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Abstract

The objectives of the 2007 Preemergence Crabgrass Control study were to identify which treatments provided at least 90% control of crabgrass, if preemergence applications of A15879A (pre-mix) provided equivalent control to a mesotrione and Barricade tank mix, and if A15879A caused any commercially unacceptable phytotoxicity.

Keywords

Horticulture

Disciplines

Agricultural Science | Agriculture | Horticulture

Preemergence Crabgrass Control: A15879A for Northern Turf, 2007

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Introduction

The objectives of the 2007 Preemergence Crabgrass Control study were to identify which treatments provided at least 90% control of crabgrass, if preemergence applications of A15879A (pre-mix) provided equivalent control to a mesotrione and Barricade tank mix, and if A15879A caused any commercially unacceptable phytotoxicity.

Materials and Methods

This study was conducted at the Iowa State University Horticulture Research Station. The study used a stand of 'Moonlight' Kentucky bluegrass, which was seeded approximately one year before the beginning of the study. The soil in the study area was a disturbed Nicollet clay soil, with a pH of 7.05, 15 ppm phosphorus, 94 ppm potassium, and 4.3 percent organic matter.

The study was arranged in a randomized complete block design, with four replications and 10 treatments (Table 1). Plots were seeded with crabgrass on April 28, with initial applications coming on May 1. Sequential treatments were made on May 31 and June 21. Treatments were applied using a CO₂ backpack sprayer at 40 psi, and a spray volume

equivalency rate of three gallons/1,000 ft², using TeeJet[®] 8002VS nozzles.

Crabgrass ratings began on May 7, and continued until September 17. It should be noted that there were no data for the May 7 rating, as there was no visible crabgrass in the plots at that time.

Results and Discussion

All products and product combinations provided acceptable crabgrass control throughout the growing season (Table 2). There were no differences between the pre-mix product (A15879A) and the tank-mixed products, mesotrione plus Barricade, when comparing equivalent rates and timings. Crabgrass populations indicate the same trend, no difference between equivalent treatments (Table 3).

Initially, there were some differences in phytotoxicity ratings (Table 4). The treatment comparisons that were different were treatment 3 versus treatment 5, and treatment 7 versus treatment 9. In both of these instances, the tank-mixed combination had the lower (worse) phytotoxicity rating. Treatments 7 and 9 also had a sequential application eight weeks after initial applications, but were not different at that time.

Table 1. Treatment list for crabgrass trial.

Trt	Syngenta ID	Chemical	Product/AI rate	Product/AI rate unit	Converted rate	Converted rate unit	Application timing ³	Rate per 25 ft ²
1	Control							
2	A15879		840.6	ga/ha ¹	0.75	lba/A ²	A	0.41 mL
3	A15879		1120.9	ga/ha	1	lba/A	A	0.55 mL
4	A12738	Mesotrione	210.2	ga/ha	0.187	lba/A	A	0.1 mL
	A12333D	Barricade	630.5	ga/ha	0.56	lba/A	A	0.3 mL
5	A12738	Mesotrione	280.2	ga/ha	0.25	lba/A	A	0.14 mL
	A12333D	Barricade	840.6	ga/ha	0.75	lba/A	A	0.41 mL
6	A15879		560.3	ga/ha	0.5	lba/A	A	0.27 mL
	A15879		560.3	ga/ha	0.5	lba/A	B	0.27 mL
7	A15879		560.3	ga/ha	0.5	lba/A	A	0.27 mL
	A15879		560.3	ga/ha	0.5	lba/A	C	0.27 mL
8	A12738	Mesotrione	140.1	ga/ha	0.125	lba/A	A	0.07 mL
	A12333D	Barricade	420.3	ga/ha	0.375	lba/A	A	0.2 mL
	A12738	Mesotrione	140.1	ga/ha	0.125	lba/A	B	0.07 mL
	A12333D	Barricade	420.3	ga/ha	0.375	lba/A	B	0.2 mL
	NIS		0.25	% v/v			B	0.7 mL
9	A12738	Mesotrione	140.1	ga/ha	0.125	lba/A	A	0.07 mL
	A12333D	Barricade	420.3	ga/ha	0.375	lba/A	A	0.2 mL
	A12738	Mesotrione	140.1	ga/ha	0.125	lba/A	C	0.07 mL
	A12333D	Barricade	420.3	ga/ha	0.375	lba/A	C	0.2 mL
	NIS		0.25	% v/v			C	0.7 mL
10	A15879		1120.9	ga/ha	1	lba/A	A	0.55 mL
	A12738	Mesotrione	280.2	ga/ha	0.25	lba/A	B	0.14 mL
	NIS		0.25	% v/v			B	0.7 mL

¹Grams active per hectare.²Pounds active per acre.³A = first application; B = second application; C = third application.

Table 2. Percentage crabgrass control.

Trt ¹	May 7	May 16	May 31	Jun 14	Jul 3	Jul 21	Aug 8	Sep 17
1	NWP ²	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	NWP	100.0	99.5	99.3	95.0	95.5	87.0	90.8
3	NWP	100.0	100.0	100.0	98.5	97.3	94.5	90.5
4	NWP	100.0	99.5	99.5	98.0	96.3	91.8	93.8
5	NWP	100.0	99.8	99.8	98.3	96.3	93.0	90.5
6	NWP	99.8	99.8	99.8	98.5	98.5	98.0	98.8
7	NWP	100.0	99.8	99.5	99.3	98.5	98.0	98.5
8	NWP	99.8	99.8	99.8	98.8	97.8	96.3	98.3
9	NWP	99.8	99.8	99.5	98.3	97.3	95.0	97.3
10	NWP	100.0	100.0	100.0	99.5	99.3	98.3	94.3
LSD (0.05)	-	0.4	0.6	0.8	3.3	2.6	7.1	6.6

¹Treatment details are shown in Table 1.²Indicates no weeds present at the time of the rating.**Table 3. Percentage crabgrass population.**

Trt ¹	May 7	May 16	May 31	Jun 14	Jul 3	Jul 21	Aug 8	Sep 17
1	NWP ²	26.3	36.3	47.5	60.0	81.3	80.0	85.5
2	NWP	0.0	0.5	0.8	5.0	4.5	13.0	9.3
3	NWP	0.0	0.0	0.0	1.5	2.8	5.5	9.5
4	NWP	0.0	0.5	0.5	2.0	3.8	8.3	6.3
5	NWP	0.0	0.3	0.3	1.8	3.8	7.0	9.5
6	NWP	0.3	0.3	0.3	1.5	1.5	2.0	1.3
7	NWP	0.0	0.3	0.5	0.8	1.5	2.0	1.5
8	NWP	0.3	0.3	0.3	1.3	2.3	3.8	1.8
9	NWP	0.3	0.3	0.5	1.8	2.8	5.0	2.8
10	NWP	0.0	0.0	0.0	0.5	0.8	1.8	5.8
LSD (0.05)	-	6.3	3.4	2.4	3.9	3.4	7.2	7.0

¹Treatment details are shown in Table 1.²Indicates no weeds present at the time of the rating.**Table 4. Phytotoxicity ratings (9 = no phyto, 1 = worst phyto, 6 = acceptable).**

Trt ¹	May 7	May 16	Jun 4	Jun 12	Jul 3	Jul 21
1	9.0	9.0	9.0	9.0	9.0	9.0
2	7.8	8.8	8.8	9.0	9.0	9.0
3	7.3	8.5	8.3	9.0	9.0	9.0
4	8.0	8.8	9.0	9.0	9.0	9.0
5	6.5	8.8	8.3	9.0	9.0	9.0
6	7.5	9.0	9.0	9.0	9.0	9.0
7	8.0	8.3	9.0	9.0	9.0	9.0
8	7.3	9.0	8.8	9.0	9.0	9.0
9	7.3	8.5	8.8	9.0	9.0	9.0
10	6.5	8.8	8.3	8.5	9.0	9.0
LSD (0.05)	0.7	NS	NS	0.3	NS	NS

¹Treatment details are shown in Table 1.

NS = no significant difference.