(E94)

TOMATO: *Lycopersicon esculentum* Mill., 'Solar Set'

CONTROL OF SOUTHERN ARMYWORM AND BEET ARMYWORM ON STAKED TOMATO WITH BIOPESTICIDES AND A PYRETHROID, 1999

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Southern armyworm (SAW): *Spodoptera eridania* (Cramer)
Beet armyworm (BAW): *Spodoptera exigua* (Hübner)

Southern armyworm is the worst noctuid pest of tomatoes in southwest Florida and beet armyworm is occasional. This study evaluated the efficacy of three biopesticides and broad-spectrum pyrethroid in order to provide growers different control options for these pests. Greenhouse-raised seedlings were planted 30 Sep at 18-inch spacing on two sets of three beds and fertigated through Netafim drip tape with 12-inch emitter spacing. The center bed in each set of three beds was left untreated to serve as a source of pest inoculum. The four treated beds were divided into 48 ft long plots to which five treatments were assigned in a CRB design with four replications. Treatments were initiated after a mean of 1.8 armyworms per plant was observed on 15 plants per replicate 22 Nov. A high clearance sprayer was used, operated at 200 psi with two vertical booms, each fitted with ceramic "yellow" Albuz hollow cone nozzles delivering 66 gpa with 3 nozzles per boom 23 Nov and 88 gpa with 4 nozzles 29 Nov and 6, 14, 21, and 28 Dec for a total of six applications. The adjuvant Latron B-1956 at 1 % v/v was added to all treatments. Six weekly evaluations were performed starting 29 Nov to monitor damage and larvae on six plants per plot. Damage was rated as 0 = no damage, 1 = 1% leaflets with damage, 2 = 2-5%, 3 = 6-15%, 4 = 16-30% and 5 = >30%. Two harvests were made from 16 plants per plot on 28 Dec and 10 Jan. Fruit was evaluated for quality and size on a commercial grading table.

Southern armyworms predominated through the trial, with BAW found only on untreated plants during the first evaluation. SAW numbers increased rapidly in the untreated check plots during early December, peaking at a mean 18 per plant on 6 Dec, then decreasing to 3.2 by the first harvest in late December. Significant differences in number of larvae were seen between all sprayed treatments and the untreated check. Fewest larvae were observed on plants treated with Warrior but not significantly fewer than on Javelin-treated plants. There were significantly fewer larvae on plants treated with Javelin compared with Lepinox. Damage rating was lowest for plants treated with Warrior, again with significant differences between Javelin and Lepinox, which was not different from the check, in contrast to celery looper NPV. Number and weight of extra-large and total fruit was greatest from plants sprayed with Warrior, followed by Javelin. There were no significant yield differences between the check and either celery looper NPV or Lepinox. The fewest insect-damaged culls were harvested from plants treated with Warrior. Thus, Javelin could provide a control option against SAW even though efficacy was not equivalent to that provided by Warrior.

Florida Agricultural Experiment Station Journal Series No. N-02003.

Treatment/ formulation	Rate amt form/acre	Larvae[a]	Damage rating[a]	Fruit/16 plants					
				Marketable				Unmarketable	
				X-large		Total[b]		Total	
				No.	Wt, lb	No.	Wt, lb	No.	Wt, lb
Javelin WG	1.0 lb	2.2 c	1.9 c	139.5 b	66.8 b	299.5 b	105.1 b	158.3 a	52.3 a
Lepinox WDG	1.0 lb	5.7 b	3.4 ab	65.5 c	30.3 c	140.5 c	48.0 c	152.5 a	45.6 a
Warrior T 1 CS	3.2 oz	0.1 c	0.6 d	334.0a	1546 a	687.3 a	240.8 a	167.5 b	8.1 b
Celery looper NPV[c]	2.0 oz	6.3 b	3.1 b	77.5 bc	36.7 bc	164.0 c	57.8 c	166.8 a	52.2 a
Untreated check		13.4 a	3.8 a	57.0 c	28.3 c	96.0 c	37.4 c	167.5 a	45.3 a

Means in a column followed by the same letter are not significantly different (LSD, $P < 0.05$).
[a] Mean number over all dates of total larval and foliar damage per plant.
[b] Mean number includes X-large and all other marketable fruit from 16 plants for two harvests.
[c] Occlusion bodies of Anagrapha falcifera multicapsid nuclear polyhedrosis virus (AfMNPV).