

ROUGHSTALK BLUEGRASS CONTROL IN KENTUCKY BLUEGRASS

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Abstract

Contamination of Kentucky bluegrass seed with roughstalk bluegrass seed has become an increasingly serious problem for the central Oregon grass seed industry. To identify possible control measures, herbicide trials were conducted at four locations in central Oregon. Three materials were fall-applied at two rates, in a grid pattern producing all combinations. Two additional materials were applied alone, with both fall and spring applications. Two trials were conducted on Kentucky bluegrass fields to evaluate crop injury, and two trials on roughstalk bluegrass fields to determine efficacy. Results indicate crop injury to Kentucky bluegrass from fall applications were highest for Horizon and lowest with Assert. Results of materials fall-applied to roughstalk bluegrass were mixed. At one location where the grass was under stress, most treatments looked very promising, but no effects were observed at the other location.

Introduction

Although central Oregon has historically been a Kentucky bluegrass growing area, the acreage of roughstalk bluegrass (*Poa trivialis*) has continued to increase over the last several years. In 1994 there were 3,800 acres of roughstalk bluegrass, one-third of grass seed production in the area. Contamination of Kentucky bluegrass seed with roughstalk bluegrass has become an increasingly serious problem for the central Oregon grass seed industry. In an effort to find methods of reducing contamination, herbicide trials were conducted during the 1993-1994 season. Two sets of plots were placed in roughstalk bluegrass fields (Bissell, var. Colt and Grote var. Laser) to determine herbicide efficacy, and two sets on Merit Kentucky bluegrass fields (Dodge and Weigand) to evaluate crop safety.

Methods and Materials

Eight materials were fall-applied in a grid pattern at four locations on October 16, 1993. Materials included Horizon at 11/2 pints, Assert at 1 1/2 pints, Goal at 10 and 20 ounces, Diuron at 1 and 2 pounds, and Lexone at 2-2/3 and 5-1/3 ounces. Horizon and Assert were spring-applied to untreated plots on March 24. Materials were applied to 10-foot x 10-foot plots with a CO₂ pressurized boom sprayer at 40 psi at a carrier rate of 20 gal/a. There was no precipitation following fall application of materials; however, the Grote site was sprinkle-irrigated from a water tank about 3 weeks after application. Evaluations were made on February 16, April 15, and June 3, 1994. Crop injury and volunteer control were determined by rating biomass reduction, not reduction in plant population.

Results and Discussion

Results of the February evaluations indicate that injury to Kentucky bluegrass was highest with Horizon at 75 percent, lowest for Assert at 6 percent, with other materials and combinations in the 8-20 percent range. The Diuron-Lexone, Goal-Lexone, and Lexone-Lexone combinations produced 15-20 percent injury. Spring application of Assert and Horizon produced 5 percent and 15 percent injury, respectively.

The percent control of roughstalk bluegrass at the Bissell site was less than 100 percent for Goal and Diuron applied alone. Goal provided 30 percent control at 20 ounces and 60 percent at 30 ounces, while Diuron at 2 pounds provided 80 percent control. The poor performance of Goal is not unexpected since there was no precipitation following application. The high level of control at the Bissell site is thought to be the result of crop stress, since the Grote location did not show any logical patterns which could be attributed to the fall herbicide applications. Fall application of Assert provided good control of roughstalk bluegrass. Spring application of Assert caused 60 percent injury to rough bluegrass, while Horizon resulted in 20 percent injury. However, regreening took place following both spring applications.

Evaluation of percent volunteer control in Kentucky bluegrass was highest for Horizon at 88 percent, which continued to produce the greatest injury. Assert, Lexone-Lexone, Lexone-Diuron, and Diuron-Diuron provided 75 percent control, Goal combinations were in the 60-65 percent range, and Goal, Diuron, and Lexone alone were at 50-55 percent control. There was a pattern of slight stunting where Lexone had been applied, but this disappeared later in the spring.

Seed set on Kentucky bluegrass was significantly reduced by the fall application of Horizon. Lexone also appears to reduce seed set, although to a lesser degree.

Table 1. Result of fall applied herbicides to control roughstalk bluegrass in Kentucky bluegrass in central Oregon, 1993-94

Treatment	Rate	Kentucky bluegrass		Roughstalk bluegrass
		Crop' Injury	Volunteer Control	Crop Control
	product/a		percent	
Assert	11/2 pts	6	68	100 ²
Horizon	11/2 pts	75	88	95
Goal	20 oz	8	55	30
Goal.	30 oz	10	60	60
Diuron	2 lbs	7	50	80
Diuron	3 lbs	10	70	100
Lexone	5 1/3oz	10	50	100
Lexone	8 oz	20	70	100
Goal + Diuron	20 oz + 1 lb	12	65	100
Goal + Diuron	10 oz + 2 lbs	10	65	100
Goal + Lexone	20 oz + 2-2/3 oz	12	65	100
Goal + Lexone	10 oz + 5-1/3 oz	15	65	100
Diuron + Lexone	2 lbs + 2-2/3 oz	15	70	100
Diuron + Lexone	1 lb + 5-1/3 oz	17	65	100

¹ crop injury and volunteer control evaluated as biomass reduction rather than stand reduction

² there were no observable effects from herbicide treatments at the other location