasing in popularity for a number of reasons and the interaction among all of these products is poorly understood. Field evaluations of these products and common tank-mix partners would help to identify any antagonistic or synergistic effects that may occur.

Table 1. Dollar spot infection centers per plot following the application of various fungicides to a creeping bentgrass putting green, 2008.

Treatment and rate per 1000 sq ft	Application ^z Timing	Dollar Spot Infection ^y				
		16 Jun	23 Jun	30 Jun	7 Jul	14 Jul
Legacy B 0.4 fl oz.....	ACEG	0 a ^x	0 a	0 a	0 b	0 b
Legacy B 0.55 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
Legacy B 0.75 fl oz.....	ACEG	0 a	<1 a	0 a	0 b	0 b
Legacy B 1.1 fl oz.....	ACEG	1 a	0 a	0 a	0 b	0 b
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE					
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	0 a	0 a	0 a	0 b	0 b
Legacy C 3.6 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
Legacy C 4.5 fl oz.....	ACEG	<1 a	0 a	0 a	0 b	0 b
Legacy C 5.4 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
Daconil Ultrex 2.4 oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
Concert 5.0 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
Banner MAXX 1.0 fl oz.....	ACEG	0 a	0 a	0 a	1 b	0 b
Banner MAXX 1.5 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
Banner MAXX 1.0 fl oz.....	ADG	0 a	0 a	0 a	0 b	0 b
Banner MAXX 1.5 fl oz.....	ADG	0 a	0 a	0 a	0 b	0 b
A7402T 0.625 fl oz.....	ACEG	<1 a	0 a	0 a	0 b	0 b
A7402T 0.94 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
A7402T 0.625 fl oz.....	ADG	0 a	0 a	0 a	0 b	0 b
A7402T 0.94 fl oz.....	ADG	<1 a	0 a	0 a	0 b	0 b
Trinity 1.0 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
Bayleton 1.0 fl oz.....	ACEG	<1 a	0 a	0 a	0 b	0 b
A6780 1.0 fl oz.....	ACEG	<1 a	0 a	<1 a	0 b	0 b
A6780 1.5 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
A16841 0.98 fl oz.....	ACEG	0 a	0 a	0 a	0 b	0 b
A16841 1.47 fl oz.....	ACEG	<1 a	0 a	0 a	0 b	0 b
Untreated.....	ACEG	1 a	1 a	<1 a	10 a	5 a
Untreated.....	ACEG	2 a	1 a	<1 a	6 a	3 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug: 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Dollar spot was rated by counting the total number of infection centers or percent plot area covered with dollar spot per plot.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 1 (continued). Dollar spot infection centers per plot following the application of various fungicides to a creeping bentgrass putting green, 2008.

Treatment and rate per 1000 sq ft	Application ^z Timing	Dollar Spot Infection center ^y				
		21 Jul	28 Jul	4 Aug	11 Aug	18 Aug
Legacy B 0.4 fl oz.....	ACEG	0 b ^x	0 c	0 c	0 b	0 b
Legacy B 0.55 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Legacy B 0.75 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Legacy B 1.1 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE					
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	0 b	0 c	0 c	0 b	0 b
Legacy C 3.6 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Legacy C 4.5 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Legacy C 5.4 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Daconil Ultrex 2.4 oz.....	ACEG	0 b	0 c	0 c	0 b	<1 b
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Concert 5.0 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Banner MAXX 1.0 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Banner MAXX 1.5 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Banner MAXX 1.0 fl oz.....	ADG	0 b	0 c	0 c	0 b	0 b
Banner MAXX 1.5 fl oz.....	ADG	0 b	0 c	0 c	0 b	0 b
A7402T 0.625 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
A7402T 0.94 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
A7402T 0.625 fl oz.....	ADG	<1 b	0 c	0 c	0 b	0 b
A7402T 0.94 fl oz.....	ADG	0 b	0 c	0 c	0 b	0 b
Trinity 1.0 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Bayleton 1.0 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
A6780 1.0 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
A6780 1.5 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
A16841 0.98 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
A16841 1.47 fl oz.....	ACEG	0 b	0 c	0 c	0 b	0 b
Untreated.....	ACEG	5 a	13 b	25 b	41 a	40 a
Untreated.....	ACEG	7 a	20 a	39 a	58 a	48 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug: 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Dollar spot was rated by counting the total number of infection centers or percent plot area covered with dollar spot per plot.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 1 (continued). Dollar spot infection centers per plot following the application of various fungicides to a creeping bentgrass putting green, 2008.

Treatment and rate per 1000 sq ft	Application ^z Timing	Dollar Spot Infection center ^y			
		25 Aug	8 Sep	15 Sep	22 Sep
Legacy B 0.4 fl oz.....	ACEG	0 c ^x	2 b	0 b	5 c
Legacy B 0.55 fl oz.....	ACEG	0 c	<1 b	0 b	2 c
Legacy B 0.75 fl oz.....	ACEG	0 c	<1 b	<1 b	1 c
Legacy B 1.1 fl oz.....	ACEG	0 c	0 b	0 b	0 c
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE				
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	0 c	2 b	12 b	26 b
Legacy C 3.6 fl oz.....	ACEG	0 c	0 b	<1 b	<1 c
Legacy C 4.5 fl oz.....	ACEG	0 c	0 b	<1 b	2 c
Legacy C 5.4 fl oz.....	ACEG	0 c	0 b	0 b	0 c
Daconil Ultrex 2.4 oz.....	ACEG	1 c	10 b	12 b	18 bc
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	0 c	0 b	<1 b	<1 c
Concert 5.0 fl oz.....	ACEG	0 c	<1 b	0 b	<1 c
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	0 c	0 b	0 b	0 c
Banner MAXX 1.0 fl oz.....	ACEG	0 c	<1 b	2 b	4 c
Banner MAXX 1.5 fl oz.....	ACEG	0 c	0 b	0 b	<1 c
Banner MAXX 1.0 fl oz.....	ADG	0 c	<1 b	<1 b	1 c
Banner MAXX 1.5 fl oz.....	ADG	0 c	0 b	2 b	4 c
A7402T 0.625 fl oz.....	ACEG	0 c	<1 b	0 b	3 c
A7402T 0.94 fl oz.....	ACEG	0 c	0 b	0 b	2 c
A7402T 0.625 fl oz.....	ADG	0 c	9 b	7 b	18 bc
A7402T 0.94 fl oz.....	ADG	0 c	5 b	1 b	5 c
Trinity 1.0 fl oz.....	ACEG	0 c	0 b	<1 b	2 c
Bayleton 1.0 fl oz.....	ACEG	0 c	<1 b	0 b	3 c
A6780 1.0 fl oz.....	ACEG	0 c	0 b	0 b	3 c
A6780 1.5 fl oz.....	ACEG	0 c	0 b	0 b	0 c
A16841 0.98 fl oz.....	ACEG	0 c	<1 b	0 b	0 c
A16841 1.47 fl oz.....	ACEG	0 c	<1 b	0 b	0 a
Untreated.....	ACEG	40 b	83 a	65 a	80 a
Untreated.....	ACEG	60 a	91 a	69 a	74 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Dollar spot was rated by counting the total number of infection centers or percent plot area covered with dollar spot per plot.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 2. Percent dollar spot per plot following the application of various fungicides to a creeping bentgrass putting green, 2008.

Treatment and rate per 1000 sq ft	Application ^z Timing	Percent Dollar Spot ^y				
		16 Jun	23 Jun	30 Jun	7 Jul	14 Jul
Legacy B 0.4 fl oz.....	ACEG	0.0 a ^x	0.0 a	0.0 a	0.0 b	0.0 b
Legacy B 0.55 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Legacy B 0.75 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Legacy B 1.1 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE					
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Legacy C 3.6 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Legacy C 4.5 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Legacy C 5.4 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Daconil Ultrex 2.4 oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Concert 5.0 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Banner MAXX 1.0 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Banner MAXX 1.5 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Banner MAXX 1.0 fl oz.....	ADG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Banner MAXX 1.5 fl oz.....	ADG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
A7402T 0.625 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
A7402T 0.94 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
A7402T 0.625 fl oz.....	ADG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
A7402T 0.94 fl oz.....	ADG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Trinity 1.0 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Bayleton 1.0 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
A6780 1.0 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
A6780 1.5 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
A16841 0.98 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
A16841 1.47 fl oz.....	ACEG	0.0 a	0.0 a	0.0 a	0.0 b	0.0 b
Untreated.....	ACEG	0.0 a	0.0 a	0.0 a	0.2 a	0.1 a
Untreated.....	ACEG	0.0 a	0.0 a	0.0 a	0.1 a	0.1 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Dollar spot was rated on a 0 to 100% scale in which 0 = no dollar spot symptoms observed and 100 = entire plot area covered with dollar spot symptoms.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 2 (continued). Percent dollar spot per plot following the application of various fungicides to a creeping bentgrass putting green, 2008.

Treatment and rate per 1000 sq ft	Application ^z Timing	Percent Dollar Spot ^y				
		21 Jul	28 Jul	4 Aug	11 Aug	18 Aug
Legacy B 0.4 fl oz.....	ACEG	0.0 b ^x	0.0 c	0.0 b	0.0 c	0.0 b
Legacy B 0.55 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Legacy B 0.75 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Legacy B 1.1 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE					
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Legacy C 3.6 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Legacy C 4.5 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Legacy C 5.4 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Daconil Ultrex 2.4 oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.2 b
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Concert 5.0 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Banner MAXX 1.0 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Banner MAXX 1.5 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Banner MAXX 1.0 fl oz.....	ADG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Banner MAXX 1.5 fl oz.....	ADG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
A7402T 0.625 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
A7402T 0.94 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
A7402T 0.625 fl oz.....	ADG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
A7402T 0.94 fl oz.....	ADG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Trinity 1.0 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Bayleton 1.0 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
A6780 1.0 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
A6780 1.5 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
A16841 0.98 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
A16841 1.47 fl oz.....	ACEG	0.0 b	0.0 c	0.0 b	0.0 c	0.0 b
Untreated.....	ACEG	0.1 a	0.2 b	0.3 b	1.0 b	1.3 b
Untreated.....	ACEG	0.1 a	0.3 a	0.9 a	2.3 a	2.2 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Dollar spot was rated on a 0 to 100% scale in which 0 = no dollar spot symptoms observed and 100 = entire plot area covered with dollar spot symptoms.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 2 (continued). Percent dollar spot per plot following the application of various fungicides to a creeping bentgrass putting green, 2008.

Treatment and rate per 1000 sq ft	Application ^z Timing	Percent Dollar Spot ^y			
		25 Aug	8 Sep	15 Sep	22 Sep
Legacy B 0.4 fl oz.....	ACEG	0.0 c ^x	0.1 b	0.0 b	0.1 b
Legacy B 0.55 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.1 b
Legacy B 0.75 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.1 b
Legacy B 1.1 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE				
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	0.0 c	0.1 b	0.2 b	0.4 b
Legacy C 3.6 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
Legacy C 4.5 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.1 b
Legacy C 5.4 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
Daconil Ultrex 2.4 oz.....	ACEG	0.0 c	0.2 b	0.4 b	0.4 b
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
Concert 5.0 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
Banner MAXX 1.0 fl oz.....	ACEG	0.0 c	0.0 b	0.1 b	0.1 b
Banner MAXX 1.5 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
Banner MAXX 1.0 fl oz.....	ADG	0.0 c	0.0 b	0.0 b	0.0 b
Banner MAXX 1.5 fl oz.....	ADG	0.0 c	0.0 b	0.1 b	0.1 b
A7402T 0.625 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.1 b
A7402T 0.94 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.1 b
A7402T 0.625 fl oz.....	ADG	0.0 c	0.2 b	0.1 b	0.2 b
A7402T 0.94 fl oz.....	ADG	0.0 c	0.1 b	0.1 b	0.1 b
Trinity 1.0 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.1 b
Bayleton 1.0 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.1 b
A6780 1.0 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.1 b
A6780 1.5 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
A16841 0.98 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
A16841 1.47 fl oz.....	ACEG	0.0 c	0.0 b	0.0 b	0.0 b
Untreated.....	ACEG	1.2 b	3.6 a	5.1 a	6.2 a
Untreated.....	ACEG	2.3 a	4.7 a	4.4 a	6.1 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Dollar spot was rated on a 0 to 100% scale in which 0 = no dollar spot symptoms observed and 100 = entire plot area covered with dollar spot symptoms.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 3. Turfgrass quality following the application of various fungicides to a creeping bentgrass putting green, 2008.

Treatment and rate per 1000 sq ft	Application ^z Timing	Quality ^y			
		16 Jun	23 Jun	30 Jun	7 Jul
Legacy B 0.4 fl oz.....	ACEG	7.7 a ^x	6.7 a	7.3 a	7.3 a
Legacy B 0.55 fl oz.....	ACEG	7.3 a	6.7 a	7.3 a	7.7 a
Legacy B 0.75 fl oz.....	ACEG	5.7 a	6.3 a	7.3 a	7.0 a
Legacy B 1.1 fl oz.....	ACEG	6.0 a	6.7 a	7.3 a	7.0 a
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE				
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	6.0 a	7.0 a	7.3 a	7.7 a
Legacy C 3.6 fl oz.....	ACEG	6.3 a	6.3 a	7.0 a	7.0 a
Legacy C 4.5 fl oz.....	ACEG	7.0 a	7.0 a	7.7 a	8.0 a
Legacy C 5.4 fl oz.....	ACEG	6.7 a	6.3 a	7.3 a	7.3 a
Daconil Ultrex 2.4 oz.....	ACEG	6.7 a	6.0 a	7.0 a	7.0 a
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	6.7 a	6.7 a	7.7 a	7.7 a
Concert 5.0 fl oz.....	ACEG	7.0 a	6.0 a	7.0 a	7.0 a
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	7.0 a	6.7 a	7.3 a	7.0 a
Banner MAXX 1.0 fl oz.....	ACEG	5.7 a	6.0 a	7.3 a	6.3 a
Banner MAXX 1.5 fl oz.....	ACEG	7.3 a	6.3 a	7.0 a	6.7 a
Banner MAXX 1.0 fl oz.....	ADG	6.7 a	6.7 a	7.3 a	6.7 a
Banner MAXX 1.5 fl oz.....	ADG	6.7 a	6.7 a	7.7 a	7.0 a
A7402T 0.625 fl oz.....	ACEG	6.7 a	6.7 a	7.3 a	7.3 a
A7402T 0.94 fl oz.....	ACEG	7.0 a	7.0 a	8.0 a	7.3 a
A7402T 0.625 fl oz.....	ADG	6.0 a	6.7 a	7.7 a	7.0 a
A7402T 0.94 fl oz.....	ADG	6.3 a	6.3 a	7.0 a	7.0 a
Trinity 1.0 fl oz.....	ACEG	7.7 a	7.0 a	7.3 a	7.7 a
Bayleton 1.0 fl oz.....	ACEG	6.3 a	6.7 a	6.7 a	7.0 a
A6780 1.0 fl oz.....	ACEG	5.3 a	6.0 a	6.7 a	6.0 a
A6780 1.5 fl oz.....	ACEG	6.7 a	6.7 a	7.0 a	6.7 a
A16841 0.98 fl oz.....	ACEG	7.0 a	7.0 a	7.7 a	7.3 a
A16841 1.47 fl oz.....	ACEG	6.0 a	6.7 a	7.3 a	6.7 a
Untreated.....	ACEG	6.7 a	7.0 a	7.3 a	6.0 a
Untreated.....	ACEG	5.7 a	6.3 a	7.0 a	6.0 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Turfgrass quality was rated visually on a 0 to 10 scale where 0 = entire plot area brown or dead, 7.5 = minimum acceptable quality for a bentgrass fairway, and 10 = optimum color and density.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 3 (continued). Turfgrass quality following the application of various fungicides to a creeping bentgrass putting green, 2008.

Treatment and rate per 1000 sq ft	Application ^z Timing	Quality ^y				
		14 Jul	21 Jul	28 Jul	4 Aug	11 Aug
Legacy B 0.4 fl oz.....	ACEG	7.0 a ^x	6.7 bcd	6.7 a	7.0 a	6.7 a
Legacy B 0.55 fl oz.....	ACEG	7.0 a	7.7 a	7.3 a	7.3 a	7.0 a
Legacy B 0.75 fl oz.....	ACEG	7.3 a	7.0 abc	7.3 a	7.3 a	7.0 a
Legacy B 1.1 fl oz.....	ACEG	7.0 a	7.7 a	7.0 a	7.3 a	7.3 a
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE					
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	7.3 a	7.0 abc	7.7 a	7.0 a	7.3 a
Legacy C 3.6 fl oz.....	ACEG	7.3 a	7.0 abc	7.3 a	6.7 a	7.0 a
Legacy C 4.5 fl oz.....	ACEG	7.3 a	7.0 abc	7.0 a	7.0 a	7.0 a
Legacy C 5.4 fl oz.....	ACEG	7.0 a	6.7 bcd	6.3 a	7.0 a	6.7 a
Daconil Ultrex 2.4 oz.....	ACEG	6.7 a	7.0 abc	6.3 a	6.3 a	6.3 a
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	7.7 a	7.3 ab	7.7 a	7.0 a	7.3 a
Concert 5.0 fl oz.....	ACEG	6.3 a	6.3 cd	6.3 a	6.3 a	6.0 a
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	6.7 a	6.3 cd	6.3 a	6.3 a	6.3 a
Banner MAXX 1.0 fl oz.....	ACEG	6.7 a	6.7 bcd	6.7 a	7.0 a	6.3 a
Banner MAXX 1.5 fl oz.....	ACEG	6.7 a	6.3 cd	6.7 a	7.0 a	7.0 a
Banner MAXX 1.0 fl oz.....	ADG	7.0 a	7.0 abc	6.7 a	7.0 a	6.7 a
Banner MAXX 1.5 fl oz.....	ADG	6.7 a	7.0 abc	7.0 a	7.0 a	6.3 a
A7402T 0.625 fl oz.....	ACEG	7.7 a	7.3 ab	7.7 a	7.7 a	7.7 a
A7402T 0.94 fl oz.....	ACEG	7.3 a	7.0 abc	7.3 a	7.3 a	7.3 a
A7402T 0.625 fl oz.....	ADG	7.3 a	7.3 ab	7.7 a	7.3 a	7.7 a
A7402T 0.94 fl oz.....	ADG	7.0 a	7.0 abc	7.0 a	7.0 a	7.0 a
Trinity 1.0 fl oz.....	ACEG	7.3 a	6.7 bcd	7.0 a	7.0 a	7.0 a
Bayleton 1.0 fl oz.....	ACEG	6.7 a	6.7 bcd	6.7 a	7.0 a	6.7 a
A6780 1.0 fl oz.....	ACEG	6.3 a	6.0 d	6.7 a	6.7 a	6.7 a
A6780 1.5 fl oz.....	ACEG	7.0 a	6.7 bcd	6.7 a	6.7 a	6.7 a
A16841 0.98 fl oz.....	ACEG	7.0 a	7.0 abc	7.0 a	6.7 a	7.0 a
A16841 1.47 fl oz.....	ACEG	7.3 a	7.3 ab	7.3 a	7.3 a	7.3 a
Untreated.....	ACEG	7.3 a	7.0 abc	6.7 a	6.3 a	6.7 a
Untreated.....	ACEG	6.3 a	7.0 abc	6.7 a	6.3 a	6.7 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Turfgrass quality was rated visually on a 0 to 10 scale where 0 = entire plot area brown or dead, 7.5 = minimum acceptable quality for a bentgrass fairway, and 10 = optimum color and density.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 3 (continued). Turfgrass quality following the application of various fungicides to a creeping bentgrass putting green, 2008.

Treatment and rate per 1000 sq ft	Application ^z Timing	Quality ^y				
		18 Aug	25 Aug	8 Sep	15 Sep	22 Sep
Legacy B 0.4 fl oz.....	ACEG	6.7 cd ^x	7.0 a	8.0 ab	7.3 cde	7.7 abc
Legacy B 0.55 fl oz.....	ACEG	7.3 a-d	7.3 a	8.7 a	7.7 bcd	8.7 a
Legacy B 0.75 fl oz.....	ACEG	8.0 ab	7.3 a	8.3 ab	7.7 bcd	8.3 a
Legacy B 1.1 fl oz.....	ACEG	7.7 abc	7.3 a	8.0 ab	7.0 de	8.3 a
Legacy B 0.4 fl oz + Signature 4.0 oz	AE					
alternated with						
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	7.7 abc	7.7 a	8.7 a	7.0 de	7.0 bc
Legacy C 3.6 fl oz.....	ACEG	7.3 a-d	7.0 a	8.0 ab	8.7 a	7.7 abc
Legacy C 4.5 fl oz.....	ACEG	7.0 bcd	7.3 a	8.7 a	8.7 a	8.7 a
Legacy C 5.4 fl oz.....	ACEG	6.3 d	6.7 a	8.0 ab	8.3 ab	8.0 ab
Daconil Ultrex 2.4 oz	ACEG	6.7 cd	7.0 a	8.0 ab	8 abc	8.0 ab
Legacy C 3.6 fl oz + Signature 4.0 oz	ACEG	7.0 bcd	7.0 a	8.3 ab	8.7 a	8.3 a
Concert 5.0 fl oz	ACEG	6.3 d	6.7 a	7.7 bc	8.3 ab	8.0 ab
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	6.3 d	6.7 a	8.0 ab	8.7 a	8.3 a
Banner MAXX 1.0 fl oz.....	ACEG	7.0 bcd	7.0 a	7.7 bc	7.0 de	7.7 abc
Banner MAXX 1.5 fl oz.....	ACEG	6.7 cd	7.0 a	8.0 ab	7.7 bcd	8.3 a
Banner MAXX 1.0 fl oz.....	ADG	7.3 a-d	7.3 a	8.0 ab	8.0 abc	8.7 a
Banner MAXX 1.5 fl oz.....	ADG	7.0 bcd	7.0 a	8.3 ab	7.7 bcd	8.0 ab
A7402T 0.625 fl oz	ACEG	8.3 a	7.7 a	8.3 ab	7.3 cde	8.0 ab
A7402T 0.94 fl oz	ACEG	7.3 a-d	7.3 a	8.7 a	7.7 bcd	8.0 ab
A7402T 0.625 fl oz	ADG	8.3 a	7.7 a	7.0 cd	7.3 cde	7.0 bc
A7402T 0.94 fl oz	ADG	7.0 bcd	7.3 a	7.7 bc	7.7 bcd	8.0 ab
Trinity 1.0 fl oz	ACEG	7.3 a-d	7.3 a	8.7 a	7.3 cde	8.3 a
Bayleton 1.0 fl oz.....	ACEG	6.7 cd	7.0 a	7.7 bc	7.0 de	8.0 ab
A6780 1.0 fl oz	ACEG	6.7 cd	7.0 a	7.7 bc	7.0 de	7.7 abc
A6780 1.5 fl oz	ACEG	6.7 cd	7.0 a	8.0 ab	7.3 cde	8.3 a
A16841 0.98 fl oz	ACEG	7.0 bcd	7.0 a	8.3 ab	8.0 abc	8.3 a
A16841 1.47 fl oz	ACEG	8.0 ab	7.7 a	8.7 a	7.7 bcd	8.0 ab
Untreated.....	ACEG	6.7 cd	7.0 a	6.3 d	6.7 e	6.7 c
Untreated.....	ACEG	6.7 cd	7.0 a	6.3 d	7.0 de	7.0 bc

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Turfgrass quality was rated visually on a 0 to 10 scale where 0 = entire plot area brown or dead, 7.5 = minimum acceptable quality for a bentgrass fairway, and 10 = optimum color and density.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 4. Severity of take-all patch on a creeping bentgrass putting green following the application of various fungicides for the control of dollar spot, 2008.

Treatment and rate per 1000 sq ft	App ^z Timing	Take All severity ^y					
		7 Jul	14 Jul	21 Jul	28 Jul	4 Aug	11 Aug
Legacy B 0.4 fl oz.....	ACEG	2.0 a ^x	2.5 a	3.0 a	3.0 a	3.3 a	3.0 a
Legacy B 0.55 fl oz.....	ACEG	1.7 a	1.7 a	1.8 a	2.2 a	2.5 a	2.2 a
Legacy B 0.75 fl oz.....	ACEG	1.3 a	1.0 a	1.0 a	1.7 a	0.8 a	1.0 a
Legacy B 1.1 fl oz.....	ACEG	1.0 a	0.5 a	0.5 a	0.8 a	0.5 a	0.8 a
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE						
Daconil Ultrex 3.2 oz + Signature 4.0 oz	CG	1.7 a	1.0 a	0.8 a	1.7 a	1.7 a	0.8 a
Legacy C 3.6 fl oz.....	ACEG	2.0 a	1.3 a	2.0 a	2.0 a	1.7 a	1.7 a
Legacy C 4.5 fl oz.....	ACEG	1.7 a	1.7 a	1.7 a	2.7 a	2.2 a	1.5 a
Legacy C 5.4 fl oz.....	ACEG	1.7 a	2.0 a	2.3 a	2.0 a	3.0 a	1.8 a
Daconil Ultrex 2.4 oz.....	ACEG	1.7 a	2.0 a	2.3 a	2.7 a	2.5 a	1.8 a
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	1.0 a	1.7 a	1.7 a	1.7 a	1.7 a	1.3 a
Concert 5.0 fl oz.....	ACEG	1.7 a	2.3 a	2.7 a	3.0 a	3.2 a	3.0 a
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz	ACEG	2.3 a	2.7 a	2.7 a	3.3 a	3.3 a	3.0 a
Banner MAXX 1.0 fl oz.....	ACEG	1.3 a	1.7 a	1.7 a	1.7 a	2.3 a	1.7 a
Banner MAXX 1.5 fl oz.....	ACEG	2.3 a	2.7 a	2.8 a	2.7 a	3.0 a	2.0 a
Banner MAXX 1.0 fl oz.....	ADG	1.7 a	2.0 a	2.0 a	2.7 a	2.3 a	2.2 a
Banner MAXX 1.5 fl oz.....	ADG	2.0 a	2.3 a	2.8 a	2.7 a	3.0 a	2.8 a
A7402T 0.625 fl oz.....	ACEG	1.3 a	1.2 a	1.2 a	1.2 a	1.7 a	1.2 a
A7402T 0.94 fl oz.....	ACEG	2.0 a	2.0 a	2.3 a	2.0 a	1.7 a	2.3 a
A7402T 0.625 fl oz.....	ADG	1.3 a	1.2 a	1.3 a	1.5 a	1.2 a	1.0 a
A7402T 0.94 fl oz.....	ADG	1.7 a	1.7 a	1.5 a	2.3 a	1.7 a	1.7 a
Trinity 1.0 fl oz.....	ACEG	1.7 a	2.0 a	3.0 a	2.0 a	2.2 a	2.3 a
Bayleton 1.0 fl oz.....	ACEG	1.7 a	2.0 a	1.7 a	2.3 a	1.7 a	1.8 a
A6780 1.0 fl oz.....	ACEG	2.3 a	2.3 a	2.2 a	3.0 a	2.3 a	2.0 a
A6780 1.5 fl oz.....	ACEG	2.0 a	2.3 a	2.3 a	2.0 a	2.3 a	2.3 a
A16841 0.98 fl oz.....	ACEG	1.7 a	2.0 a	2.7 a	2.7 a	2.3 a	2.3 a
A16841 1.47 fl oz.....	ACEG	1.0 a	1.3 a	1.3 a	1.3 a	1.5 a	1.3 a
Untreated.....	ACEG	2.0 a	2.3 a	2.3 a	3.0 a	3.0 a	2.7 a
Untreated.....	ACEG	1.7 a	1.7 a	1.8 a	2.2 a	1.7 a	1.3 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Take all severity was rated on a 0 to 5 scale where 0 = no injury visible and 5 = entire plot invested with take all.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ level according to the Fisher's protected least significant difference t-test.

Table 5. Percent plot area affected by take-all patch on a creeping bentgrass putting green following the application of various fungicides for the control of dollar spot, 2008.

Treatment and rate per 1000 sq ft	App ^z Timing	Percent Take All ^y					
		7 Jul	14 Jul	21 Jul	28 Jul	4 Aug	11 Aug
Legacy B 0.4 fl oz	ACEG	12 a ^x	17 a	13 a	12 b-g	10 c-i	8 c-g
Legacy B 0.55 fl oz	ACEG	10 a	12 a	9 a	11 c-g	9 c-i	13 a-e
Legacy B 0.75 fl oz	ACEG	8 a	9 a	8 a	9 efg	6 e-i	8 d-g
Legacy B 1.1 fl oz	ACEG	8 a	8 a	6 a	6 g	5 hi	6 efg
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE						
Daconil Ultrex 3.2 oz + Signature 4.0 oz	CG	9 a	7 a	7 a	8 fg	4 i	6 efg
Legacy C 3.6 fl oz	ACEG	14 a	13 a	12 a	11 c-g	12 b-h	13 a-e
Legacy C 4.5 fl oz	ACEG	8 a	8 a	9 a	8 fg	8 c-i	11 c-g
Legacy C 5.4 fl oz	ACEG	11 a	14 a	15 a	16 b-f	12 b-g	15 a-d
Daconil Ultrex 2.4 oz	ACEG	14 a	19 a	16 a	18 abc	18 ab	19 ab
Legacy C 3.6 fl oz + Signature 4.0 oz	ACEG	8 a	10 a	12 a	10 d-g	7 d-i	9 c-g
Concert 5.0 fl oz	ACEG	17 a	21 a	22 a	26 a	21 a	21 a
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz	ACEG	15 a	21 a	21 a	20 ab	18 ab	16 abc
Banner MAXX 1.0 fl oz	ACEG	13 a	16 a	14 a	16 b-f	14 a-d	9 c-g
Banner MAXX 1.5 fl oz	ACEG	17 a	19 a	22 a	18 abc	15 abc	11 b-g
Banner MAXX 1.0 fl oz	ADG	15 a	19 a	18 a	17 b-e	13 b-f	10 c-g
Banner MAXX 1.5 fl oz	ADG	13 a	16 a	17 a	13 b-g	11 b-i	9 c-g
A7402T 0.625 fl oz	ACEG	13 a	11 a	10 a	10 d-g	5 ghi	6 efg
A7402T 0.94 fl oz	ACEG	8 a	11 a	11 a	8 fg	6 f-i	5 fg
A7402T 0.625 fl oz	ADG	8 a	12 a	12 a	8 fg	4 i	5 efg
A7402T 0.94 fl oz	ADG	8 a	9 a	11 a	8 fg	6 e-i	6 efg
Trinity 1.0 fl oz	ACEG	13 a	12 a	13 a	12 b-g	11 b-i	9 c-g
Bayleton 1.0 fl oz	ACEG	10 a	9 a	8 a	9 efg	6 f-i	5 efg
A6780 1.0 fl oz	ACEG	17 a	18 a	18 a	16 b-f	12 b-h	9 c-g
A6780 1.5 fl oz	ACEG	15 a	19 a	19 a	18 a-d	15 abc	12 b-f
A16841 0.98 fl oz	ACEG	15 a	16 a	19 a	16 b-f	13 a-e	11 b-g
A16841 1.47 fl oz	ACEG	10 a	11 a	7 a	6 g	6 d-i	3 g
Untreated	ACEG	10 a	14 a	14 a	11 c-g	8 c-i	10 c-g
Untreated	ACEG	9 a	11 a	11 a	8 fg	5 ghi	6 efg

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Percent Take All was rated on a 0 to 100% scale in which 0 = no percent take all symptoms observed and 100 = entire plot area covered with Take all symptoms.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ according to Fisher's protected least significant difference test.

Table 6. Color ratings on a creeping bentgrass putting green as measured by the NDVI (Normalized Difference Vegetative Index) color meter

Treatment and rate per 1000 sq ft	Application ^z Timing	NDVI ^y		
		16 Jul	29 Jul	11 Aug
Legacy B 0.4 fl oz.....	ACEG	0.684 a ^x	0.737 a-e	0.749 a
Legacy B 0.55 fl oz.....	ACEG	0.682 a	0.748 a-d	0.743 a
Legacy B 0.75 fl oz.....	ACEG	0.692 a	0.730 cde	0.742 a
Legacy B 1.1 fl oz.....	ACEG	0.691 a	0.747 a-d	0.737 a
Legacy B 0.4 fl oz + Signature 4.0 oz alternated with	AE			
Daconil Ultrex 3.2 oz + Signature 4.0 oz.....	CG	0.684 a	0.755 abc	0.746 a
Legacy C 3.6 fl oz.....	ACEG	0.686 a	0.732 b-e	0.739 a
Legacy C 4.5 fl oz.....	ACEG	0.687 a	0.733 b-e	0.757 a
Legacy C 5.4 fl oz.....	ACEG	0.673 a	0.717 e	0.726 a
Daconil Ultrex 2.4 oz.....	ACEG	0.675 a	0.727 de	0.738 a
Legacy C 3.6 fl oz + Signature 4.0 oz.....	ACEG	0.691 a	0.750 a-d	0.731 a
Concert 5.0 fl oz.....	ACEG	0.664 a	0.739 a-e	0.738 a
Daconil Ultrex 3.2 oz + Banner MAXX 1.0 fl oz.....	ACEG	0.686 a	0.733 b-e	0.743 a
Banner MAXX 1.0 fl oz.....	ACEG	0.688 a	0.734 b-e	0.744 a
Banner MAXX 1.5 fl oz.....	ACEG	0.652 a	0.740 a-e	0.744 a
Banner MAXX 1.0 fl oz.....	ADG	0.679 a	0.714 e	0.743 a
Banner MAXX 1.5 fl oz.....	ADG	0.685 a	0.746 a-d	0.745 a
A7402T 0.625 fl oz.....	ACEG	0.688 a	0.753 a-d	0.745 a
A7402T 0.94 fl oz.....	ACEG	0.694 a	0.751 a-d	0.752 a
A7402T 0.625 fl oz.....	ADG	0.694 a	0.762 a	0.754 a
A7402T 0.94 fl oz.....	ADG	0.703 a	0.747 a-d	0.750 a
Trinity 1.0 fl oz.....	ACEG	0.706 a	0.758 ab	0.751 a
Bayleton 1.0 fl oz.....	ACEG	0.681 a	0.738 a-e	0.722 a
A6780 1.0 fl oz.....	ACEG	0.655 a	0.714 e	0.735 a
A6780 1.5 fl oz.....	ACEG	0.679 a	0.749 a-d	0.745 a
A16841 0.98 fl oz.....	ACEG	0.676 a	0.756 abc	0.745 a
A16841 1.47 fl oz.....	ACEG	0.663 a	0.741 a-e	0.746 a
Untreated.....	ACEG	0.698 a	0.741 a-e	0.748 a
Untreated.....	ACEG	0.681 a	0.753 a	0.751 a

^z Treatments were applied as follows: 14-d interval treatments applied on 2, 18 and 30 Jun; 15 and 28 Jul; and 12 Aug; 21-d interval treatments applied on 2 and 24 Jun; 15 Jul; and 4 Aug.

^y Color ratings for creeping bentgrass were measured with the NDVI color meter.

^x Means in a column followed by the same letter are not significantly different at $P \leq 0.05$ level according to the Fisher's protected least significant difference t-test.