Annual Bluegrass Prevention on a Newly Established Putting Green

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Introduction

This study was conducted on a mixed stand of 'Penncross' creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) at the Valentine Turfgrass Research Center, University Park, PA. The objective of the study was to evaluate selected materials for the suppression of annual bluegrass encroachment into a newly established area maintained similar to a putting green.

Methods and Materials

This study was a randomized complete block design with three replications. Treatments were applied on September 4 (FALL), September 16 (14DAT), October 1, 2003 (28DAT), August 25 (FALL), September 7 (14 DAT), and September 21, 2004 (28 DAT), and September 2 (FALL), September 20 (14 DAT), and October 10, 2005 (28 DAT) using a three-foot CO_2 powered boom sprayer calibrated to deliver 80 gpa using two 11004 flat fan nozzles at 40 psi.

The test area was established in July of 2002. Normal practices for a putting green establishment were conducted. Subsequently, the turf was maintained using cultural practices for irrigation, mowing, and fertilization that would be typical for a putting green.

Results and Discussion

None of the treatments caused discernable phytotoxicity to the turf (Table 1). Ratings for annual bluegrass encroachment in 2004 revealed that the untreated turf had the greatest percent increase, but the amount was not significantly different from that found as a result of any of the treatments (Table 2). Annual bluegrass encroachment rated in the spring of 2005 revealed some significant differences. Turfgrass treated with Betasan at 9.2 oz/M followed by Rubigan at 2 oz/M (applied twice) and Rubigan at 2 oz/M alone applied three times had significantly less annual bluegrass encroachment than untreated turfgrass. The percent annual bluegrass found in the spring of 2006 revealed an overall increase in the population compared to previous populations. All treated turfgrass had significantly less annual bluegrass than untreated on the April 13, 2006 rating date.

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Table 1. Phytotoxicity ratings of a simulated 'Penncross' creeping bentgrass/annual bluegrass putting green on a scale of 0 to 10 where 0 =most, 7 = acceptable, and 10 = none. Ratings were taken in 2003.

Treatment	Form	Rate oz/M	Timing	9/5	9/8	9/11	9/16	9/18	9/23	9/30	10/7
BETASAN	4EC	9.2	FALL	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BETASAN RUBIGAN	4EC AS	9.2 2	FALL 14DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
CHECK				10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BETASAN RUBIGAN	4EC AS	9.2 2	FALL 14DAT/28DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BETASAN RUBIGAN	4EC AS	9.2 2/4	FALL 14DAT/28DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
RUBIGAN	AS	2	FALL /14DAT/28DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Table 1 (continued). Phytotoxicity ratings of a simulated 'Penncross' creeping bentgrass/annual bluegrass putting green on a scale of 0 to 10 where 0 =most, 7 = acceptable, and 10 = none. Ratings were taken in 2004.

Treatment	Form	Rate oz/M	Timing	9/1	9/8	9/16	9/22	9/29	10/18	11/3	11/17
BETASAN	4EC	9.2	FALL	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BETASAN RUBIGAN	4EC AS	9.2 2	FALL 14DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
CHECK				10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BETASAN RUBIGAN	4EC AS	9.2 2	FALL 14DAT/28DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BETASAN RUBIGAN	4EC AS	9.2 2/4	FALL 14DAT/28DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
RUBIGAN	AS	2	FALL /14DAT/28DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Table 1 (continued). Phytotoxicity ratings of a simulated 'Penncross' creeping bentgrass/annual bluegrass putting green on a scale of 0 to 10 where 0 =most, 7 = acceptable, and 10 = none. Ratings were taken in 2005.

Treatment	Form	Rate oz/M	Timing	9/9	9/16	9/23	9/30	10/7	10/14	10/21	10/28
BETASAN	4EC	9.2	FALL	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BETASAN RUBIGAN	4EC AS	9.2 2	FALL 14DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
CHECK				10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BETASAN RUBIGAN	4EC AS	9.2 2	FALL 14DAT/28DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BETASAN RUBIGAN	4EC AS	9.2 2/4	FALL 14DAT/28DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
RUBIGAN	AS	2	FALL /14DAT/28DAT	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Table 2. Percent annual bluegrass ratings of a simulated 'Penncross' creeping bentgrass/annual bluegrass putting green from 2003, 2004, 2005, and 2006.

Treatment	Form	Rate oz/M	Timing	9/4/03	4/21/04	5/2/05	4/13/06
BETASAN	4EC	9.2	FALL	1.0a[1]	1.3a	15.0ab	16.7b
BETASAN RUBIGAN	4EC AS	9.2 2	FALL 14DAT	1.0a	1.7a	13.3ab	16.7b
CHECK				1.0a	2.7a	18.3a	28.3a
BETASAN RUBIGAN	4EC AS	9.2 2	FALL 14DAT/28DAT	1.0a	1.7a	8.3b	20.0b
BETASAN RUBIGAN	4EC AS	9.2 2/4	FALL 14DAT/28DAT	1.0a	1.0a	13.3ab	21.7ab
RUBIGAN	AS	2	FALL /14DAT/28DAT	1.0a	1.0a	8.3b	15.0b

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