

# PREVENTIVE CONTROL OF BROWN PATCH WITH VARIOUS FUNGICIDES

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## INTRODUCTION

Brown patch (*Rhizoctonia solani*) is a common disease of turfgrasses in the Mid-Atlantic and southern regions of New England. The purpose of the study was to evaluate the efficacy of various fungicides for controlling brown patch when applied prior to the development of symptoms.

## MATERIALS & METHODS

The study was conducted at the University of Connecticut Plant Science Research and Education Facility located in Storrs, CT. The area used for the study was a mature stand of colonial bentgrass (*Agrostis capillaris*) that was established in 2006. The area was maintained as a golf course fairway and was mowed approximately 3 times per week to a height of 0.5 inches and clippings were removed.

Plots measured 3 x 6' and were arranged as a randomized complete block design with four replications. Fungicides were applied with a CO<sub>2</sub> pressurized (40 psi) sprayer equipped with a flat-fan nozzle and calibrated to deliver 2.0 gal water per 1000 ft<sup>2</sup>. Granular products (GR) were applied by hand using a shaker jar. Treatments were applied on the dates footnoted in the data tables.

## RESULTS & DISCUSSION

No disease was present at the time when applications were first applied on 27 Jun. Shortly after the first application disease symptoms began to develop and moderate to severe symptoms were noted in the untreated plots and surround areas on 11 Jul. Excellent suppression of brown patch (<1%) on all rating dates was observed by Heritage, Insignia, Disarm (both rates), Headway, and both rates of the experimental fungicides DPX-LEM 17-50-80 (Table 1). Good control (≤ 5.0%) was achieved on all rating dates for the following treatments: Compass, Tourney, Endorse, EXC4084, Heritage GR, and Tartan. In general, long term suppression was provided by fungicides in the QoI chemical class, but the DMI fungicides provided 2 to 3 weeks control before breaking down. Turfgrass quality generally followed closely with the level of brown patch within plots and poor quality was observed within plots treated with Rhapsody, A7402T (0.625 fl oz) and in the untreated control plots.

Previous research conducted at the University of Connecticut has shown that various fungicides have effectively provided acceptable control of brown patch. Excellent control generally is achieved with many different fungicides, but application interval and rate often vary for the different products. Granular products evaluated in past studies have generally performed well when applied to short cut turf such as a golf course fairway. The ability of granular products to suppress brown patch on higher cut turf such as a tall fescue lawn has not been investigated. It should be pointed out that the two granular products evaluated in this study (Heritage GR and EXC4084) will move in an acropetal fashion (upward) within the plant and therefore may still offer acceptable control when applied to higher cut turf.

Table 1. Percent brown patch of preventive control of brown patch with various fungicides

Treatment and rate per 1000 sq ft	Application <sup>z</sup>		Percent brown patch <sup>y</sup>		
	timing	11 Jul	4 Aug	18 Aug	
Rhapsody 5.0 fl oz .....	ACE	26 aw	52 a	48 a	
Rhapsody 5.0 fl oz + Heritage 1.0 fl oz.....	ACE	<1 c	2 d	0	
Heritage 2.0 fl oz .....	AD	<1 c	0 e	<1 g	
Insignia 0.9 oz .....	AE	<1 c	0 e	0 g	
Disarm 0.36 fl oz .....	AE	0 c	0 e	0 g	
Disarm 0.18 fl oz .....	AD	<1 c	0 e	0 g	
Compass 0.2 fl oz .....	AD	1 c	0 e	4 fg	
Tourney 0.28 fl oz .....	AD	<1 c	2 e	2 fg	
A7402T 0.31 fl oz.....	AD	13 b	19 c	8 efg	
A7402T 0.625 fl oz.....	AD	7 bc	16 cd	14 b-g	
Triton 1.0 fl oz .....	AD	0 c	4 e	9 d-g	
Trinity 1.0 oz.....	AD	6 bc	3 e	9 d-g	
Bayleton 1.0 fl oz.....	AE	13 c	6 de	4 fg	
Banner MAXX 2.0 fl oz.....	AD	8 bc	6 de	16 b-f	
Banner MAXX 1.0 fl oz + Daconil Ultrex 3.2 oz	AD	1 c	2 e	12 c-g	
Chipco 26GT 2.0 oz .....	AD	2 c	5 e	23 bcd	
26/36 4.0 fl oz.....	AD	2 c	1 e	7 efg	
Endorse 4.0 oz .....	AD	<1 c	2 e	1 g	
EXC4084 64 oz.....	AE	3 c	4 e	2 fg	
Heritage GR 64 oz .....	AE	3 c	<1 e	0 g	
Headway 2.25 fl oz .....	AE	0 c	<1 e	0 g	
Tartan 2.0 fl oz .....	AE	<1 c	3 e	2 fg	
Vitalonil 5.5 fl oz .....	ACE	8 bc	3 e	27 b	
DPX-LEM 17-50-80 0.3 oz.....	ACE	<1 c	<1 e	<1 g	
DPX-LEM 17-50-80 0.5 oz.....	ACE	0 c	0 e	0 g	
Quali-Pro Iprodione 4.0 fl oz .....	ACE	2 c	2 e	14 b-g	
Quali-Pro Chlorothalonil 3.24 oz .....	ACE	2 c	<1 e	12 c-g	
Quali-Pro Thiophanate Methyl 1.33 oz .....	ACE	2 c	2 e	20 b-e	
Quali-Pro Propiconazole 2.0 fl oz .....	AD	6 bc	7 de	19 b-e	
Untreated .....	-	24 a	37 b	26 bc	

<sup>z</sup> Treatments were applied as follows: A = 27 Jun, C = 11 Jul, D = 17 Jul, and E = 25 Jul.

<sup>y</sup> Percent of the plot area infested by brown patch was visually rated on a 0 to 100 percent scale where 0 = no brown patch present and 100 = entire plot exhibiting brown patch symptoms.

<sup>w</sup> 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. Percent brown patch and quality of preventive control of brown patch with various fungicides

Treatment and rate per 1000 sq ft	Application <sup>z</sup> timing	Quality <sup>y</sup>
		3 Jul
Rhapsody 5.0 fl oz.....	ACE	5.5 f <sup>x</sup>
Rhapsody 5.0 fl oz + Heritage 1.0 fl oz .....	ACE	8.0 ab
Heritage 2.0 fl oz .....	AD	7.8 abc
Insignia 0.9 oz .....	AE	8.3 a
Disarm 0.36 fl oz.....	AE	8.0 ab
Disarm 0.18 fl oz.....	AD	8.0 ab
Compass 0.2 fl oz.....	AD	7.8 abc
Tourney 0.28 fl oz.....	AD	8.0 ab
A7402T 0.31 fl oz .....	AD	6.5 def
A7402T 0.625 fl oz .....	AD	7.3 a-d
Triton 1.0 fl oz.....	AD	8.0 ab
Trinity 1.0 oz .....	AD	7.3 a-d
Bayleton 1.0 fl oz.....	AE	7.0 bcd
Banner MAXX 2.0 fl oz .....	AD	7.0 bcd
Banner MAXX 1.0 fl oz + Daconil Ultrex 3.2 oz	AD	8.3 a
Chipco 26GT 2.0 oz.....	AD	8.0 ab
26/36 4.0 fl oz .....	AD	7.8 abc
Endorse 4.0 oz .....	AD	8.3 a
EXC4084 64 oz .....	AE	8.3 a
Heritage GR 64 oz.....	AE	7.8 abc
Headway 2.25 fl oz.....	AE	8.3 a
Tartan 2.0 fl oz.....	AE	8.3 a
Vitalonil 5.5 fl oz .....	ACE	6.8 cde
DPX-LEM 17-50-80 0.3 oz .....	ACE	8.3 a
DPX-LEM 17-50-80 0.5 oz .....	ACE	8.3 a
Quali-Pro Iprodione 4.0 fl oz.....	ACE	7.8 abc
Quali-Pro Chlorothalonil 3.24 oz .....	ACE	7.8 abc
Quali-Pro Thiophanate Methyl 1.33 oz.....	ACE	8.0 ab
Quali-Pro Propiconazole 2.0 fl oz.....	AD	7.3 a-d
Untreated.....	-	5.8 ef

<sup>z</sup> Treatments were applied as follows: A = 27 Jun, C = 11 Jul, E = 25 Jul, G = 08 Aug.

<sup>y</sup> Quality was rated visually on 0-9 scale

<sup>x</sup> Means in a column followed by the same letter are not significantly different at P≤0.05 level according to the Fisher's protected least significant difference t-test.