

Evaluation of Fungicides for Control of Powdery Mildew in Kentucky Bluegrass Seed Production in Central Oregon, 2006

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Abstract

Fungicides were evaluated for control of powdery mildew in 'Merit' and 'Geronimo' commercial Kentucky bluegrass (*Poa pratensis*) seed fields near Madras, Oregon. Treatments were applied April 19, with five evaluation dates from 1 to 2 weeks apart. There were few significant differences between treated and untreated fields, but many treatments had significantly less powdery mildew than plots treated with Quadris at both locations. These include Quilt, Laredo plus Microthiol, Laredo alone and Microthiol alone at the 'Merit' location and most treatments at the 'Geronimo' location.

Introduction

New fungicide products have been evaluated yearly for control of powdery mildew in Kentucky bluegrass seed production fields in central Oregon since 1998. Products have included the historic industry standard Bayleton[®] (Bayer CropScience), along with Tilt[®] (Syngenta), Tilt plus Bravo[®] (Syngenta), new products such as Laredo[®] (Dow), Folicur[®] (Bayer CropScience), Quadras[®] (Syngenta), and Quilt[®] (Syngenta), and alternative materials like Microthiol (sulfur) and stylet oil.

Methods and Materials

During 2006 fungicides were evaluated for control of powdery mildew in commercial fields of 'Merit' and 'Geronimo' Kentucky bluegrass grown for seed near Madras, Oregon. The following fungicides were evaluated: Quadris, Quilt, Headline, Tilt[®] (BASF), Headline plus Tilt, Bayleton, Laredo, and Microthiol alone and in combination.

A preapplication evaluation of the plots for the level of powdery mildew was conducted April 17. Prior to treatment there were slight variations in disease levels between plots. Plots were evaluated using a rating scale from 0 to 5, with 0 being no mildew present and 5 indicating total foliar coverage. Fungicide treatments were applied April 19 to plots 10 ft by 25 ft replicated four times in a randomized complete block design. Application equipment included TeeJet 8002 nozzles on a 9-ft, CO₂-pressurized, hand-held boom sprayer at 40 psi and 20 gal of water/acre. Postapplication evaluations were conducted April 27, May 4, May 12, May 17 or 26, and May 31 or June 1, depending on location.

Reference to a product or company is for specific information only and does not endorse or recommend that product or company to the exclusion of others that may be suitable. Nor should information and interpretation thereof be considered as recommendations for application of any pesticide. Pesticide labels should always be consulted before any pesticide use.

Results and Discussion

At the 'Merit' location (Table 1) there were no statistical differences between treated and untreated plots after the first evaluation on April 27. However, there were significantly lower mildew levels in plots treated with Quilt, Laredo, Laredo plus Microthiol and Microthiol alone compared to the Quadris-treated plot after the April 27 evaluation.

At the 'Geronimo' location (Table 2) there were significant differences between the untreated plot and Tilt on the April 27 evaluation. On May 31 there were significant differences between the untreated plot and either Laredo plus Microthiol or Microthiol alone. Similar to the 'Merit' location, there was significantly less powdery mildew with many of the other fungicide treatments compared to the Quadris plot across evaluation dates.

Table 1. Severity of powdery mildew on 'Merit' Kentucky bluegrass near Madras, Oregon following fungicide applications on April 19 evaluated on April 17, April 27, May 4, May 12, May 26 and June 1, 2006.

Treatments	Application	Pre-evaluation	-----Post-evaluation-----				
	April 19	April 17	April 27	May 4	May 12	May 26	June 1
Quilt ¹	10 oz	0.55 ² ab ³	0.23 abc	0.05 b	0.10 b	0.38 b	0.45 b
Laredo + Microthiol	8 oz + 3 lb	0.58 ab	0.43 a	0.05 b	0.43 ab	0.80 b	0.75 b
Laredo	8 oz	0.45 ab	0.28 abc	0.00 b	0.15 b	0.70 b	0.85 b
Microthiol	3 lb	0.40 b	0.25 abc	0.18 b	0.50 ab	1.40 ab	0.93 b
Tilt	4 oz	0.68 a	0.35 ab	0.28 ab	0.68 ab	1.38 ab	1.28 ab
Bayleton	4 oz	0.63 ab	0.50 c	0.15 b	0.60 ab	1.23 ab	1.40 ab
Headline	6 oz	0.65 a	0.23 abc	0.23 b	0.55 ab	1.28 ab	1.53 ab
Headline + Tilt	6 oz + 2.8 oz	0.58 ab	0.38 ab	0.35 ab	0.88 ab	1.58 ab	1.63 ab
Quadris	6 oz	0.53 ab	0.40 ab	0.75 a	1.43 a	2.43 a	2.33 a
Untreated	----	0.60 ab	0.15 bc	0.30 ab	0.78 ab	1.45 ab	1.50 ab

¹Quilt = propiconazole + azoxystrobin 1.66 lb ae/gal, Laredo = myclobutanil 2 lb ae/gal, Microthiol = sulfur 80 WP, Tilt = propiconazole 3.6 lb ae/gal, Bayleton = triadimefon 50 DF, Headline = pyraclostrobin 2.09 lb ae/gal, Quadris = azoxystrobin 2.08 lb ae/gal

²Rating scale was 0 (no mildew) to 5 (total leaf coverage).

³Mean separation with LSD at $P \leq 0.05$.

Table 2. Severity of powdery mildew on ‘Geronimo’ Kentucky bluegrass near Madras, Oregon following fungicide applications on April 19, evaluated on April 17, April 27, May 4, May 12, May 17 and May 31, 2006.

Treatments	Application	Pre-evaluation	-----Post-evaluation-----							
	April 19	April 17	April 27	May 4	May 12	May 17	May 31			
Laredo + Microthiol	8 oz + 3 lb	1.20 ¹ ab ²	1.10 abc	0.83 b	0.50 bc	1.00 b	1.28 d			
Microthiol	3 lb	1.20 ab	0.83 bc	0.38 b	0.08 c	0.73 b	1.33 cd			
Headline	6 oz	1.00 b	0.90 bc	0.85 b	0.85 bc	1.75 b	1.70 bcd			
Laredo	8 oz	1.63 ab	1.15 abc	0.95 b	0.70 bc	1.23 b	1.93 bcd			
Tilt	4 oz	1.30 ab	0.68 c	0.80 b	0.95 bc	1.80 b	2.40 bcd			
Headline + Tilt	6 oz + 2.8 oz	1.38 ab	1.45 ab	0.80 b	0.78 bc	1.68 b	2.43 bcd			
Quilt	10 oz	1.23 ab	1.10 abc	0.63 b	0.65 bc	2.23 ab	2.48 bc			
Bayleton	4 oz	1.55 ab	1.40 ab	1.00 b	1.63 ab	2.10 ab	2.60 ab			
Quadris	6 oz	2.00 a	1.78 a	2.20 a	2.78 a	4.05 a	3.73 a			
Untreated	----	1.60 ab	1.40 ab	1.20 ab	1.40 abc	1.70 b	2.63 ab			

¹Rating scale was 0 (no mildew) to 5 (total leaf coverage).

²Mean separation with LSD at $P \leq 0.05$.