

Beet Armyworm Control in Lettuce

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Abstract

Success®, *Proclaim®*, and *Confirm®* treated lettuce exhibited no beet armyworm (BAW) larvae at 3 days after treatment (DAT). *Avaunt®*, *Intrepid®*, and *S-1812 (Valent)* treated lettuce had no medium-sized larvae but 0.3 to 0.5 small larvae were observed. At 7 and 10 DAT, BAW populations diminished significantly in all of the lettuce and no larvae or eggs were observed in any lettuce.

Introduction

Lepidopterous insect pests such as beet armyworm (*Spodoptera exigua*, BAW) commonly infest fall planted lettuce and other cole crops in the desert production areas. There are scattered acreage of head lettuce in Central Arizona that are susceptible to BAW during the early stages of crop development. Several new insecticides of been introduced in recent years and have become available to growers. The products have demonstrated exceptional efficacy against BAW and other lepidopterous pests and have been slotted into periods of optimal use from emergence to harvest. This field experiment was conducted to gain experience with these products under Central Arizona conditions.

Materials and Methods

A small plot field experiment was conducted at the University of Arizona Maricopa Agricultural Center, Maricopa, AZ. A commercial head lettuce cultivar was planted on conventional 40-in raised beds in two seedlines per bed on 06 September 2001. The experimental plots were established in a randomized complete block design with four replicates and each treatment replicate consisted of two beds measuring 40 ft long. A single application of the insecticides was made using a backpack CO₂ sprayer equipped with a hand-held boom with four TX-10 hollow cone nozzle tips spaced 20 in apart. The sprays were applied in 21 gpa water with a non-ionic surfactant Latron CS-7 added at 0.25% v/v to all treatments. On the date of the application on 02 October, the temperature was 80F with a very slight breeze. The lettuce was at the 3-4 leaf stage of growth.

Results and Discussion

The BAW population was extremely light during this field experiment. The trial was initiated when 1.8 small larvae were observed per 10 plants per untreated treatment replicate and 1.3 egg masses were also observed (Table). At 3 days after treatment (DAT), 0.8 small and 0.5 medium sized larvae were counted along with 0.5 egg masses in the untreated check. Success, Proclaim, and Confirm treated lettuce exhibited no BAW larvae. Avaunt, Intrepid, and S-1812 treated lettuce had no medium sized larvae but 0.3 to 0.5 small larvae were observed. Eggs were also observed for all treatments except in the Intrepid treated lettuce. At 7 and 10 DAT, BAW populations diminished significantly in all of the lettuce and no larvae or eggs were observed in any lettuce. At 4, 5, and 6 DAT, a total of 0.4 in of rainfall occurred and may have contributed to the decline in BAW infestation on the lettuce.

All of the treatments were effective in not allowing the population of small larvae to progress to the medium size when evaluations were conducted at 3 DAT. Small larvae were less numerous in the treated lettuce than observed in the untreated check. In this test, Success, Proclaim, and Confirm rapidly reduced the infestation of BAW in the lettuce at 3 DAT when no larvae were observed. Avaunt, Intrepid, and S-1812 also demonstrated good efficacy with fewer small larvae observed than the untreated check. Under light BAW infestations in Central Arizona, all of the recently introduced insecticides were extremely effective against BAW.

Table. Beet armyworm control in lettuce

Treatment	Rate (lb AI/A)	Precount		BAW (no./10 plants)				7 DAT total	10 DAT total
		egg	small	egg	small	medium	total		
Untreated check		1.3	1.8	0.5	0.8	0.5	1.3	0	0
Success	0.09			1.0	0	0	0	0	0
Avaunt	0.07			0.8	0.5	0	0.5	0	0
Proclaim	0.01			1.5	0	0	0	0	0
Confirm	0.125			0.3	0	0	0	0	0
Intrepid	0.1			0	0.5	0	0.5	0	0
S-1812	0.15			0.3	0.3	0	0.3	0	0
LSD (p=0.05)				1.15	0.75	0.32			

Treatments applied on 02 October 2001