

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 'Jet Elite' perennial ryegrass (*Lolium perenne* 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 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 25, 2007 (PRE) and June 21, 2007 (8 WAT)) using a three foot CO₂ powered boom sprayer calibrated to deliver 80 gpa using one, flat fan, 11008E nozzle at 40 psi and granular treatments were applied to wet turf using a shaker box. After each application the entire test site received approximately 0.5 inch of water. On May 8, 2007 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 plots that did not contain a fertilizer treatment. 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 of at least two of the previous 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 May 1, 2007.

Results and Discussion

Turfgrass phytotoxicity was rated seven times during the study (Table 1). No phytotoxicity was found on any rating date that was below the acceptable level of 7.

The percent control of smooth crabgrass was rated on August 6, 2007 (Table 2). On this date, only turfgrass treated with Dimension Ultra 2EW at 0.38 and 0.5 lb ai/A PRE, Barricade 65WDG at 0.75 lb ai/A PRE, Quali-Pro Dithiopyr 40WP at 0.25 lb ai/A PRE and 8 WAT, Dimension Ultra 40WP at 0.25 lb ai/A PRE and 8 WAT, Quali-Pro Dithiopyr 40WP at 0.5 lb ai/A PRE, Dimension Ultra 40WP at 0.5 lb ai/A PRE, and D FERT 0.163G at 0.5 lb ai/A PRE provided commercially acceptable smooth crabgrass control (85% or greater).

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

Table 1. Evaluations of turfgrass phytotoxicity where 0 = worst, 7 = acceptable, and 10 = no phytotoxicity taken in 2007.

Treatment	Form	Rate lb ai/A	Timing	(-----Phytotoxicity-----)			
				5/9	5/30	6/14	7/5
DIMENSION ULTRA	2EW	0.125	PRE	10.0	10.0	10.0	10.0
DIMENSION ULTRA	2EW	0.25	PRE	10.0	10.0	10.0	10.0
DIMENSION ULTRA	2EW	0.38	PRE	10.0	10.0	10.0	10.0
DIMENSION ULTRA	2EW	0.5	PRE	10.0	10.0	10.0	10.0
BARRICADE	65WDG	0.25	PRE	10.0	10.0	10.0	10.0
BARRICADE	65WDG	0.5	PRE	10.0	10.0	10.0	10.0
BARRICADE	65WDG	0.75	PRE	10.0	10.0	10.0	10.0
QUALI-PRO DITHIOPYR	40WP	0.25	PRE/8 WAT	10.0	10.0	10.0	10.0
DIMENSION ULTRA	40WP	0.25	PRE/8 WAT	10.0	10.0	10.0	10.0
QUALI-PRO DITHIOPYR	40WP	0.5	PRE	10.0	10.0	10.0	10.0
DIMENSION ULTRA	40WP	0.5	PRE	10.0	10.0	10.0	10.0
DIMENSION ULTRA	40WP	0.125	PRE	10.0	10.0	10.0	10.0
CHECK				10.0	10.0	10.0	10.0
D-150 SGN	0.25G	0.25	PRE	10.0	10.0	10.0	10.0
D-150 SGN	0.125G	0.125	PRE	10.0	10.0	10.0	10.0
D-150 SGN	0.25G	0.125	PRE	10.0	10.0	10.0	10.0
P-150 SGN	0.48G	0.75	PRE	10.0	10.0	10.0	10.0
P-150 SGN	0.48G	0.5	PRE	10.0	10.0	10.0	10.0
P-150 SGN	0.48G	0.25	PRE	10.0	10.0	10.0	10.0
D FERT	0.163G	0.5	PRE	10.0	10.0	10.0	10.0
D FERT	0.163G	0.25	PRE	10.0	10.0	10.0	10.0
D FERT	0.163G	0.125	PRE	10.0	10.0	10.0	10.0

Table 2. Evaluations of the percent control of smooth crabgrass in 2007. Commercially acceptable control was considered to be 85% and above.

Treatment	Form	Rate lb ai/A	Timing	(----% Control----)
				8/6
DIMENSION ULTRA	2EW	0.125	PRE	53.3
DIMENSION ULTRA	2EW	0.25	PRE	80.0
DIMENSION ULTRA	2EW	0.38	PRE	94.3
DIMENSION ULTRA	2EW	0.5	PRE	97.7
BARRICADE	65WDG	0.25	PRE	70.0
BARRICADE	65WDG	0.5	PRE	79.3
BARRICADE	65WDG	0.75	PRE	88.0
QUALI-PRO DITHIOPYR	40WP	0.25	PRE/8 WAT	89.3
DIMENSION ULTRA	40WP	0.25	PRE/8 WAT	92.7
QUALI-PRO DITHIOPYR	40WP	0.5	PRE	99.0
DIMENSION ULTRA	40WP	0.5	PRE	99.0
DIMENSION ULTRA	40WP	0.125	PRE	56.7
CHECK				0.0
D-150 SGN	0.25G	0.25	PRE	75.0
D-150 SGN	0.125G	0.125	PRE	50.0
D-150 SGN	0.25G	0.125	PRE	10.0
P-150 SGN	0.48G	0.75	PRE	78.3
P-150 SGN	0.48G	0.5	PRE	46.7
P-150 SGN	0.48G	0.25	PRE	21.7
D FERT	0.163G	0.5	PRE	93.3
D FERT	0.163G	0.25	PRE	50.0
D FERT	0.163G	0.125	PRE	21.7