

# Seedhead Suppression of Fairway Height Annual Bluegrass

## J. A. Borger and T. L. Harpster<sup>1</sup>

### Introduction

This study was conducted on a mature sward of annual bluegrass (*Poa annua*) at the Valentine Turfgrass Research Center, Penn State University, University Park, PA. The objective of the study was to determine if selected materials applied in the spring could suppress annual bluegrass seedhead populations under simulated golf course fairway conditions.

### Methods and Materials

This study was a randomized complete block design with three replications (Figure 1). Treatments were applied on 12 April (PRE-BOOT), 17 April (BOOT) and 29 April, 2015 (2 WAT) using a three foot CO<sub>2</sub> powered boom sprayer calibrated to deliver 40 gpa using one, flat fan, TP9504EVS nozzle at 40 psi (Figure 2). The initial treatment was applied at the pre-boot stage of growth of the annual bluegrass.

The test site consisted of approximately 95 percent annual bluegrass and 5 percent creeping bentgrass at the initiation of the study.

Turfgrass populations were visually evaluated for the percent seedhead coverage in order to evaluate the test material's ability to suppress annual bluegrass seedheads. The test site was mowed at 0.50 inches three times a week with a reel mower. Turfgrass was irrigated on an as needed basis to prevent moisture stress.

Data was analyzed with ARM 8.5.0 using Duncan's New MRT at the 0.5 percent significant level.

### Results and Discussion

Phytotoxicity was evaluated three times during the study (Table 1). Only turfgrass treated with Embark T/O had unacceptable phytotoxicity on one rating date.

Turfgrass color was rated three times during the study (Table 2). Similar to the phytotoxicity ratings, only Embark T/O and Proxy plus Primo alone had unacceptable color on one rating date.

Annual bluegrass seedhead populations were rated five times during the study (Table 3). On the final rating date, 22 May, only turfgrass treated with Proxy plus Primo alone, and combined with Civitas One and Civitas One alone did not significantly reduce annual bluegrass seedheads compare to non-treated turfgrass.

---

<sup>1</sup> Instructor and Research Technician III, Respectively, Department of Plant Sciences, Penn State University, University Park, Pa, 16802.

**Table 1.** Evaluations of an annual bluegrass and creeping bentgrass mix at fairway height for phytotoxicity, where 1 = no phytotoxicity, 3 = acceptable, and 10 = dead turf in 2014. Treatments were applied on April 12, 17 and 29, 2015.

Treatment	Rate oz/M	Timing	(-----Phytotoxicity-----)		
			4/21	4/26	5/1
CIVITAS ONE	17	BOOT	1.0	1.0	1.0
CF-125	0.2	BOOT	1.0	1.0	1.0
CIVITAS ONE	17	BOOT	1.0	1.0	1.0
CF-125	0.2	BOOT			
UNTREATED CHECK			1.0	1.0	1.0
PRIMO MAXX	0.125	PRE-BOOT / 2WAT	1.0	1.0	1.0
PROXXY	5	PRE-BOOT / 2WAT			
CIVITAS ONE	8	PRE-BOOT / 2WAT	1.0	1.0	1.0
PRIMO MAXX	0.125	PRE-BOOT / 2WAT			
PROXXY	5	PRE-BOOT / 2WAT			
CIVITAS ONE	8	PRE-BOOT / 2WAT	1.0	1.0	1.0
PRIMO MAXX	0.125	PRE-BOOT / 2WAT			
PROXXY	5	PRE-BOOT / 2WAT			
CF-125	0.2	2WAT			
CIVITAS ONE	8	PRE-BOOT / 2WAT	1.0	1.0	1.0
PRIMO MAXX	0.125	PRE-BOOT / 2WAT			
PROXXY	5	PRE-BOOT / 2WAT			
CF-125	0.2	2WAT			
MCP	0.125 LB AIA	2WAT			
EMBARK T/O	48 FL OZ/A	BOOT	1.0	4.0	2.0

**Table 2.** Color ratings taken on a scale of 0 to 10 where 0 = brown turf, 7 = acceptable, and 10 = dark green of an annual bluegrass, creeping bentgrass simulated fairway in 2014. . Treatments were applied on April 12, 17 and 29, 2015.

Treatment	Rate oz/M	Timing	(-----Color-----)		
			4/26	5/12	5/21
CIVITAS ONE	17	BOOT	9.0	8.7	7.3
CF-125	0.2	BOOT	7.7	8.0	7.3
CIVITAS ONE	17	BOOT			
CF-125	0.2	BOOT			
UNTREATED CHECK			8.0	8.3	7.3
PRIMO MAXX	0.125	PRE-BOOT / 2WAT	7.7	6.3	7.7
PROXXY	5	PRE-BOOT / 2WAT			
CIVITAS ONE	8	PRE-BOOT / 2WAT	8.3	9.0	9.0
PRIMO MAXX	0.125	PRE-BOOT / 2WAT			
PROXXY	5	PRE-BOOT / 2WAT			
CIVITAS ONE	8	PRE-BOOT / 2WAT	8.0	9.0	9.0
PRIMO MAXX	0.125	PRE-BOOT / 2WAT			
PROXXY	5	PRE-BOOT / 2WAT			
CF-125	0.2	2WAT			
CIVITAS ONE	8	PRE-BOOT / 2WAT	8.3	8.7	8.0
PRIMO MAXX	0.125	PRE-BOOT / 2WAT			
PROXXY	5	PRE-BOOT / 2WAT			
CF-125	0.2	2WAT			
MCP	0.125 LB AIA	2WAT			
EMBARK T/O	48 FL OZ/A	BOOT	7.0	4.0	8.0

**Table 3.** Annual bluegrass seedhead coverage ratings of an annual bluegrass, creeping bentgrass simulated fairway taken in 2014. . Treatments were applied on April 12, 17 and 29, 2015.

Treatment	Rate oz/M	Timing	(-----% Seedhead Coverage <sup>1</sup> -----)				
			4/21	4/26	5/1	5/15	5/22
CIVITAS ONE	17	BOOT	0.0 a	0.0 a	0.0 a	83.3 a	61.7 a
CF-125	0.2	BOOT	0.0 a	0.0 a	0.0 a	86.7 a	28.3 bc
CIVITAS ONE	17	BOOT	0.0 a	0.0 a	0.0 a	90.0 a	23.3 c
CF-125	0.2	BOOT					
UNTREATED CHECK			0.0 a	0.0 a	0.0 a	76.7 a	70.0 a
PRIMO MAXX	0.125	PRE-BOOT / 2WAT	0.0 a	0.0 a	0.0 a	76.7 a	68.3 a
PROXXY	5	PRE-BOOT / 2WAT					
CIVITAS ONE	8	PRE-BOOT / 2WAT	0.0 a	0.0 a	0.0 a	40.0 b	48.3 ab
PRIMO MAXX	0.125	PRE-BOOT / 2WAT					
PROXXY	5	PRE-BOOT / 2WAT					
CIVITAS ONE	8	PRE-BOOT / 2WAT	0.0 a	0.0 a	0.0 a	36.7 b	18.3 c
PRIMO MAXX	0.125	PRE-BOOT / 2WAT					
PROXXY	5	PRE-BOOT / 2WAT					
CF-125	0.2	2WAT					
CIVITAS ONE	8	PRE-BOOT / 2WAT	0.0 a	0.0 a	0.0 a	55.0 b	23.3 c
PRIMO MAXX	0.125	PRE-BOOT / 2WAT					
PROXXY	5	PRE-BOOT / 2WAT					
CF-125	0.2	2WAT					
MCP	0.125 LB AIA	2WAT					
EMBARK T/O	48 FL OZ/A	BOOT	0.0 a	0.0 a	0.0 a	3.7 c	8.3 c

1 - Means followed by same letter do not significantly differ (P=0.05, Duncan's New MRT)

