

Preemergence Control of Smooth Crabgrass

J. A. Borger and M. B. Naedel¹

Introduction

Preemergence control of smooth crabgrass (*Digitaria ischaemum*) was evaluated on a mature stand of 'Midnight' Kentucky bluegrass (*Poa pratensis*), 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 herbicides applied in the fall for the control of smooth crabgrass and safety to desired species the following growing season.

Methods and Materials

This study was a randomized complete block design with three replications. All treatments were applied on October 19, 2005 (MID OCT) and November 22, 2005 (NOVEMBER) using a three foot CO₂ powered boom sprayer calibrated to deliver 40 gpa using two, flat fan, 11004 nozzles at 40 psi and granular treatments were applied to wet turf using a shaker jar. After each application the entire test site received approximately 0.5 inch of water. On April 27, 2006 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 test site where materials had been applied that did not contain any fertilizer. The site was mowed once per week 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 prior to application of selected materials. The test site had approximately 90% cover of smooth crabgrass in non treated areas at the conclusion of the study.

Smooth crabgrass germination was first noted in the test site on April 24, 2006.

Results and Discussion

Turfgrass phytotoxicity was rated twice during the study (Table 1). No phytotoxicity was found during the study.

The percent control of smooth crabgrass was rated twice, May 22, 2006 and August 15, 2006 (Table 2). On the first rating date no treated or non treated turfgrass provided control as the smooth crabgrass plants, if present, were not detectable by the visual ratings used. On the final rating date, turfgrass treated with Barricade 65WG at 0.75 lb ai/A applied in mid October or November, and Barricade 4FL at 0.375 applied sequentially provided commercially acceptable control of smooth crabgrass (85% or greater). Although not considered commercially acceptable control, it should be noted that turfgrass treated with Dimension 40WP at 0.5 lb ai/A applied in mid October or November each provided 83.3% control of the smooth crabgrass population.

¹ Instructor and Research Technician, respectively, Department of Crop and Soil Sciences, Penn State University, University Park, Pa, 16802

Table 1. Evaluations of phytotoxicity where 0 = worst, 7 = acceptable, and 10 = no phytotoxicity taken in 2005.

Treatment	Form	Rate LB A/A	Timing	(-----Phytotoxicity-----)	
				10/26	11/29
DIMENSION	0.21G	180 LB/A	MID OCT	10.0	10.0
DIMENSION	0.21G	240 LB/A	MID OCT	10.0	10.0
STONEWALL	0.2G	250 LB/A	MID OCT	10.0	10.0
STONEWALL	0.43G	175 LB/A	MID OCT	10.0	10.0
DIMENSION	0.21G	180 LB/A	NOVEMBER	10.0	10.0
DIMENSION	0.21G	240 LB/A	NOVEMBER	10.0	10.0
STONEWALL	0.2G	250 LB/A	NOVEMBER	10.0	10.0
STONEWALL	0.43G	175 LB/A	NOVEMBER	10.0	10.0
DIMENSION	40WP	0.5	MID OCT	10.0	10.0
CHECK				10.0	10.0
DIMENSION	40WP	0.5	NOVEMBER	10.0	10.0
DIMENSION	40WP	0.25	MID OCT	10.0	10.0
DIMENSION	40WP	0.25	NOVEMBER		
DIMENSION	1EC	0.5	MID OCT	10.0	10.0
DIMENSION	1EC	0.5	NOVEMBER	10.0	10.0
BARRICADE	65WG	0.75	MID OCT	10.0	10.0
BARRICADE	4FL	0.75	MID OCT	10.0	10.0
BARRICADE	4FL	0.75	NOVEMBER	10.0	10.0
BARRICADE	65WG	0.75	NOVEMBER	10.0	10.0
BARRICADE	65WG	0.375	MID OCT	10.0	10.0
BARRICADE	65WG	0.375	NOVEMBER		
BARRICADE	4FL	0.375	MID OCT	10.0	10.0
BARRICADE	4FL	0.375	NOVEMBER		

Table 2. Evaluations of the percent control of smooth crabgrass in 2006. Commercially acceptable control was considered to be 85% and above.

Treatment	Form	Rate LB A/A	Timing	(----% Control----	
				5/22	8/15
DIMENSION	0.21G	180 LB/A	MID OCT	0.0	50.0
DIMENSION	0.21G	240 LB/A	MID OCT	0.0	73.3
STONEWALL	0.2G	250 LB/A	MID OCT	0.0	60.0
STONEWALL	0.43G	175 LB/A	MID OCT	0.0	53.3
DIMENSION	0.21G	180 LB/A	NOVEMBER	0.0	66.7
DIMENSION	0.21G	240 LB/A	NOVEMBER	0.0	73.3
STONEWALL	0.2G	250 LB/A	NOVEMBER	0.0	60.0
STONEWALL	0.43G	175 LB/A	NOVEMBER	0.0	58.3
DIMENSION	40WP	0.5	MID OCT	0.0	83.3
CHECK				0.0	0.0
DIMENSION	40WP	0.5	NOVEMBER	0.0	83.3
DIMENSION	40WP	0.25	MID OCT	0.0	76.7
DIMENSION	40WP	0.25	NOVEMBER		
DIMENSION	1EC	0.5	MID OCT	0.0	70.0
DIMENSION	1EC	0.5	NOVEMBER	0.0	81.7
BARRICADE	65WG	0.75	MID OCT	0.0	85.0
BARRICADE	4FL	0.75	MID OCT	0.0	71.7
BARRICADE	4FL	0.75	NOVEMBER	0.0	81.7
BARRICADE	65WG	0.75	NOVEMBER	0.0	86.7
BARRICADE	65WG	0.375	MID OCT	0.0	78.3
BARRICADE	65WG	0.375	NOVEMBER		
BARRICADE	4FL	0.375	MID OCT	0.0	85.0
BARRICADE	4FL	0.375	NOVEMBER		