Seedhead Suppression of Greens Height Annual Bluegrass

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Introduction

This study was conducted on a mature stand of annual bluegrass (*Poa annua*) and creeping bentgrass (*Agrostis stoloifera)* at the Valentine Turfgrass Research Center, Penn State University, University Park, PA. The objective of the study was to determine if selected materials could suppress annual bluegrass seedhead populations under simulated golf course greens conditions.

Methods and Materials

This study was a randomized complete block design with three replications (Figure 1). Treatments were applied at boot stage on April 5, 2013 using a three foot CO_2 powered boom sprayer (Figure 2) calibrated to deliver 40 gpa using one, flat fan, TP9504EVS nozzle at 40 psi. Additionally, turfgrass was irrigated on an as needed basis to prevent moisture stress. The test area received maintenance fungicide applications to prevent disease.

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

Results and Discussion

Spring 2013 arrived late in Centre Pennsylvania. Averages temperatures the week prior to study initiation were in the 40's (Fahrenheit) and remained cool throughout April. Typically, for our area, annual bluegrass boot stage takes place in late March - early April.

Annual bluegrass seedhead populations were rated seven times during the study (Table 1). There were no seedheads visible at the beginning of the study. Seedhead production did not take off until the 6 May, (4 WAT). By 15 April (6 WAT) all treated turfgrass had significantly reduced seedhead pressure as compared to the non-treated turfgrass and continued to the end of the study. On 28 June 2013, 12 WAT there were not annual bluegrass seedheads found on the study area (data not shown).

Turfgrass color was rated once during the study (Table 2). No unacceptable color was observed during the study as reflected by the data in Table 2. Although there was only one rating of turfgrass color, numerous observation of the study area revealed no adverse turfgrass color. Hence, the researcher only recorded the single rating to substantiate this observation.

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Table 1. Percent annual bluegrass seedhead coverage on a simulated green. Treatments were applied on April 5, 2013.

Treatment	Form	Rate	(----------% Seedhead Coverage[1]----------)							
		lb ai/A	4/5	4/29	5/6	5/15	5/23	5/29	6/7	6/15
MAINTAIN CF 125	1 EC	0.063	0.0 a	6.7 b	31.7 bc	20.0 bc	31.7 b	8.3 b	18.3	16.7 cd
MAINTAIN CF 125	1 EC	0.5	0.0 a	8.3 b	35.0 bc	28.3 abc	26.7 bc	8.3 b	15.0 b	18.3 bc
MAINTAIN CF 125	1 EC	1	0.0 a	5.0 b	28.3 bc	13.3 c	25.0 bc	8.3 b	20.0 b	16.7 cd
MAINTAIN CF 125	1 EC	2	0.0 a	6.7 b	28.3 bc	21.7 bc	20.0 cd	8.3 b	13.3 b	8.3 de
UNTREATED CHECK			0.0 a	10.0b	45.0 ab	45.0 a	45.0 a	45.0 a	45.0 a	45.0 a
EMBARK T/O	0.2 SL	0.0625	0.0 a	8.3 b	41.7 ab	15.0 c	26.7 bc	10.0 b	23.3 b	26.7 b
EMBARK T/O UREA	0.2 SL	0.0625 0.25 lb/M	0.0 a	15.0 ab	38.3 b	15.0 c	18.3 cd	6.7 b	21.7 b	20.0 bc
MAINTAIN CF 125 EMBARK T/O	1 EC 0.2 SL	0.063 0.03125	0.0 a	16.7 ab	40.0 ab	36.7 ab	26.7 bc	10.0 b	10.0 b	6.7 e
MAINTAIN CF 125 EMBARK T/O UREA	1 EC 0.2 SL	0.063 0.03125 0.25 lb/M	0.0 a	28.3 a	56.7 a	38.3 ab	28.3 bc	11.7 b	16.7 b	20.0 bc
MAINTAIN CF 125 MCPP	1 EC 1.9 SC	0.063 0.125	0.0 a	13.3 b	20.0 c	10.0 c	13.3 d	11.7 b	18.3 b	13.3 cde
MAINTAIN CF 125 MCPP	1 EC 1.9 SC	0.5 0.125	0.0 a	15.0 ab	40.0 ab	26.7 abc	20.0 cd	21.7 b	15.0 b	13.3 cde

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

Table 2. Evaluations of turfgrass color, where 0 = brown turf, 7 = acceptable, and 10 = dark green turfgrass. Treatments were applied on April 5, 2013.

Treatment	Form	Rate lb ai/A	Turf Color 5/23
MAINTAIN CF 125	1 EC	0.063	7.3
MAINTAIN CF 125	1 EC	0.5	7.0
MAINTAIN CF 125	1 EC	1	7.0
MAINTAIN CF 125	1 EC	2	7.0
UNTREATED CHECK			7.0
EMBARK T/O	0.2 SL	0.0625	7.8
EMBARK T/O UREA	0.2 SL	0.0625 0.25 lb/M	8.0
MAINTAIN CF 125 EMBARK T/O	1 EC 0.2 SL	0.063 0.03125	7.3
MAINTAIN CF 125 EMBARK T/O UREA	1 EC 0.2 SL	0.063 0.03125 0.25 lb/M	7.3
MAINTAIN CF 125 MCPP	1 EC 1.9 SC	0.063 0.125	7.3
MAINTAIN CF 125 MCPP	1 EC 1.9 SC	0.5 0.125	7.3

Figure 1: Overview of the test area. Photo taken 4/7/2013

Figure 2: CO_2 powered boom sprayer used for applying liquid materials.