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Abstract

Two experiments were conducted near Maple Hill, KS in 1998 to compare the effectiveness of herbicides and mowing used alone and in combination for control of sericea lespedeza (Lespedeza cuneata). Remedy® at 0.5 lb/acre was more effective when applied during the vegetative growth stage (>87%) than during flowering or seed production. Ally® at 0.4 oz/acre provided control equivalent to Remedy and was equally effective at both the vegetative and bloom stages. Both herbicides provided less than 60% control when applied during seed production. A single mowing on July 8 was not effective. Mowing followed in 6 weeks by Remedy at 0.25 lb/acre or Ally at 0.2 oz/acre provided control equivalent to that with the higher rates of Remedy or Ally alone.

Keywords

Cattlemen's Day, 2000; Kansas Agricultural Experiment Station contribution; no. 00-287-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 850; Beef; Sericea lespedeza; Integrated control; Remedy®; Ally®; Rangeland

INTEGRATED CONTROL OF SERICEA LESPEDEZA IN KANSAS

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Summary

Two experiments were conducted near Maple Hill, KS in 1998 to compare the effectiveness of herbicides and mowing used alone and in combination for control of sericea lespedeza (*Lespedeza cuneata*). Remedy® at 0.5 lb/acre was more effective when applied during the vegetative growth stage (>87%) than during flowering or seed production. Ally® at 0.4 oz/acre provided control equivalent to Remedy and was equally effective at both the vegetative and bloom stages. Both herbicides provided less than 60% control when applied during seed production. A single mowing on July 8 was not effective. Mowing followed in 6 weeks by Remedy at 0.25 lb/acre or Ally at 0.2 oz/acre provided control equivalent to that with the higher rates of Remedy or Ally alone.

(Key Words: Sericea Lespedeza, Integrated Control, Remedy®, Ally®, Rangeland.)

Introduction

Sericea lespedeza is an introduced perennial legume that is invading rangeland in Kansas. Its high tannin content and woody nature make it unpalatable. On July 1, 2000, sericea lespedeza will become a noxious weed statewide. Finding effective methods for management and control of this invasive species is necessary. The objective of this study was to compare the effectiveness of herbicides and mowing used alone and in combination for control of sericea lespedeza.

Experimental Procedures

Two experiments were conducted near Maple Hill, KS during 1998. All herbicides were applied in 20 gal/acre spray volumes using a CO_2-powered backpack sprayer. Application conditions are noted in Table 1. Individual plots were 6.7 by 25 feet. All treatments were replicated three or four times. Reduction in sericea lespedeza cover was estimated visually (% control).

Experiment 1. Remedy (triclopyr) at 0.125, 0.25, and 0.5 lb/acre and Ally (metsulfuron) at 0.4 oz/acre were applied on July 8 and September 18, 1998 and evaluated for control on July 28, 1999. Data were analyzed as a split plot with date of application as the whole plot and treatments as the subplots. Means were separated using the Least Significant Difference test ($P<0.10$).

Experiment 2. Remedy (0.5 lb/acre) or Ally (0.4 oz/acre) were applied on July 8 and October 12, 1998. Additional plots were mowed on July 8, and 0.25 lb/acre Remedy or 0.2 oz/acre Ally were applied about 6 weeks later (August 22). All plots were evaluated for control on July 8, 1999. Data were subjected to analysis of variance and means separated using the Least Significant Difference test ($P<0.10$).

Results and Discussion

Experiment 1. Sericea lespedeza control depended on date of herbicide application (Table 2). Remedy at 0.5 lb/acre was more effective when applied on July 8 when

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sericea lespedeza was still in a vegetative stage than on September 18 when it was blooming. Ally applied at 0.4 oz/acre was equally effective at both stages of plant development. Remedy at 0.25 or 0.5 lb/acre and Ally at 0.4 oz/acre provided equal control when applied on July 8. However, Ally at 0.4 oz/acre was more effective than any rate of Remedy when applied during the bloom stage.

Experiment 2. Control of sericea lespedeza was less than 60% when either herbi-cide was used during seed production (October 12) (Table 3). A single mowing on July 8 was not effective (6% control). Mowing followed in 6 weeks (August 22) by either 0.25 lb/acre Remedy or 0.2 oz/acre Ally provided control equal to that with 0.5 lb/acre Remedy applied on July 8.

Table 1. Environmental Conditions during Herbicide Application at Maple Hill, KS

Date	Temperature (°F)	Relative Humidity (%)	Wind Speed (mph)
July 8, 1998	89	52-67	0-8
August 22, 1998	89	49	4-6
September 18, 1998	89	41	0-2
October 12, 1998	65	50	4-6

Table 2. Percent Sericea Lespedeza Control - Experiment 1, Maple Hill, KS

Herbicide	Rate	Application Date	
		July 8, 1998 (Vegetative)	Sept 18, 1998 (Bloom)
		- - - - - - - - % Control----------	
Remedy	0.125 lb/acre	8^{cd}	25^{d}
Remedy	0.25 lb/acre	82^{ab}	68^{bc}
Remedy	0.5 lb/acre	90^{ab}	60^{c}
Ally	0.4 oz/acre	79^{ab}	92^{a}
Control (no treatment)	–	0^{d}	8^{d}

^{a,b,c,d}Means within a row or column with different superscripts are different (P<0.10).

Table 3. Percent Sericea Lespedeza Control - Experiment 2, Maple Hill, KS

Treatment	Date	% Control
Remedy 0.5 lb/acre	July 8	87^{a}
Ally 0.4 oz/acre	July 8	64^{bc}
Remedy 0.5 lb/acre	October 12	46^{c}
Ally 0.4 oz/acre	October 12	58^{bc}
Mow	July 8	6^{d}
Mow + Remedy 0.25 lb/acre	July 8 August 22	68^{ab}
Mow + Ally 0.2 oz/acre	July 8 August 22	70^{ab}
Control (no treatment)		6^{d}

^{a,b,c,d}Means with different superscripts are different (P<0.10).