

Preemergence Control of Smooth Crabgrass Using Various Nozzle Types and Application Volumes

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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 with different nozzle types and application volumes for the control of smooth crabgrass and safety to the desired species.

Methods and Materials

This study was a randomized complete block design with three replications. All treatments were applied on April 18, 2006 using a three foot CO₂ powered boom sprayer calibrated to deliver 1, 2, and 4 gallons/1000 ft² using one TF-3, TF 7.5, and TF-10 nozzle (respectively) at varying pressures. After 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. 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 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 on August 15, 2006 (Table 2). All treated turfgrass provided commercially acceptable control of smooth crabgrass (85% or greater).

It would appear in this study on this site, with the weather conditions of this season, using these two products, that nozzle type and the volume of application had little effect on the control of smooth crabgrass.

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Table 1. Evaluations of phytotoxicity where 0 = worst, 7 = acceptable, and 10 = no phytotoxicity taken in 2006.

| Treatment | Form | Rate LB AI/A | Nozzle Type | GPM | ---Phytotoxicity-- | |
|-----------|------|-----------------|-------------|-----|--------------------|------|
| | | | | | 4/27 | 5/5 |
| BARRICADE | 65WG | 0.65 | TF-3 | 1 | 10.0 | 10.0 |
| BARRICADE | 65WG | 0.65 | TF-7.5 | 2 | 10.0 | 10.0 |
| BARRICADE | 65WG | 0.65 | TF-10 | 4 | 10.0 | 10.0 |
| CHECK | | | | | 10.0 | 10.0 |
| DIMENSION | 40WP | 0.25 | TF-3 | 1 | 10.0 | 10.0 |
| DIMENSION | 40WP | 0.25 | TF 7.5 | 2 | 10.0 | 10.0 |
| DIMENSION | 40WP | 0.25 | TF-10 | 4 | 10.0 | 10.0 |

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 AI/A | Nozzle Type | GPM | ----% Control---- | |
|-----------|------|-----------------|-------------|-----|-------------------|--|
| | | | | | 8/15 | |
| BARRICADE | 65WG | 0.65 | TF-3 | 1 | 89.7 | |
| BARRICADE | 65WG | 0.65 | TF-7.5 | 2 | 96.3 | |
| BARRICADE | 65WG | 0.65 | TF-10 | 4 | 89.7 | |
| CHECK | | | | | 0.0 | |
| DIMENSION | 40WP | 0.25 | TF-3 | 1 | 85.0 | |
| DIMENSION | 40WP | 0.25 | TF 7.5 | 2 | 90.0 | |
| DIMENSION | 40WP | 0.25 | TF-10 | 4 | 91.7 | |