

## **HERBICIDE EFFICACY TRIALS ON SEED CARROTS, 1993-94**

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### **Abstract**

Herbicide trials which included Goal, Buctril, Prowl, Lorox, and Lexone, alone and in combination were applied in the fall to seed carrot fields at three locations in central Oregon. Crop injury occurred when Buctril was applied October 19, but not on December 2. A combination of Lorox, Lexone, and Prowl provided the best (although non-significant) control of buttonweed, Jim Hill mustard, and henbit. Lexone, Lexone and Lorox, and the Lorox, Lexone, and Goal combinations all provided inadequate groundsel control, moderate control of Jim Hill mustard and China lettuce, and good control of buttonweed.

### **Introduction**

Seed carrots are a major portion of the vegetable seed industry in central Oregon. Of the 4,600 acres of vegetable seed crops grown in 1994, nearly 1,250 acres were carrots. Most of these were hybrid carrots, with central Oregon providing 80 percent of the seed for domestic carrot production. Gross returns for carrot seed was \$4.7 million, 45 percent of the \$10.5 million vegetable industry. Weed control materials for use on seed carrots and other specialty crops are very limited. Efficacy data is needed as the first step in pursuing registration of new materials. The objective of this research project was to screen potential materials and document their effectiveness against the weed spectrum in central Oregon.

### **Methods and Materials**

Trials were conducted at three central Oregon locations, two on the Agency Plains and one in the mud springs area. A groundsel control trial (Sullivan) included Goal, Buctril, and Prowl, alone or in combination. A general weed spectrum trial (Fuller) included Lorox, Lexone, Prowl, and Goal, alone or in combination. At both locations, applications of non-Goal treatments were made October 19, while treatments which included Goal were made December 2, due to a lack of precipitation needed for incorporation. Materials were applied with a CO<sub>2</sub> pressurized, hand-held, boom sprayer at 40 psi with a carrier rate of 20 gal/a. The third trial (Feigner) included unreplicated plots of Lexone, Lorox, and Goal applied with commercial equipment on November 2, 1993. Evaluations were conducted at all three locations on April 14, 1994. Percent crop injury was evaluated at the Sullivan site, the number of button weed, Jim Hill mustard, and henbit plants per plot were counted at the Fuller location, and general notes taken at the Feigner site.

### **Results and Discussion**

At the Sullivan site the groundsel was 100 percent controlled, even in the untreated plots. This may have been due to the extremely dry conditions throughout winter and early spring. As a result, the only evaluation which could be made was crop injury (Table 1). Interestingly, the

Buctril applications made on October 19 produced significant injury to the carrots, while Buctril applied with Goal on December 2 did not. This may be due to more active growth of the crop in October. At the Fuller location, buttonweed was the major, uncontrolled, broadleaf weed remaining in April, followed by Jim Hill mustard. Henbit, although abundant in the untreated plots, was 100 percent controlled by all but the lower rate of Prowl. The combination of Lorox, Lexone, and Prowl provided the best (although non-significant) control of buttonweed, as well as control of Jim Hill mustard and henbit (Table 2). At the Feigner location Lexone at 1/2 pound, the tank mix of 2 pounds Lorox, 2 ounces Lexone, and 1/2 pint of Goal, and the tank mix of 3 pounds Lorox and 3 ounces Lexone all provided inadequate groundsel control. All treatment provided moderate control of Jim Hill mustard and China lettuce, and good control of buttonweed. The higher rates of the Lorox-Lexone tank mix increased control of Jim Hill mustard (Table 3).

Table 1. Result of herbicide trials on seed carrot conducted in at the Sullivan location in central Oregon during the 1993-94 season.

Treatment	Rate	Crop Injury
	product/acre	percent
Goal	8 oz	0 a x
Goal	10 oz	0 a
Buctril	8 oz	18 b
Buctril	1 pt	27 b
Goal + Buctril	8 oz + 8 oz	0 a
Goal + Prowl	4 oz + 2 pts	0 a
Untreated		0 a

x mean separation at P 0.05

Table 2. Results of herbicide trials conducted at the Fuller location in central Oregon during the 1993-94 season.

Treatment	Rate product/acre	Button- weed	Jim Hill	
			Mustard	Henbit
		----- number of plants/plot -----		
Lorox	2 lbs	40	1	0 a x
Lexone	2 oz	55	0	0 a
Lexone	4 oz	34	0	0 a
Prowl	1 pt	38	9	2 a
Prowl	2 pts	34	3	0 a
Lorox + Lexone + Prowl	2 lbs + 2 oz + 2 pts	15	0	0 a
Lorox + Goal + Prowl	2 lbs + 4 oz + 2 pts	31	1	0 a
Untreated		36	8	40 b
		ns	ns	

x mean separation at P = 0.05

Table 3. Results of herbicide trials conducted at the Feigner location in central Oregon during the 1993-94 season.

Treatment	Rate	Groundsel	Jim Hill Mustard	Button- weed	China Lettuce
Lexone	1A lb	P	M	G	M
Lorox	2 lbs	M	M	G	M
Lorox + Lexone + Goal	2 lbs + 2 oz + 1/2 pt	P	M	G	M
Lorox + Lexone	2 lbs + 2 oz	M	M	G	M
Lorox + Lexone	3 lbs + 3 oz	P	M	G	M

rating scale: P=poor, M=moderate, G=good, E=excellent