

EARLY SEASON CONTROL OF DOLLAR SPOT WITH VARIOUS QUALI-PRO FUNGICIDES, 2010

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INTRODUCTION

Dollar spot continues to be one of the most problematic disease issues of golf course turfgrass throughout the world. In recent years, the application of non-traditionally timed fungicide applications has been used to reduce initial inoculum levels and improve the season-long suppression of disease symptoms. These applications have been successful with a variety of fungicides, but have primarily focused on those chemistries that have systemic capacity. The objectives of this trial were to 1) assess the ability of the contact fungicide chlorothalonil to suppress dollar spot when applied early in the season and 2) identify any differences among chlorothalonil formulations.

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 creeping bentgrass (*Agrostis stolonifera*) and 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. Early-season treatments were applied on 16 April. Dollar spot symptoms were not present prior to application.

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 and quality. Disease activity in the study site began in mid to late May and between 2 and 8 dollar spot infection centers were observed when plots were first rated on 31 May (Table 1). Disease pressure increased over the next two weeks and no treatment provided significant suppression of dollar spot when compared to the untreated control on any rating date. Additionally, no differences were observed among any chlorothalonil treatment. Similar to disease activity, no differences in turfgrass quality were observed on any rating date (Table 2).

DISCUSSION

Similar to previous studies, the use of chlorothalonil alone in an early season dollar spot application appears to be limited in efficacy. However, previous field work has shown that when used in combination with other fungicides (e.g., sterol inhibiting fungicides), chlorothalonil did enhance fungicide efficacy. Future research should investigate tank-mix combinations of various chlorothalonil products with effective early-season dollar spot fungicides.

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Table 1. Dollar spot incidence and severity on a creeping bentgrass fairway following early season treatment with various chlorothalonil products.

Treatment and rate per 1000 sq ft ^y	Dollar Spot ^z				
	31 May	14 Jun	28 Jun	13 Jul	27 Jul
	No. infection centers			%	
QP Chloro X DF 1.84 oz.....	4 a ^x	36 a	40 a	6 a	14 a
QP Chloro X DF 3.2 oz.....	4 a	30 a	37 a	6 a	11 a
QP Chlorothalonil DF 1.84 oz.....	3 a	26 a	38 a	6 a	10 a
QP Chlorothalonil DF 3.2 oz.....	3 a	23 a	32 a	5 a	9 a
QP Chlorothalonil 720 2.02 fl oz.....	8 a	39 a	49 a	7 a	15 a
QP Chlorothalonil 720 3.53 fl oz.....	6 a	30 a	36 a	6 a	13 a
Echo Ultimate 1.84 oz.....	3 a	25 a	32 a	6 a	11 a
Echo Ultimate 3.2 oz.....	2 a	20 a	25 a	5 a	13 a
Daconil Ultrex 1.84 oz.....	7 a	35 a	43 a	8 a	14 a
Daconil Ultrex 3.2 oz.....	3 a	24 a	33 a	6 a	11 a
Untreated.....	7 a	43 a	46 a	6 a	16 a
Untreated.....	5 a	26 a	33 a	5 a	12 a

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

^y Treatments were applied on 16 April 2010.

^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. Turfgrass quality of a creeping bentgrass fairway following early season treatment with various chlorothalonil products.

Treatment and rate per 1000 sq ft ^y	Turfgrass quality ^z		
	14 Jun	28 Jun	13 Jul
QP Chloro X DF 1.84 oz.....	7.8 a	7.5 a	8.0 a
QP Chloro X DF 3.2 oz.....	8.0 a	8.0 a	8.0 a
QP Chlorothalonil DF 1.84 oz.....	7.8 a	7.5 a	8.0 a
QP Chlorothalonil DF 3.2 oz.....	8.0 a	8.0 a	8.0 a
QP Chlorothalonil 720 2.02 fl oz.....	8.0 a	7.8 a	8.0 a
QP Chlorothalonil 720 3.53 fl oz.....	7.8 a	7.8 a	8.0 a
Echo Ultimate 1.84 oz.....	7.5 a	8.0 a	8.0 a
Echo Ultimate 3.2 oz.....	7.5 a	8.0 a	8.0 a
Daconil Ultrex 1.84 oz.....	7.5 a	7.8 a	8.0 a
Daconil Ultrex 3.2 oz.....	7.5 a	7.5 a	8.0 a
Untreated.....	8.0 a	8.0 a	8.0 a
Untreated.....	8.0 a	7.8 a	8.0 a

^z Creeping bentgrass quality was visually assessed on a 1 to 9 scale where 1 = entire plot brown or dead and 9 = optimum greenness and density.

^y Treatments were applied on 16 April 2010.

^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.