HOARY CRESS (*Cardaria spp.*) CONTROL IN RANGELAND AND PASTURE

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Introduction

Hoary cress (*Cardaria spp.*), often called whitetop, are perennial members of the mustard family that were inadvertently introduced into the United States from Europe and Asia and have spread widely throughout the United States and Canada. Hoary cress has invaded large areas of rangeland in Malheur County and surrounding areas. Herbicides offer the potential for hoary cress control, but treatments can be expensive and control inconsistent. A high level of hoary cress control has been reported with Escort (chlorsulfuron) and Telar (metsulfuron) herbicides, while control with 2,4-D ester has been variable. New herbicide chemistries may provide acceptable cost-effective control of hoary cress in rangeland and pastures.

Methods

Postemergence herbicide treatments were evaluated for hoary cress control in a noncultivated setting. Treatments were applied with a CO_2-pressurized backpack sprayer calibrated to deliver 20 gpa at 30 psi. The trial was a randomized block design with three replications, and plots were 10-ft wide and 25-ft long. Treatments were applied May 19, 1997, when hoary cress plants were in the late flower stage and 12- to 24-in tall. All treatments contained Sylgard 309, a silicone surfactant. Silicone surfactants are not recommended with some herbicides and using it may have reduced control with some herbicides. Hoary cress control was evaluated in 1997 and then a year later on May 7 and August 14, 1998.

Data were analyzed using analysis of variance and means were separated using a protected least significant difference at the 5 percent level, LSD (0.05).

Results

Although the hoary cress population was consistent throughout the plot area at the time the treatments were applied in 1997, evaluations of the herbicide treatments in 1998 were variable. Some variability arises from the differences in growth stage at the time of application. Also with such a dense canopy, larger plants may intercept the majority of the herbicide spray reducing the amount that is received by plants within the canopy. On May 7, Escort, 2,4-D at 2.0 lb ai/ac, combinations of Escort with 2,4-D or Banvel, and the combination of Tordon with 2,4-D at the high rate (2.0 lbs ai/acre) had among

the highest hoary cress control (Table 1). Control was poorest with Banvel and Tordon alone. Hoary cress control was similar August 14 with treatments containing Escort or 2,4-D (2 lbs ai/acre) providing among the greatest control, and Tordon or Banvel applied alone providing the least. Treatments will be evaluated again in 1999 to determine how long hoary cress control is maintained by each treatment. Additional research also needs to be done to identify the most effective application time for the herbicides that worked well in this trial.

Table 1. Hoary cress control with postemergence herbicide applications, Malheur Experiment Station, Ontario, Oregon, 1998.

Treatment†	Rate	Hoary cress control	
		May 7	August 14
	lb ai/acre	----------%----------	
Escort	0.0188	95	95
Escort	0.0375	84	77
2,4-D Ester	1.0	48	43
2,4-D Ester	2.0	88	70
Banvel	0.5	10	10
Tordon	0.5	18	10
Tordon + 2,4-D Ester	0.5 + 1.0	67	48
Tordon + 2,4-D Ester	0.5 + 2.0	82	77
2,4-D Ester + Banvel	1.0 + 0.5	70	53
Escort + 2,4-D Ester	0.0188 + 1.0	93	83
Escort + Banvel	0.0188 + 0.5	88	55
2,4-D Amine	2.0	84	75
Untreated	-	0	0
LSD (0.05)		19	29

†Treatments were applied May 19, 1997. All treatments contained Sylgard 309, a silicone surfactant (0.25% v/v).