

Preemergence and Post Emergence Control of Smooth Crabgrass

J. A. Borger, M. B. Naedel, and M. T. Elmore¹

Introduction

Preemergence and post emergence control of smooth crabgrass (*Digitaria ischaemum*) was evaluated on a mature stand of 'Midnight' Kentucky bluegrass (*Poa pratensis*, L.) at the Valentine Turfgrass Research Center, Penn State University, University Park, PA. The objective of the study was to determine the efficacy of selected preemergence and pos emergence herbicides for the control of smooth crabgrass and safety to desired species.

Methods and Materials

This study was a randomized complete block design with three replications. Treatments were applied on April 24 (PRE), June 6 (2-4 LF), and June 25, 2008 (1-2 TILL) using a three foot CO₂ powered boom sprayer calibrated to deliver 80 gpa using one, flat fan, 11008E nozzle at 40 psi. Within 24 hours after each application, the entire test site received approximately 0.5 inch of water. On May 10, 2008 0.5 lb N/M was applied from urea and 0.5 lb N/M from a 31-0-0 IBDU fertilizer was applied to the entire test area. The site was mowed once per week at one inch with a rotary mower at one inch with clippings returned to the site.

The test site was overseeded with a native source of smooth crabgrass seed in the fall of at least two of the pervious growing seasons. The test site had approximately 90% cover of smooth crabgrass in the non-treated areas at the conclusion of the study.

Smooth crabgrass germination was first noted in the non treated areas of the test site on April 29, 2008.

Results and Discussion

Turfgrass phytotoxicity was rated six times during the study (Table 1). No unacceptable turfgrass phytotoxicity was observed on any rating date.

The percent control of the smooth crabgrass was rated five times during the study (Table 2). There was no control of smooth crabgrass found on the first two rating dates, May 22nd and June 5th. On the last rating date, August 20th, turfgrass treated with A15879 at 1 lb ai/A applied PRE Tenacity at 0.125 plus Activator applied 1-2 TILL, Tenacity at 0125 plus Barricade at 0.38 plus Activator at PRE/1-2 TILL, A15879 at 0.5 applied PRE/1-2 TILL plus Activator applied 1-2 TILL, Dimension at 0.25 applied PRE plus Acclaim at 20 oz/A applied 1-2 TILL plus Activator applied 1-2 TILL, and Dimension at 0.25 applied PRE/2-4 LF provided commercially acceptable control (85% or greater).

¹ Instructor, Research Technician II, and Turfgrass Student, Respectively, Department of Crop and Soil Sciences, Penn State University, University Park, Pa, 16802

Table 1. Evaluations of percent turfgrass phytotoxicity in 2008 where 0-10% = slightly noticeable to researcher but acceptable, 10-30% = noticeable to researcher and homeowner but acceptable, and >30% = unacceptable.

Treatment	Form	Rate lb ai/A	Timing	(% Phytotoxicity)					
				5/8	5/22	6/5	6/19	7/17	8/20
A15879	3.96SC	1	PRE	0.0	3.3	5.0	0.0	0.0	0.0
TENACITY	4SC	0.25	PRE	0.0	3.3	10.0	3.3	0.0	0.0
BARRICADE	4FL	0.75	PRE						
DIMENSION	2EW	0.25	PRE	0.0	0.0	8.3	5.0	0.0	0.0
A15879	3.96SC	1	2-4 LF	0.0	0.0	0.0	13.3	0.0	0.0
ACTIVATOR 90	L	0.25% v/v	2-4 LF						
DIMENSION	2EW	0.25	2-4 LEAF	0.0	6.7	0.0	5.0	0.0	0.0
ACTIVATOR 90	L	0.25% v/v	2-4 LF						
A15879	3.96SC	1	PRE	0.0	3.3	0.0	0.0	0.0	0.0
TENACITY	4SC	0.125	1-2 TILL						
ACTIVATOR 90	L	0.25% v/v	1-2 TILL						
TENACITY	4SC	0.125	PRE/1-2 TILL	0.0	1.7	3.3	1.7	0.0	0.0
BARRICADE	4FL	0.38	PRE/1-2 TILL						
ACTIVATOR 90	L	0.25% v/v	1-2 TILL						
CHECK				0.0	0.0	0.0	0.0	0.0	0.0
A15879	3.96SC	0.5	PRE/1-2 TILL	0.0	5.0	1.7	0.0	0.0	0.0
ACTIVATOR 90	L	0.25% v/v	1-2 TILL						
DIMENSION	2EW	0.25	PRE	0.0	5.0	13.3	8.3	0.0	0.0
ACCLAIM	EC	20 oz/A	1-2 TILL						
ACTIVATOR 90	L	0.25% v/v	1-2 TILL						
DIMENSION	2EW	0.5	PRE	0.0	3.3	8.3	3.3	0.0	0.0
DIMENSION	2EW	0.25	PRE/2-4 LF	0.0	0.0	0.0	1.7	0.0	0.0
BARRICADE	4FL	0.75	PRE	0.0	1.7	5.0	6.7	0.0	0.0
BARRICADE	4FL	0.5	PRE	0.0	0.0	1.7	0.0	0.0	0.0
BARRICADE	4FL	0.25	2-4 LF						
ACCLAIM	EC	20 oz/A	1-2 TILL	0.0	0.0	0.0	0.0	0.0	0.0

Table 2. Evaluations of the percent control of smooth crabgrass in 2008. Commercially acceptable control was considered to be 85% and above.

Treatment	Form	Rate lb ai/A	Timing	(% Control ¹)				
				5/22	6/5	6/19	7/17	8/20
A15879	3.96SC	1	PRE	0.0	0.0	98.7	92.3	83.3
TENACITY	4SC	0.25	PRE	0.0	0.0	98.3	76.7	56.7
BARRICADE	4FL	0.75	PRE					
DIMENSION	2EW	0.25	PRE	0.0	0.0	96.0	71.7	61.7
A15879	3.96SC	1	2-4 LF	0.0	0.0	99.0	97.7	84.7
ACTIVATOR 90	L	0.25% v/v	2-4 LF					
DIMENSION	2EW	0.25	2-4 LEAF	0.0	0.0	97.7	43.3	30.0
ACTIVATOR 90	L	0.25% v/v	2-4 LF					
A15879	3.96SC	1	PRE	0.0	0.0	98.7	99.0	97.3
TENACITY	4SC	0.125	1-2 TILL					
ACTIVATOR 90	L	0.25% v/v	1-2 TILL					
TENACITY	4SC	0.125	PRE/1-2 TILL	0.0	0.0	97.7	99.0	96.0
BARRICADE	4FL	0.38	PRE/1-2 TILL					
ACTIVATOR 90	L	0.25% v/v	1-2 TILL					
CHECK				0.0	0.0	0.0	0.0	0.0
A15879	3.96SC	0.5	PRE/1-2 TILL	0.0	0.0	98.3	99.0	95.7
ACTIVATOR 90	L	0.25% v/v	1-2 TILL					
DIMENSION	2EW	0.25	PRE	0.0	0.0	96.0	99.0	92.7
ACCLAIM	EC	20 oz/A	1-2 TILL					
ACTIVATOR 90	L	0.25% v/v	1-2 TILL					
DIMENSION	2EW	0.5	PRE	0.0	0.0	99.0	93.0	81.7
DIMENSION	2EW	0.25	PRE/2-4 LF	0.0	0.0	98.7	99.0	99.0
BARRICADE	4FL	0.75	PRE	0.0	0.0	97.3	66.7	50.0
BARRICADE	4FL	0.5	PRE	0.0	0.0	99.0	92.7	83.3
BARRICADE	4FL	0.25	2-4 LF					
ACCLAIM	EC	20 oz/A	1-2 TILL	0.0	0.0	0.0	98.3	84.3