

EARLY SEASON CONTROL OF DOLLAR SPOT WITH VARIOUS FUNGICIDES, 2010

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INTRODUCTION

Dollar spot (*Sclerotinia homoeocarpa*) is a common disease of golf course fairways throughout Pennsylvania and the entire United States. While fungicides are commonly used to suppress the disease throughout the season, recent research has shown that early, non-conventional application timings have been able to delay the onset of dollar spot. These early season applications have also been reported by some turfgrass managers to assist them in better managing the disease throughout the year. The objectives of this study were to evaluate the ability of various fungicides to preventively suppress dollar spot when applied early in the season.

MATERIALS & METHODS

This study was initiated at the Valentine Turfgrass Research Center located in University Park, PA. Soil was a sandy loam with a pH 7.3 and an OM of 3.21%. Turfgrass used for the fungicide evaluation was a mixed stand of predominantly creeping bentgrass (*Agrostis stolonifera*) with 15% to 25% annual bluegrass (*Poa annua*). The area was maintained as a bentgrass fairway and mowed three times per week to a height of 0.5 in. All fungicide treatments were applied with a CO₂ pressurized (40 psi) sprayer equipped with an air-induction flat fan nozzle (AI9508E), and calibrated to deliver 2.0 gal water per 1000 ft². Treatments were applied on 14 Apr. An additional application of Tourney was made in select treatments on 12 May. All treatments and application dates are listed in the data tables.

Plots measured 3 ft x 6 ft and were arranged in a randomized complete block with four replications. Dollar spot severity was assessed by counting the number of infection centers within each plot or by estimating the disease severity on a 0 to 100% scale where 0 = no disease present and 100 = entire plot area affected by dollar spot. Turfgrass quality was also visually rated on a 1 to 9 scale where 1 = entire plot brown or dead and 9 = optimum greenness and density. All data were subjected to analysis of variance and means were separated at $P \leq 0.05$ according to Fisher's Protected Least Significant Difference Test.

RESULTS

Dollar spot. Dollar spot symptoms began to appear approximately 6 weeks after treatments were initially applied. On 31 May, low disease pressure was present and an average of 0 to 4 dollar spot infection centers (DSIC) were present when plots were initially rated (Table 1). Disease pressure continued to increase throughout June and mid-Jul. On 14 Jun, plots treated with Tourney (0.37 oz), Banner MAXX (3.0 fl oz), Curalan, and Emerald (0.18 oz) provided the greatest suppression of dollar spot when compared to the untreated control. In addition, plots treated with Concert II, Tourney (0.28 oz), and Banner MAXX (2.0 fl oz) resulted in a reduction in disease symptoms when compared to the untreated control. Disease activity began to increase in June and Jul. Although considered unacceptable, plots treated with Tourney (0.37 oz), Banner MAXX (3.0 fl oz), Curalan, and Emerald (0.18 oz) continued to provide dollar spot suppression when compared to the untreated control. The additional application of Tourney in May provided no additional benefits when compared to other treatments that provided suppression of dollar spot. Few differences in turfgrass quality were observed among treatments (Table 2).

Results from this study are in line with previous research which suggests that early season fungicide applications can suppress dollar spot. In this study, several fungicides provided dollar spot

suppression when compared to untreated plots. There also appeared to be a rate effect from certain fungicides, although differences were not statistically significant. Limited suppression by certain DMI and dicarboximide fungicides in this study may be indicative of insensitivity issues with these fungicides and *Sclerotinia homoeocarpa*. While early season applications have provided significant dollar spot control in the majority of past studies, the consistency of these applications remains erratic. Therefore, future research should continue to investigate the influence of various fungicides on controlling dollar spot when applied early in the season with particular attention given to the proper timings of these fungicides.

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Table 1. Dollar spot incidence and severity on a creeping bentgrass putting green following the application of various fungicides for early season control, 2010.

Treatment and rate per 1000 sq ft	Application Code ^y	Dollar spot ^z				
		31 May	14 Jun	28 Jun	13 Jul	27 Jul
		No. spots				%
1 Concert II 4.35 fl oz.....	A	2 a	8 bc	13 a-d	22 a-d	2.6 a
2 Tourney 0.28 oz.....	AB	0 a	6 bc	11 cd	21 a-e	5.3 a
3 Tourney 0.37 oz.....	AB	1 a	4 c	10 cd	17 cde	4.8 a
4 Banner MAXX 1.0 fl oz.....	A	1 a	10 abc	13 a-d	27 abc	4.3 a
5 Banner MAXX 2.0 fl oz.....	A	1 a	8 bc	13 a-d	20 a-e	4.0 a
6 Banner MAXX 3.0 fl oz.....	A	0 a	4 c	7 d	14 cde	2.5 a
7 Bayleton 1.0 oz.....	A	2 a	13 ab	19 abc	25 a-d	4.3 a
8 Bayleton 2.0 oz.....	A	1 a	10 abc	15 a-d	26 abc	3.8 a
9 Curalan 1.0 oz.....	A	0 a	4 c	8 d	12 de	1.8 a
10 QP Myclobutanil 1.2 fl oz.....	A	4 a	18 a	23 a	33 a	5.3 a
11 Iprodione Pro 2.0 fl oz.....	A	2 a	10 abc	12 bcd	20 a-e	3.7 a
12 Quali-Pro Iprodione 2.0 fl oz.....	A	1 a	10 abc	14 a-d	18 b-e	3.8 a
13 Chipco 26GT 2 fl oz.....	A	2 a	14 ab	20 abc	23 a-d	4.5 a
14 Emerald 0.13 oz.....	A	1 a	11 abc	13 a-d	21 a-e	5.0 a
15 Emerald 0.18 oz.....	A	1 a	3 c	5 d	8 e	1.5 a
16 Untreated.....	A	3 a	17 a	21 ab	30 ab	5.5 a

^z Dollar spot was rated by counting the number of infection centers per plot or by visually assessing the percent disease on a 0 to 100 scale where 0 = no disease symptoms present and 100 = entire plot area affected by dollar spot.

^y Treatments were applied as follows: A = 14 Apr and B = 12 May.

^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 2. Overall turfgrass quality of a creeping bentgrass putting green following the application of various fungicides for early season control of dollar spot, 2010.

Treatment and rate per 1000 sq ft	Application Code ^y	Quality ^z			
		14 Jun	28 Jun	13 Jul	27 Jul
1 Concert II 4.35 fl oz.....	A	7.8 a ^x	7.8 a	8.0 a	8.0 a
2 Tourney 0.28 oz.....	AB	7.8 a	7.5 a	8.0 a	7.5 abc
3 Tourney 0.37 oz.....	AB	7.5 a	6.8 a	7.3 a	7.3 bc
4 Banner MAXX 1.0 fl oz.....	A	7.8 a	7.3 a	7.8 a	8.0 a
5 Banner MAXX 2.0 fl oz.....	A	8.3 a	7.3 a	7.5 a	8.0 a
6 Banner MAXX 3.0 fl oz.....	A	8.0 a	7.8 a	8.0 a	7.8 ab
7 Bayleton 1.0 oz.....	A	8.0 a	7.5 a	7.0 a	8.0 a
8 Bayleton 2.0 oz.....	A	8.3 a	7.8 a	7.8 a	7.8 ab
9 Curalan 1.0 oz.....	A	7.8 a	7.3 a	7.8 a	7.8 ab
10 QP Myclobutanil 1.2 fl oz.....	A	8.3 a	7.5 a	7.8 a	7.8 ab
11 Iprodione Pro 2.0 fl oz.....	A	7.7 a	7.7 a	7.7 a	7.3 bc
12 Quali-Pro Iprodione 2.0 fl oz.....	A	7.8 a	8.0 a	7.8 a	8.0 a
13 Chipco 26GT 2 fl oz.....	A	7.3 a	7.3 a	7.8 a	7.0 c
14 Emerald 0.13 oz.....	A	8.0 a	7.7 a	7.7 a	7.7 ab
15 Emerald 0.18 oz.....	A	7.8 a	8.0 a	7.5 a	8.0 a
16 Untreated.....	A	8.3 a	7.8 a	8.0 a	7.8 ab

^z Turfgrass quality was rated on a 1 to 9 scale where 1 = entire plot area brown or dead; 7 = minimum acceptable quality for a golf course putting green; and 9 = optimum greenness and density.

^y Treatments were applied as follows: A = 14 Apr and B = 12 May.

^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.