Seedhead Suppression of Annual Bluegrass on a Simulated Fairway

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Introduction

This study was conducted on a stand of annual bluegrass (*Poa annua*) at the Valentine Turfgrass Research Center, University Park, PA. The objective of the study was to evaluate plant growth regulators, with and without fertilizers, for the seedhead suppression of annual bluegrass.

Methods and Materials

This study was a randomized complete block design with four replications, and a plot size of 30 ft^2. Treatments were applied on April 17 (BT), and May 7, 2008 (3 WAT), respectively, using a three-foot CO_2 powered boom sprayer calibrated to deliver 87.12 gpa using one 11008E even tip/flat fan nozzle at 40 psi.

Boot stage of the annual bluegrass was observed April 20, 2008. Non treated test areas within the test site revealed approximately 95% coverage of annual bluegrass seedheads at peak emergence.

The site was maintained using cultural practices for irrigation, mowing, and fertilization that would be typical for a highly maintained golf course fairway. The test area was mowed three times per week with a Toro fairway unit, bench set to 0.500".

Results and Discussion

Turfgrass phytotoxicity was rated three times during the study (Table 1). Only turfgrass treated with Embark T&O alone or with ECO-N reveled phytotoxicity below the 7.0 acceptable level on the May 6th rating date. No other unacceptable phytotoxicity was observed.

Turfgrass color was rated on April 30, 2008 (Table 2). All turfgrass had acceptable color.

Annual bluegrass seedhead suppression was rated three times during the study (Table 3). The amount of suppression was variable during this study. In the final rating date, May 28, 2008, only turfgrass treated with Embark T&O alone or combined with ECO-N had significantly more seedhead suppression than non treated turfgrass.

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Table 1. Ratings of phytotoxicity of a simulated annual bluegrass fairway on a scale of 0 to 10 where 0 = dead turf, 7 = acceptable, and 10 = no phytotoxicity in 2008.

Treatment	Form	Rate	Timing	(----------Phytotoxicity----------)		
		oz/M		4/30	5/6	5/21
EMBARK T&O	0.2SL	48 oz/A	BT	10.0	6.0	10.0
EMBARK T&O	0.2SL	48 oz/A	BT	10.0	9.0	10.0
FERROMEC	L	5	BT			
EMBARK T&O	0.2SL	48 oz/A	BT	10.0	6.0	10.0
ECO-N (24-0-0)	2.2L	0.037 lb N/M	BT			
EMBARK T&O	0.2SL	48 oz/A	BT	10.0	8.3	10.0
ULTRAPLEX	L	9	BT			
EMBARK T&O	0.2SL	48 oz/A	BT	10.0	7.0	10.0
ULTRAPLEX	L	7	BT			
AMINOPLEX	L	3	BT			
CHECK				10.0	10.0	10.0
EMBARK T&O	0.2SL	48 oz/A	BT	10.0	10.0	10.0
MICROBURST	L	6	BT			
EMBARK T&O	0.2SL	48 oz/A	BT	10.0	9.3	10.0
ULTRAPLEX	L	9	BT			
MICROBURST	L	6	BT			
PRIMO MAXX	1MEC	0.25	BT/3 WAT	10.0	10.0	10.0
PROXY	2SL	5	BT/3 WAT			
PRIMO MAXX	1MEC	0.25	BT/3 WAT	10.0	9.7	10.0
PROXY	2SL	5	BT/3 WAT			
ULTRAPLEX	L	9	BT/3 WAT			
PROXY	2SL	5	BT	10.0	10.0	10.0
ULTRAPLEX	L	7	BT			
AMINOPLEX	L	3	BT			
ECO-N (24-0-0)	2.2L	0.037 lb N/M	BT	10.0	10.0	10.0
PRIMO MAXX	1MEC	0.25	BT/3 WAT	10.0	9.3	10.0
PROXY	2SL	5	BT/3 WAT			
ECO-N (24-0-0) 2.2	L	0.037 lb N/M	BT/3 WAT			
PRIMO MAXX	1MEC	0.25	BT/3 WAT	10.0	10.0	10.0
PROXY	2SL	5	BT/3 WAT			
ECO-N (24-0-0) 2.2	L	0.25 lb N/M	BT/3 WAT			

Table 2. Ratings of color of a simulated annual bluegrass fairway on a scale of 0 to 10 where 0 = brown turf, 7 = acceptable, and 10 = dark green color in 2008.

Treatment	Form	Rate oz/M	Timing	(-------Color-------) 4/30
EMBARK T&O	0.2SL	48 oz/A	BT	7.7
EMBARK T&O	0.2SL	48 oz/A	BT	9.3
FERROMEC	L	5	BT	
EMBARK T&O	0.2SL	48 oz/A	BT	7.8
ECO-N (24-0-0)	2.2L	0.037 lb N/M	BT	
EMBARK T&O	0.2SL	48 oz/A	BT	8.5
ULTRAPLEX	L	9	BT	
EMBARK T&O	0.2SL	48 oz/A	BT	8.3
ULTRAPLEX	L	7	BT	
AMINOPLEX	L	3	BT	
CHECK				10.0
EMBARK T&O	0.2SL	48 oz/A	BT	10.0
MICROBURST	L	6	BT	
EMBARK T&O	0.2SL	48 oz/A	BT	9.5
ULTRAPLEX	L	9	BT	
MICROBURST	L	6	BT	
PRIMO MAXX	1MEC	0.25	BT/3 WAT	9.2
PROXY	2SL	5	BT/3 WAT	
PRIMO MAXX	1MEC	0.25	BT/3 WAT	9.7
PROXY	2SL	5	BT/3 WAT	
ULTRAPLEX	L	9	BT/3 WAT	
PROXY	2SL	5	BT	9.0
ULTRAPLEX	L	7	BT	
AMINOPLEX	L	3	BT	
ECO-N (24-0-0)	2.2L	0.037 lb N/M	BT	9.2
PRIMO MAXX	1MEC	0.25	BT/3 WAT	8.7
PROXY	2SL	5	BT/3 WAT	
ECO-N (24-0-0) 2.2	L	0.037 lb N/M	BT/3 WAT	
PRIMO MAXX	1MEC	0.25	BT/3 WAT	9.8
PROXY	2SL	5	BT/3 WAT	
ECO-N (24-0-0) 2.2	L	0.25 lb N/M	BT/3 WAT	

Table 3. Ratings of the percent seedhead suppression of a simulated annual bluegrass fairway in 2008.

Treatment	Form	Rate	Timing	(--------% Suppression [1, 2]-------)		
		oz/M		4/30	5/6	5/28
EMBARK T&O	0.2SL	48 oz/A	BT	79.6a	82.6a	52.9a
EMBARK T&O	0.2SL	48 oz/A	BT	22.2c-f	14.7bc	13.8bc
FERROMEC	L	5	BT			
EMBARK T&O	0.2SL	48 oz/A	BT	75.9a	70.6a	63.5a
ECO-N (24-0-0)	2.2L	0.037 lb N/M	BT			
EMBARK T&O	0.2SL	48 oz/A	BT	25.9cd	8.3cd	3.7bc
ULTRAPLEX	L	9	BT			
EMBARK T&O	0.2SL	48 oz/A	BT	50.0b	31.6b	22.2b
ULTRAPLEX	L	7	BT			
AMINOPLEX	L	3	BT			
CHECK				0.0f	0.0cd	0.0bc
EMBARK T&O	0.2SL	48 oz/A	BT	1.9ef	-9.5d	-5.8c
MICROBURST	L	6	BT			
EMBARK T&O	0.2SL	48 oz/A	BT	3.7def	15.3bc	18.5bc
ULTRAPLEX	L	9	BT			
MICROBURST	L	6	BT			
PRIMO MAXX	1MEC	0.25	BT/3 WAT	22.2c-f	-10.0d	-2.1bc
PROXY	2SL	5	BT/3 WAT			
PRIMO MAXX	1MEC	0.25	BT/3 WAT	24.1cde	2.5cd	1.6bc
PROXY	2SL	5	BT/3 WAT			
ULTRAPLEX	L	9	BT/3 WAT			
PROXY	2SL	5	BT	7.4def	2.6cd	18.5bc
ULTRAPLEX	L	7	BT			
AMINOPLEX	L	3	BT			
ECO-N (24-0-0)	2.2L	0.037 lb N/M	BT	1.9ef	3.1cd	10.1bc
PRIMO MAXX	1MEC	0.25	BT/3 WAT	44.4bc	-2.1cd	9.0bc
PROXY	2SL	5	BT/3 WAT			
ECO-N (24-0-0) 2.2	L	0.037 lb N/M	BT/3 WAT			
PRIMO MAXX	1MEC	0.25	BT/3 WAT	16.7def	-13.7d	-2.1bc
PROXY	2SL	5	BT/3 WAT			
ECO-N (24-0-0) 2.2	L	0.25 lb N/M	BT/3 WAT			

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

2 – Negative numbers indicate an increase in seedhead presence from the untreated check plots.