

Post Emergence Control of Smooth Crabgrass

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Introduction

Post emergence control of smooth crabgrass (*Digitaria ischaemum*) was evaluated on a mature mixed stand of 'Midnight' Kentucky bluegrass (*Poa pratensis*) and '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 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 May 30, 2009 (1-3 LF) at the one to three leaf stage and on July 15, 2009 (2-3 TILL) at the two to three tiller stage of smooth crabgrass using a three foot CO₂ powered boom sprayer calibrated to deliver 40 gpa using one, flat fan, TP9504EVS nozzle at 40 psi. 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 on August 10, 2009.

Smooth crabgrass germination was first noted in the test site on April 28, 2009 and was at the one to three leaf and two to three tiller stage of growth at the time of application of these materials.

Results and Discussion

Turfgrass phytotoxicity was rated two 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 two times during the study (Table 2). Treated crabgrass exhibited normal levels of phytotoxicity (Figure 1).

The percent control of the smooth crabgrass was rated once during the study on August 8, 2009 (Table 3). On this rating date turfgrass treated at the 1 to 3 leaf stage of growth with Acclaim Extra did not provide commercially acceptable (85% or greater) control. Note that turfgrass treated with Tenacity provided 84.5 percent control of smooth crabgrass at this growth stage. Only turfgrass treated with Acclaim Extra at the 2 to 3 tiller stage of growth provided commercially acceptable control.

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Table 1. Evaluations of turfgrass phytotoxicity in 2009 where 0 = dead turf, 7 = acceptable, and 10 = no phytotoxicity.

Treatment	Form	Rate oz/M	Timing	-----Phytotoxicity-----	
				6/4	7/20
DRIVE XLR8	SL	1.5	1-3 LF	10.0	10.0
MSO	L	1% v/v	1-3 LF		
DRIVE	75DF	0.37	1-3 LF	10.0	10.0
MSO	L	1% v/v	1-3 LF		
ACCLAIM EXTRA	0.57EW	13 oz/A	1-3 LF	10.0	10.0
GENERIC QUINCLORAC	75DF	0.37	1-3 LF	10.0	10.0
TENACITY	4SC	5 oz/A	1-3 LF	7.7	10.0
CHECK				10.0	10.0
DRIVE XLR8	SL	1.5	2-3 TILL	10.0	10.0
MSO	L	1% v/v	2-3 TILL		
DRIVE	75DF	0.37	2-3 TILL	10.0	10.0
MSO	L	1% v/v	2-3 TILL		
ACCLAIM EXTRA	0.57EW	26 oz/A	2-3 TILL	10.0	10.0
GENERIC QUINCLORAC	75DF	0.37	2-3 TILL	10.0	10.0
TENACITY	4SC	5 oz/A	2-3 TILL	10.0	10.0

Table 2. Evaluations of smooth crabgrass phytotoxicity after application of selected herbicides, taken in 2009.

Treatment	Form	Rate oz/M	Timing	-----Crabgrass Phyto-----	
				6/4	7/20
DRIVE XLR8	SL	1.5	1-3 LF	3.3	10.0
MSO	L	1% v/v	1-3 LF		
DRIVE	75DF	0.37	1-3 LF	2.0	10.0
MSO	L	1% v/v	1-3 LF		
ACCLAIM EXTRA	0.57EW	13 oz/A	1-3 LF	7.3	10.0
GENERIC QUINCLORAC	75DF	0.37	1-3 LF	3.0	10.0
TENACITY	4SC	5 oz/A	1-3 LF	7.0	10.0
CHECK				10.0	10.0
DRIVE XLR8	SL	1.5	2-3 TILL	10.0	2.7
MSO	L	1% v/v	2-3 TILL		
DRIVE	75DF	0.37	2-3 TILL	10.0	2.0
MSO	L	1% v/v	2-3 TILL		
ACCLAIM EXTRA	0.57EW	26 oz/A	2-3 TILL	10.0	4.0
GENERIC QUINCLORAC	75DF	0.37	2-3 TILL	10.0	3.7
TENACITY	4SC	5 oz/A	2-3 TILL	10.0	6.0

Table 3. Evaluations of the percent control of smooth crabgrass in 2009. Commercially acceptable control was considered to be 85% and above.

Treatment	Form	Rate oz/M			(---% Control---) 8/10
DRIVE XLR8	SL	1.5	1-3 LF		98.0
MSO	L	1% v/v	1-3 LF		
DRIVE	75DF	0.37	1-3 LF		91.5
MSO	L	1% v/v	1-3 LF		
ACCLAIM EXTRA	0.57EW	13 oz/A	1-3 LF		53.9
GENERIC QUINCLORAC	75DF	0.37	1-3 LF		89.8
TENACITY	4SC	5 oz/A	1-3 LF		84.5
CHECK					0.0
DRIVE XLR8	SL	1.5	2-3 TILL		79.5
MSO	L	1% v/v	2-3 TILL		
DRIVE	75DF	0.37	2-3 TILL		71.0
MSO	L	1% v/v	2-3 TILL		
ACCLAIM EXTRA	0.57EW	26 oz/A	2-3 TILL		93.1
GENERIC QUINCLORAC	75DF	0.37	2-3 TILL		36.6
TENACITY	4SC	5 oz/A	2-3 TILL		35.2



Figure 1: Overview of the test area expressing crabgrass phytotoxicity. Photo taken July 23, 2009 (7 DAT2)