

Post Emergence Control of Smooth Crabgrass

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Introduction

Post emergence control of smooth crabgrass (*Digitaria ischaemum*) was evaluated on a mature stand of 'Amazing GS' 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 herbicides for the post-emergence control of smooth crabgrass and the injury to the desired species.

Methods and Materials

This study was a randomized complete block design with three replications. Treatments were applied on June 2 (1 TILL), June 6 (14 DAT), and June 23, 2011 (21 DAT) using a three foot CO₂ powered boom sprayer calibrated to deliver 80 gpa using one, flat fan, TP9508EVS nozzle at 40 psi (Figure 1). The site was mowed once per week with a rotary mower at one and a half inches with clippings returned to the site.

The test site was overseeded with a native source of smooth crabgrass in the fall of at least two of the previous growing seasons. At the conclusion of the study, the perennial ryegrass test site had approximately 85% cover of smooth crabgrass in the non treated areas on August 4, 2011 (Figure 2).

Smooth crabgrass germination was first noted in the test site on May 4, 2011.

Results and Discussion

Turfgrass phytotoxicity was rated three times during the study (Table 1). There was no phytotoxicity found on any rating date that was below acceptable 7.0.

Crabgrass phytotoxicity was rated three times during the study (Table 2). Treated crabgrass exhibited varying levels of phytotoxicity during the study.

The percent control of the smooth crabgrass was rated twice during the study (Table 3). On both rating dates only turfgrass treated with Tenacity, Activator and Barricade did not provided commercially acceptable (85% or greater) control.

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Table 1. Evaluations of turfgrass phytotoxicity of ‘Amazing GS’ perennial ryegrass in 2011, where 0 = dead turf, 7 = acceptable, and 10 = no phytotoxicity.

Treatment	Form	Rate oz/A	Timing	-----Turf Phyto-----		
				5/20	7/6	8/2
TENACITY	4SC	5	1 TILL/14 DAT	10.0	10.0	10.0
ACTIVATOR	L	0.25% v/v	1 TILL/14 DAT			
TENACITY	4SC	5	1 TILL/21 DAT	10.0	10.0	8.2
ACTIVATOR	L	0.25% v/v	1 TILL/21 DAT			
TENACITY	4SC	5	1 TILL/14 DAT	10.0	10.0	10.0
ACTIVATOR	L	0.25% v/v	1 TILL/14 DAT			
TURFLON ESTER	4EC	16	1 TILL/14 DAT			
CHECK				10.0	10.0	10.0
TENACITY	4SC	5	1 TILL/21 DAT	10.0	10.0	8.0
ACTIVATOR	L	0.25% v/v	1 TILL/21 DAT			
TURFLON ESTER	4EC	16	1 TILL/21 DAT			
TENACITY	4SC	5	1 TILL	10.0	10.0	10.0
ACTIVATOR	L	0.25% v/v	1 TILL			
IMPRELIS	2EC	4.5	1 TILL			
TENACITY	4SC	5	1 TILL	10.0	10.0	10.0
ACTIVATOR	L	0.25% v/v	1 TILL			
BARRICADE	4FL	16	1 TILL			

Table 2. Evaluations of smooth crabgrass phytotoxicity within the perennial ryegrass site after application of selected herbicides in 2011, where 0 = dead weeds, 7 = acceptable, and 10 = no phytotoxicity.

Treatment	Form	Rate oz/A	Timing	-----Crab Phyto-----		
				6/10	6/17	7/1
TENACITY	4SC	5	1 TILL/14 DAT	6.5	7.0	10.0
ACTIVATOR	L	0.25% v/v	1 TILL/14 DAT			
TENACITY	4SC	5	1 TILL/21 DAT	6.7	7.3	6.5
ACTIVATOR	L	0.25% v/v	1 TILL/21 DAT			
TENACITY	4SC	5	1 TILL/14 DAT	6.0	6.7	10.0
ACTIVATOR	L	0.25% v/v	1 TILL/14 DAT			
TURFLON ESTER	4EC	16	1 TILL/14 DAT			
CHECK				10.0	10.0	10.0
TENACITY	4SC	5	1 TILL/21 DAT	6.7	7.3	6.8
ACTIVATOR	L	0.25% v/v	1 TILL/21 DAT			
TURFLON ESTER	4EC	16	1 TILL/21 DAT			
TENACITY	4SC	5	1 TILL	6.2	7.0	10.0
ACTIVATOR	L	0.25% v/v	1 TILL			
IMPRELIS	2EC	4.5	1 TILL			
TENACITY	4SC	5	1 TILL	6.5	7.0	10.0
ACTIVATOR	L	0.25% v/v	1 TILL			
BARRICADE	4FL	16	1 TILL			

Table 3. Evaluations of smooth crabgrass control in 2011. 85% control and higher was considered to be commercially acceptable smooth crabgrass control.

Treatment	Form	Rate oz/A	Timing	(--Crabgrass Control ¹ --)	
				7/7	8/2
TENACITY ACTIVATOR	4SC L	5 0.25% v/v	1 TILL/14 DAT	95.7	80.7
TENACITY ACTIVATOR	4SC L	5 0.25% v/v	1 TILL/21 DAT	99.2	89.6
TENACITY ACTIVATOR	4SC L	5 0.25% v/v	1 TILL/14 DAT	99.6	96.5
TURFLON ESTER	4EC	16	1 TILL/14 DAT		
CHECK				0.0	0.0
TENACITY ACTIVATOR	4SC L	5 0.25% v/v	1 TILL/21 DAT	99.6	97.7
TURFLON ESTER	4EC	16	1 TILL/21 DAT		
TENACITY ACTIVATOR	4SC L	5 0.25% v/v	1 TILL	97.6	94.9
IMPRELIS	2EC	4.5	1 TILL		
TENACITY ACTIVATOR	4SC L	5 0.25% v/v	1 TILL	78.4	46.0
BARRICADE	4FL	16	1 TILL		

1 - Crabgrass control data were produced using Abbott's transformations with Agricultural Research Manager (ARM) software.



Figure 1: CO₂ powered boom sprayer used for application of liquid materials.



Figure 2: Untreated test plot showing >85% smooth crabgrass cover (8/4/2011).