Evaluation of Fifteen Kentucky Bluegrass Varieties for Tolerance to Powdery Mildew, 2007-2008

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Abstract

Fifteen Kentucky bluegrass (*Poa pratensis*) varieties grown for seed production were evaluated for tolerance to powdery mildew (*Erysiphe graminis*) in central Oregon. This is the first year of a 3-year study to determine varietal tolerance and the influence of stand age on the severity of the disease in a no-burn management system. The level of disease ranged from 0.3 for 'A00-891' to 2.8 for 'Merit'.

Introduction

New fungicide products have been regularly evaluated for control of powdery mildew in Kentucky bluegrass seed production fields in central Oregon since 1998. Products have included the historical industry standard Bayleton® (triadimefon), along with Tilt® (triadimefon), Tilt® (propiconazole) plus Bravo® (cholorothalonil), new products such as Laredo® (myclobutanil), Folicur® (tebuconazole), Quadras® (azoxystrobin), and Quilt (azoxystrobin plus propiconazole), and alternative materials like Microthiol (sulfur) and stylet oil. The objective of this project is to determine susceptibility of 15 varieties being grown without open field burning for residue management, and the influence of stand age of disease severity. This is the first year of a 3-year study.

Methods and Materials

This research was conducted at the Central Oregon Agricultural Research Center (COARC) near Madras. A split plot design was used, with 10-ft by 60-ft main plots and three 10-ft by 20-ft subplots. Subplots were randomized and included Palisade, Beacon, and an untreated check. Main plots were replicated four times in a randomized complete block design. The untreated single plots within the split plots were used for this project.

Plots were evaluated using a rating scale of 0 (no mildew present) to 5 (total leaf coverage) on May 14, 2008. The following day the entire plot area was treated with Laredo at 12 oz/acre plus Microthiol at 5 lb/acre.

Results and Discussion

Powdery mildew ratings (Table 1) ranged from less than 1.0 for 'A00-891', 'Valor', 'Monte Carlo', 'Rhapsody' and 'Zinfandel' to 2.6 for 'Atlantis' and 2.8 for 'Merit'. This may be due in part to plant growth characteristics in addition to natural plant tolerance. 'Atlantis' and 'Merit' are larger plants with more rank growth, creating an environment conducive to disease development.

Table 1. Tolerance of Kentucky bluegrass varieties grown for seed to powdery mildew (*Erysiphe graminis*) near Madras, Oregon evaluated on May 14, 2008.

	Powdery mildew	
Variety	Ratings (0-5)	Significance
A00-891	0.3[1]	a[2]
Valor	0.6	ab
Monte Carlo	0.7	ab
Rhapsody	0.7	ab
Zinfandel	0.8	ab
Bordeaux	1.0	bc
A00-1400	1.0	bc
Bandera	1.5	cd
Bariris	1.8	de
Crest	1.8	de
Shamrock	2.1	def
Volt	2.3	efg
A01-299	2.3	efg
Atlantis	2.6	fg
Merit	2.8	g

[1]Rating scale was 0 (no mildew) to 5 (total leaf coverage).
[2] Mean separation with LSD $P \leq 0.05$.