

Post Emergence Control of Smooth Crabgrass

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Introduction

Post emergence control of smooth crabgrass (*Digitaria ischaemum*) in cool season turf 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 to evaluate injury to the desired species.

Methods and Materials

This study was a randomized complete block design with three replications (Figure 1). Treatments were applied on June 8 (PRE-TILL), June 29 (21 DAT), July 27 (42 DAT), July 23 (1-2 TILL), August 10 (21 DAT), and August 31, 2012 (42 DAT) using a three foot CO₂ powered boom sprayer (Figure 2) calibrated to deliver 80 gpa using one, flat fan, TP9508EVS nozzle at 40 psi. The site was mowed once per week with a rotary mower at two 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. Smooth crabgrass germination was first noted in the test site on May 8, 2012. At the conclusion of the trial, August 20, 2012, untreated test plots revealed 50% cover of smooth crabgrass.

Results and Discussion

Turfgrass phytotoxicity was rated eight times during the study (Table 1). No unacceptable (below 7.0) turfgrass phytotoxicity was observed on any rating date.

The percent control of the smooth crabgrass was rated three times during the study (Table 2). In general, there was an increase or no change in the control of smooth crabgrass found from the first rating date, July 4th to the last rating date August 27th. On the last rating date only turfgrass treated at the PRE TILL/42DAT product application timing provided commercially acceptable (85% or greater) control. It is noteworthy that all treated turfgrass provided at least 78% or great control of smooth crabgrass.

This outcome would suggest that the application of materials should be made before tillering of smooth crabgrass and no sooner than 42 days for a re-application of products. Additional research must be conducted to verify this hypothesis. These product mixtures have been proven to provide outstanding broadleaf weed control. If the control of smooth crabgrass was attainable (as this study suggests) the versatility of these materials becomes a force to be reckoned with in the turfgrass management arena.

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Table 1. Evaluations of turfgrass phytotoxicity, where 0 = dead turf, 7 = acceptable, and 10 = no phytotoxicity in 2012.

Treatment	Form	Rate oz/A	Timing	-----Turf Phytotoxicity-----			
				6/15	6/22	6/29	7/6
TENACITY	4SC	5	PRE TILL/21 DAT	10.0	8.0	10.0	10.0
TURFLON ESTER	4EC	16	PRE TILL/21 DAT				
ACTIVATOR 90	L	0.25% v/v	PRE TILL/21 DAT				
CHECK				10.0	10.0	10.0	10.0
TENACITY	4SC	5	PRE TILL/42 DAT	10.0	8.0	10.0	10.0
TURFLON ESTER	4EC	16	PRE TILL/42 DAT				
ACTIVATOR 90	L	0.25% v/v	PRE TILL/42 DAT				
TENACITY	4SC	5	1-2 TILL/21 DAT	10.0	10.0	10.0	10.0
TURFLON ESTER	4EC	16	1-2 TILL/21 DAT				
ACTIVATOR 90	L	0.25% v/v	1-2 TILL/21 DAT				
TENACITY	4SC	5	1-2 TILL/42 DAT	10.0	10.0	10.0	10.0
TURFLON ESTER	4EC	16	1-2 TILL/42 DAT				
ACTIVATOR 90	L	0.25 % V/V	1-2 TILL/42 DAT				

Table 1(cont). Evaluations of turfgrass phytotoxicity, where 0 = dead turf, 7 = acceptable, and 10 = no phytotoxicity in 2012.

Treatment	Form	Rate oz/A	Timing	-----Turf Phytotoxicity-----			
				7/13	8/4	8/11	8/20
TENACITY	4SC	5	PRE TILL/21 DAT	9.0	10.0	10.0	10.0
TURFLON ESTER	4EC	16	PRE TILL/21 DAT				
ACTIVATOR 90	L	0.25% v/v	PRE TILL/21 DAT				
CHECK				10.0	10.0	10.0	10.0
TENACITY	4SC	5	PRE TILL/42 DAT	10.0	10.0	10.0	10.0
TURFLON ESTER	4EC	16	PRE TILL/42 DAT				
ACTIVATOR 90	L	0.25% v/v	PRE TILL/42 DAT				
TENACITY	4SC	5	1-2 TILL/21 DAT	10.0	10.0	10.0	10.0
TURFLON ESTER	4EC	16	1-2 TILL/21 DAT				
ACTIVATOR 90	L	0.25% v/v	1-2 TILL/21 DAT				
TENACITY	4SC	5	1-2 TILL/42 DAT	10.0	10.0	10.0	10.0
TURFLON ESTER	4EC	16	1-2 TILL/42 DAT				
ACTIVATOR 90	L	0.25 % V/V	1-2 TILL/42 DAT				

Table 2. Evaluations of smooth crabgrass control in 2012, where 85% control or greater was considered commercially acceptable.

Treatment	Form	Rate oz/A	Timing	(------Crabgrass Control-----)		
				7/4	8/4	8/27
TENACITY	4SC	5	PRE TILL/21 DAT	81.3	81.3	81.3
TURFLON ESTER	4EC	16	PRE TILL/21 DAT			
ACTIVATOR 90	L	0.25% v/v	PRE TILL/21 DAT			
CHECK				0.0	0.0	0.0
TENACITY	4SC	5	PRE TILL/42 DAT	92.2	92.2	92.2
TURFLON ESTER	4EC	16	PRE TILL/42 DAT			
ACTIVATOR 90	L	0.25% v/v	PRE TILL/42 DAT			
TENACITY	4SC	5	1-2 TILL/21 DAT	0.0	66.7	80.6
TURFLON ESTER	4EC	16	1-2 TILL/21 DAT			
ACTIVATOR 90	L	0.25% v/v	1-2 TILL/21 DAT			
TENACITY	4SC	5	1-2 TILL/42 DAT	0.0	64.7	78.9
TURFLON ESTER	4EC	16	1-2 TILL/42 DAT			
ACTIVATOR 90	L	0.25 % V/V	1-2 TILL/42 DAT			



Figure 1: Overview of the crabgrass testing area. Photo taken 7/15/2012.



Figure 2: CO₂ powered boom sprayer used for applying liquid materials.