

POST IRRIGATION LYGUS CONTROL IN CARROT SEED

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Abstract

Lygus control is a major concern to carrot seed growers in central Oregon. A long-residual material is needed to protect the crop from the time of final irrigation to harvest. Orthene was evaluated in large unreplicated plots against Capture and Lorsban at two locations applied by ground, and against Lorsban at one location applied by air. The results indicate that Orthene's efficacy and residual is superior to the other materials. Lorsban was the least effective insecticide.

Introduction

Carrot seed is an important, high-value crop to many central Oregon growers. Lygus is a major insect pest of carrot seed, and lack of control can reduce yield and germination. After the last irrigation is made and bees are removed from the fields, an insecticide is required to provide control of lygus until harvest. Because lygus resistance to pyrethroid insecticides is a concern in the carrot seed industry, an insecticide of alternate chemistry is necessary for lygus control.

Materials and Methods

The objective of this study was to compare the efficacy of Orthene to other registered materials for lygus control in carrot seed crops in central Oregon. This was done in preparation for request of a 24°C label for Orthene on carrot seed for lygus control after bees are removed.

Orthene, Capture (a synthetic pyrethroid), and Lorsban (currently labelled in Washington state on carrot seed) were applied to large, unreplicated plots at two locations. Application to the 40 ft by 900 ft plots at the Harris location on August 15, 1992, and the 40 ft by 1,200 ft plots at the Zistel locations on August 20, 1992, were made by ground by Dan Springer. At the Jasa location, aerial application of Orthene and Lorsban was made on August 20, 1992, to the 12 and 24 acre plots by Jim Demers. A 2x rate of Orthene was applied at the Harris location to evaluate phytotoxicity to the crop.

Lygus control was evaluated with a pretreatment and four weekly post-application sweepnet samples. Six samples were taken per plot for each sampling date. Each sample consisted of 10, 8 ft x 1 row straightline sweeps. Numbers of both lygus adults and nymphs were recorded.

Results and Discussion

Post treatment lygus numbers indicate that Orthene provides excellent initial and sustained control of lygus. Lorsban appears to be the least effective of the three insecticides.

Table 1. Counts of lygus nymphs, adults and totals from pre- and post-application sweeps in carrot seed at the Harris location, with materials applied, August 15, 1992.¹

Date of Sample	Day	Orthene 75S 1 $\frac{1}{3}$ #			Capture 2EC 6.4oz			Lorsban 4E lqt		
		Nymph	Adult	Total	Nymph	Adult	Total	Nymph	Adult	Total
Aug 14	Pre	287	91	378	228	72	300	209	95	304
Aug 17	2	1	2	3	5	0	5	21	18	39
Aug 21	6	1	1	2	16	2	18	22	32	54
Aug 28	13	0	2	2	26	2	28	38	58	96
Sept 4 20	0	4	4	30	44	74	106	34	140	

¹Total lygus per treatment.

Table 2. Counts of lygus nymphs, adults and totals from pre- and post-application sweeps in carrot seed at the Zistel location, with materials applied, August 15, 1992.¹

Date of Sample	Day	Orthene 75S 1 $\frac{1}{3}$ #			Capture 2EC 6.4oz			Lorsban 4E lqt		
		Nymph	Adult	Total	Nymph	Adult	Total	Nymph	Adult	Total
Aug 18	Pre	87	34	121	85	31	116	123	38	161
Aug 21	1	3	1	4	0	0	0	2	0	2
Aug 28	8	0	0	0	2	0	2	2	4	6
Sept 4 15	0	0	0	2	0	2	6	2	8	
Sep 11	22	4	0	4	0	0	0	5	3	8

¹Total lygus per treatment.

Table 3. Counts of lygus nymphs, adults and totals from pre- and post-application sweeps in carrot seed at the Jasa location, with materials applied, August 20, 1992.¹

Date of Sample	Day	Orthene 75S 1 $\frac{1}{3}$ #			Lorsban 4E lqt		
		Nymph	Adult	Total	Nymph	Adult	Total
Aug 18	Pre	101	29	130	76	21	97
Aug 21	1	8	0	8	5	0	5
Aug 28	8	2	0	2	6	8	14
Sept 4 15	0	1	1	20	10	30	
Sep 11	22	1	2	3	29	20	49

¹Total lygus per treatment.