

Annual Bluegrass Control in Fairway Height Creeping Bentgrass

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Introduction

This study was conducted on a mature stand of ‘Penneagle’ creeping bentgrass (*Agrostis stolonifera*) and 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 could reduce the annual bluegrass population under simulated fairway conditions.

Methods and Materials

This study was a randomized complete block design with three replications. Treatments were applied on May 23 (SHTR) and October 25, 2007 (OCT) using a three foot CO₂ powered boom sprayer calibrated to deliver 40 gpa using one, flat fan, 11004E nozzle at 40 psi. The test area was maintained at 0.5 inch using a five-plex reel mower that collected clippings. Turfgrass was irrigated on an as needed basis to prevent moisture stress. The study was fertilized prior to green up with 1 lb N/M from IBDU and again in May with 1 lb N/M from urea. The test area received maintenance fungicide applications to control disease.

The test site consisted of approximately 35 percent creeping bentgrass and 65 percent annual bluegrass at the initiation of the study. The annual bluegrass population was visually evaluated on May 22, 2007 and May 8, 2008, on a plot by plot basis, to determine the baseline population and percent change of the population in each plot.

Results and Discussion

Turfgrass phytotoxicity was rates four times during the study (Table 1). Only slight phytotoxicity was observed on any of the rating dates, but never below the 7.0 acceptable level.

Turfgrass green-up was rated on April 14th and 24th, 2008 (Table 2). On the April 14th rating date turfgrass treated with Trimmit applied in October, at any rate, alone or in combination with other materials fell below that of untreated (6.7).

The percent control of annual bluegrass was rated on May 8, 2008 (Table 3). There was no significant annual bluegrass control found when treated turfgrass was compared to non treated turfgrass. It should be noted that the annual bluegrass population increased in the non treated turfgrass area by almost 30%.

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Table 1. Phytotoxicity on a scale of 0-10, where 0 = dead turf, 7 = acceptable, and 10 = no phytotoxicity in a mixed fairway height sward of 'Penneagle' creeping bentgrass and annual bluegrass in 2007.

Treatment	Form	Rate oz/M	Timing	-----Phytotoxicity-----			
				5-30	6-5	6-18	11-5
TRIMMIT	2SC	1	SHTR	10.0	9.7	10.0	10.0
TRIMMIT	2SC	1	SHTR	10.0	8.8	10.0	10.0
EMBARK	0.2SL	10 oz/A	SHTR				
TRIMMIT	2SC	1	SHTR	10.0	9.2	10.0	10.0
EMBARK	0.2SL	10 oz/A	SHTR				
ECO-N (24-0-0)	2.2L	0.25 lb N/M	SHTR				
TRIMMIT	2SC	1	SHTR	10.0	9.0	10.0	10.0
EMBARK	0.2SL	10 oz/A	SHTR				
ECO-N (24-0-0)	2.2L	0.25lb N/M	SHTR				
PRIMO MAXX	1MEC	0.125	SHTR				
TRIMMIT	2SC	0.375 lb ai/A	SHTR	10.0	9.8	10.0	10.0
CHECK				10.0	10.0	10.0	10.0
TRIMMIT	2SC	1	OCT	10.0	10.0	10.0	9.8
TRIMMIT	2SC	1	OCT	10.0	10.0	10.0	9.2
EMBARK	0.2SL	10 oz/A	OCT				
TRIMMIT	2SC	1	OCT	10.0	10.0	10.0	8.7
EMBARK	0.2SL	10 oz/A	OCT				
ECO-N (24-0-0)	2.2L	0.25lb N/M	OCT				
TRIMMIT	2SC	1	OCT	10.0	10.0	10.0	8.0
EMBARK	0.2SL	10 oz/A	OCT				
ECO-N (24-0-0)	2.2L	0.25lb N/M	OCT				
PRIMO MAXX	1MEC	0.125	OCT				
TRIMMIT	2SC	0.375 lb ai/A	OCT	10.0	10.0	10.0	8.8

Table 2. Spring green up ratings on a scale of 0-10, where 0 = dormant turf and 10 = full green up, of a mixed fairway height sward of 'Penneagle' creeping bentgrass and annual bluegrass in 2008.

Treatment	Form	Rate oz/M	Timing	----Green Up----	
				4-14	4-24
TRIMMIT	2SC	1	SHTR	6.8	10.0
TRIMMIT	2SC	1	SHTR	7.2	10.0
EMBARK	0.2SL	10 oz/A	SHTR		
TRIMMIT	2SC	1	SHTR	6.8	10.0
EMBARK	0.2SL	10 oz/A	SHTR		
ECO-N (24-0-0)	2.2L	0.25 lb N/M	SHTR		
TRIMMIT	2SC	1	SHTR	7.0	10.0
EMBARK	0.2SL	10 oz/A	SHTR		
ECO-N (24-0-0)	2.2L	0.25lb N/M	SHTR		
PRIMO MAXX	1MEC	0.125	SHTR		
TRIMMIT	2SC	0.375 lb ai/A	SHTR	6.8	10.0
CHECK				6.7	10.0
TRIMMIT	2SC	1	OCT	5.3	10.0
TRIMMIT	2SC	1	OCT	5.2	10.0
EMBARK	0.2SL	10 oz/A	OCT		
TRIMMIT	2SC	1	OCT	6.5	10.0
EMBARK	0.2SL	10 oz/A	OCT		
ECO-N (24-0-0)	2.2L	0.25lb N/M	OCT		
TRIMMIT	2SC	1	OCT	5.2	10.0
EMBARK	0.2SL	10 oz/A	OCT		
ECO-N (24-0-0)	2.2L	0.25lb N/M	OCT		
PRIMO MAXX	1MEC	0.125	OCT		
TRIMMIT	2SC	0.375 lb ai/A	OCT	5.8	10.0

Table 3. Percent control of annual bluegrass in a mixed fairway height sward with ‘Penneagle’ creeping bentgrass in 2008.

Treatment	Form	Rate (lb Ai/A)	Timing	(---% Control^{1,2}--) 5/8/08
TRIMMIT	2SC	1	SHTR	5.2ab
TRIMMIT	2SC	1	SHTR	2.8ab
EMBARK	0.2SL	10 oz/A	SHTR	
TRIMMIT	2SC	1	SHTR	-28.1ab
EMBARK	0.2SL	10 oz/A	SHTR	
ECO-N (24-0-0)	2.2L	0.25 lb N/M	SHTR	
TRIMMIT	2SC	1	SHTR	-53.3b
EMBARK	0.2SL	10 oz/A	SHTR	
ECO-N (24-0-0)	2.2L	0.25lb N/M	SHTR	
PRIMO MAXX	1MEC	0.125	SHTR	
TRIMMIT	2SC	0.375 lb ai/A	SHTR	1.2ab
CHECK				-29.8ab
TRIMMIT	2SC	1	OCT	-3.8ab
TRIMMIT	2SC	1	OCT	16.7a
EMBARK	0.2SL	10 oz/A	OCT	
TRIMMIT	2SC	1	OCT	2.8ab
EMBARK	0.2SL	10 oz/A	OCT	
ECO-N (24-0-0)	2.2L	0.25lb N/M	OCT	
TRIMMIT	2SC	1	OCT	-0.8ab
EMBARK	0.2SL	10 oz/A	OCT	
ECO-N (24-0-0)	2.2L	0.25lb N/M	OCT	
PRIMO MAXX	1MEC	0.125	OCT	
TRIMMIT	2SC	0.375 lb ai/A	OCT	-11.4ab

1 – Negative numbers indicate an increase in annual bluegrass populations and positive numbers a decrease in population.

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