CONTROL OF ROUNDUP READY® CREEPING BENTGRASS AND ROUGHSTALK BLUEGRASS IN KENTUCKY BLUEGRASS SEED PRODUCTION IN CENTRAL OREGON, 2004-2005

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Abstract

Herbicides were evaluated for control of Roundup Ready® creeping bentgrass and roughstalk bluegrass in Kentucky bluegrass seed fields in central Oregon during 2004-2005. Plots were established in commercial fields of all three grasses, with application of herbicides on October 7 and November 19. Crop safety was evaluated in the Kentucky bluegrass field, herbicide efficacy was evaluated in the creeping bentgrass and roughstalk bluegrass fields. Callisto® (mesotrione) alone and a combination of Karmex® (diuron) and Sinbar® (terbacil) provided the best control of Roundup Ready creeping bentgrass. For the October 7 application, roughstalk bluegrass control was greatest with the combination of Beacon® (primisulfuron) plus Karmex. For the November 19 application roughstalk bluegrass control was greatest with the combination of Karmex plus Sinbar.

Introduction

The Oregon Department of Agriculture established a control area for the production of Roundup Ready creeping bentgrass seed north of Madras, Oregon. This area east of the Cascade mountain range was chosen because of its isolation from the Willamette Valley. The 60,000 acres of irrigated agricultural land in this arid, high desert region surrounded by sagebrush and juniper includes seed production of Kentucky bluegrass (*Poa pratensis*) and roughstalk bluegrass (*Poa trivialis*). Four hundred acres of commercial plantings of Roundup Ready creeping bentgrass (*Agrostis stolonifera*) were made within the control area in 2002, harvested in 2003, and removed from production in the spring of 2004 prior to heading. During 2004-2005 herbicides were evaluated for control of potential creeping bentgrass escapes and roughstalk bluegrass contamination in Kentucky bluegrass seed fields.

Methods and Materials

Plots 10 by 25 ft were replicated four times in commercial fields of Roundup Ready creeping bentgrass, roughstalk bluegrass and Kentucky bluegrass. Treatments were applied October 7 and November 19, 2004 using a CO_2 pressurized, hand-held boom sprayer at 40 psi and 20 gal/acre water. A non-ionic surfactant was added at a rate of 0.25 % v/v to all treatments. Plots were irrigated following the October 7 applications.

Crop safety was evaluated in the Kentucky bluegrass field, while herbicide efficacy was evaluated in the creeping bentgrass and roughstalk bluegrass fields. Plots were evaluated April 5, 2005 for percent reduction in biomass of Roundup Ready creeping bentgrass and roughstalk bluegrass, and crop injury to Kentucky bluegrass. The Roundup Ready creeping bentgrass and roughstalk bluegrass fields were taken out of production following the spring evaluation. Kentucky bluegrass plots were evaluated for reduction in seed set on June 14, 2005.

Results and Discussion

Callisto alone and a combination of Karmex plus Sinbar provided the greatest control of Roundup Ready creeping bentgrass across the two application dates (Table 1). There was little difference in herbicide effectiveness for the control of Roundup Ready creeping bentgrass between the October 7 and November 19 application dates.

The October 7 treatment of Beacon plus Karmex and the November 19 application of Karmex plus Sinbar provided the best control (91 and 89 percent, respectively) for roughstalk bluegrass. Overall, the effectiveness of the individual treatments varied between application dates.

There was no crop injury or reduction in seed set observed in the Kentucky bluegrass plots as a result of the herbicides treatments or application dates.

Table 1. Evaluation April 5, 2005 of herbicides applied October 7, 2004 and November 19, 2004 on the percent reduction of biomass of Roundup Ready bentgrass and roughstalk bluegrass, near Madras, Oregon.

		% biomass reduction							
		--------Applied October 7, 2004--------				-------Applied November 19, 2004-------			
Treatments	Rate/acre	Roundup Ready bentgrass		Roughstalk bluegrass		Roundup Ready bentgrass		Roughstalk bluegrass	
Callisto[a]	8 oz	97	a[b]	19	b	98	a	0	d
Karmex[c] +	2 lb								
Sinbar[d]	0.33 lb	89	a	68	ab	96	a	89	a
Goal[e] +	12 oz								
Karmex +	2 lb								
Sencor[f]	4 oz	68	b	64	ab	50	bcd	84	ab
Sinbar	0.5 lb	63	bc	44	ab	61	b	39	c
Beacon[g] +	0.38 oz								
Karmex	2 lb	54	bc	91	a	55	bc	70	b
Goal +	16 oz								
Karmex	2 lb	38	cd	74	ab	43	bcd	68	b
Banvel[h] +	16 oz								
Karmex	2 lb	34	cde	26	ab	34	cd	66	b
Beacon +	0.38 oz								
Sinbar	0.33 lb	23	de	55	ab	10	e	30	c
Karmex	2 lb	9	de	54	ab	30	d	76	ab
Goal +	12 oz								
Karmex +	2 lb								
Sinbar	0.25 lb	5	e	73	ab	79	a	83	ab
Goal +	16 oz								
Sencor	8 oz	0	e	29	b	3	e	9	d
Beacon	0.75 oz	0	e	53	ab	0	e	14	d
Goal	16 oz	0	e	25	ab	0	e	0	d
Sencor	8 oz	0	e	14	ab	0	e	10	d
Beacon	0.38 oz	0	e	20	b	0	e	3	d
Untreated	----	0	e	5	b	0	e	0	d

[a] Callisto = mesotrione 4 lb/gal, [b]Mean separation with LSD at $P \leq 0.05$, [c] Karmex = diuron 80 %, [d] Sinbar = terbacil 80%, [e] Goal = oxyfluorfen 2 lb/gal, [f] Sencor = metribuzin 4 lb/gal, [g] Beacon = primisulfuron 75%, [h] Banvel = dicamba 4 lb/gal.