Seedhead Suppression of Fairway Height Annual Bluegrass
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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 17 April (BOOT) and 17 May, 2015 (4 WAT) using a three foot CO_2 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 seedhead suppression 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

Turfgrass color and phytotoxicity was evaluated three times during the study (Tables 1 and 2). Only turfgrass treated with Embark T/O alone had unacceptable color and phytotoxicity on one rating date.

Annual bluegrass seedhead suppression was rated four times during the study (Table 3). Similarly, only turfgrass treated with Embark T/O alone had significant reduction in the seedhead population when compared to non-treated.

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

Treatment	Form	Rate Lb AIA	Timing	(------Phytotoxicity-----)		
				4/26	5/1	5/15
NB 38830 NIS	0.1 SC	0.0313 0.25 %V/V	BOOT	1.3	1.0	1.0
NB 38830 NIS	0.1 SC	0.0535 0.25 %V/V	BOOT	1.0	1.0	1.0
NB 38830 NIS	0.1 SC	0.08 0.25 %V/V	BOOT	1.3	1.0	1.0
NB 38830 NIS	0.1 SC	0.0268 0.25 %V/V	BOOT/4 WAT	1.7	1.0	1.0
UNTREATED CHECK				1.7	1.0	1.0
NB 38830 NIS	0.1 SC	0.0268 0.25 %V/V	BOOT/4 WAT	1.0	1.0	1.0
NB 38830 NIS	0.1 SC	0.0535 0.25 %V/V	BOOT/4 WAT	1.7	1.0	1.0
EMBARK T/O 0.2 SC UREA		40 oz/A 0.25 LB N/M	BOOT	1.3	3.0	1.0
EMBARK T/O 0.2 SC		48 oz/A	BOOT	1.3	4.3	1.0

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 simulated fairway in 2015. Treatments were applied on April 12, 17 and 29, 2015.

Treatment	Form	Rate Lb AIA	Timing	(----------Color------------)		
				4/26	5/1	5/22
NB 38830 NIS	0.1 SC 0.25 %V/V	0.0313	BOOT	7.0	7.0	7.0
NB 38830 NIS	0.1 SC 0.25 %V/V	0.0535	BOOT	7.3	7.0	7.0
NB 38830 NIS	0.1 SC 0.25 %V/V	0.08	BOOT	7.3	7.0	7.3
NB 38830 NIS	0.1 SC 0.25 %V/V	0.0268	BOOT/4 WAT	7.7	7.0	7.3
UNTREATED CHECK				7.7	7.0	7.0
NB 38830 NIS	0.1 SC 0.25 %V/V	0.0268	BOOT/4 WAT	8.0	7.0	7.7
NB 38830 NIS	0.1 SC 0.25 %V/V	0.0535	BOOT/4 WAT	7.3	7.0	7.0
EMBARK T/O 0.2 SC UREA	0.25 LB N/M	40 oz/A	BOOT	7.7	6.3	9.0
EMBARK T/O 0.2 SC		48 oz/A	BOOT	7.0	5.7	9.3

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

Treatment	Form	Rate Lb AIA	Timing	(--------% Seedhead Coverage[1]--------)			
				4/26	**5/1**	**5/15**	**5/22**
NB 38830 NIS	0.1 SC	0.0313 0.25 %V/V	BOOT	0.0 a	0.0 a	86.7 a	43.3 ab
NB 38830 NIS	0.1 SC	0.0535 0.25 %V/V	BOOT	0.0 a	0.0 a	86.7 a	36.7 ab
NB 38830 NIS	0.1 SC	0.08 0.25 %V/V	BOOT	0.0 a	0.0 a	86.7 a	60.0 a
NB 38830 NIS	0.1 SC	0.0268 0.25 %V/V	BOOT/4 WAT	0.0 a	0.0 a	90.0 a	11.7 bc
UNTREATED CHECK				0.0 a	0.0 a	86.7 a	41.7 ab
NB 38830 NIS	0.1 SC	0.0268 0.25 %V/V	BOOT/4 WAT	0.0 a	0.0 a	83.3 a	40.0 ab
NB 38830 NIS	0.1 SC	0.0535 0.25 %V/V	BOOT/4 WAT	0.0 a	0.0 a	83.3 a	38.3 ab
EMBARK T/O 0.2 SC UREA		40 oz/A 0.25 LB N/M	BOOT	0.0 a	0.0 a	16.7 b	30.0 abc
EMBARK T/O 0.2 SC		48 oz/A	BOOT	0.0 a	0.0 a	12.3 b	3.3 c

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