

Evaluation of Potential New Herbicides in Carrots Applied as a Directed Spray at Layby

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Abstract

Weed resistance to ongoing use of Lorox in carrots grown for seed is a concern to industry representatives and growers. This project was established to evaluate two new products compared to current industry standard treatments. Spartan (sulfentrazone) is used in peppermint production and there is local knowledge about the spectrum of weed that it is effective on. Results from a directed spray application at layby indicate that it may provide a good fit in carrot seed production.

Introduction

There have been ongoing concerns by growers and fieldmen about the long term use of Lorox in seed carrots without adequate rotation of herbicides to prevent weed resistance. This project focuses on evaluation of potential new herbicide candidates applied as a directed spray at layby. Spartan is known to be ineffective in removing volunteer carrots from peppermint production and is therefore a candidate for this evaluation and there is local interest in a new product, Sharpen. These products applied at both the labeled rate and 2x rate were compared to current industry standard treatments.

Methods and Materials

Plots were established in the male rows of a commercial hybrid carrot seed field near Culver, Oregon. Plots 10 ft x 5 ft were replicated 3 times in a randomized complete block design that included two male rows on 30 inch center with blank rows on each side. Herbicides were applied as a directed spray at the bottom 4 to 6 inches of the plants on June 10, 2016 using a CO₂ powered backpack sprayer, hand-held boom, two 8002 Teejet nozzles 18 inches apart, 40 psi and a carrier rate of 20 gal/acre.

Plots were visually evaluated on June 16 and June 30 with written notes and on July 5 by rating plots for percent weed control of redroot pigweed and a description of crop injury. Statistical analysis was provided by Jeremiah Dung using Tukey's comparisons.

Results and Discussion

Spartan provided 92 percent control of 6 inch redroot pigweed at the label rate of 6 oz/acre, with light to very light crop injury at both the 1x and 2x rates (Table 1). Sharpen provided 100 percent control at the 2 fl oz/acre rate, but caused unacceptable moderate to heavy crop injury at both the 1x and 2x rates. The industry standard Lorox at 16 fl oz/acre plus Caparol at 16 oz/acre provided 68 percent control of the sizeable redroot pigweed in the plots. The addition of Sencor at 4 oz/acre increased control to 80 percent and the addition of Spartan increased control to 88

percent. Additional evaluation of Spartan is needed, but it appears this herbicide could have a fit for carrot seed production in central Oregon.

Table 1. Percent control of redroot pigweed for herbicides applied as a directed spray to seed carrots June 30 and evaluated July 5, 2016.

Treatment	Rate/Acre		Percent Control	
Spartan	6	fl oz	92	cef
Spartan	12	fl oz	95	f
Sharpen	2	fl oz	100	f
Sharpen	4	fl oz	100	f
Lorox	16	oz	68	b
+ Caprol	16	fl oz		
Lorox	16	oz	80	bcde
+ Caprol	16	fl oz		
+ Sencor	4	oz		
Spartan	6	fl oz	88	def
+ Lorox	16	oz		
+ Caprol	16	fl oz		
Untreated	-----		0	a

*COC at 1 gal/100 gal

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