

(E80)

**TOMATO:** *Lycopersicon esculentum* (Mill.), 'Florida 91'

### CONTROL OF TOMATO PINWORM AND SOUTHERN ARMYWORM ON STAKED TOMATO, 2003

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Tomato pinworm (TPW): *Keifeira lycopersicella* (Walsingham)  
Southern armyworm (SAW): *Spodoptera eridania* (Cramer)

The two principal lepidopteran pests of tomato in south Florida are the tomato pinworm and the southern armyworm. The former is usually a spring pest and the latter a fall pest, although unusually wet weather during winter or spring result in large populations of SAW that first build up on weeds. Admire at 16 fl oz product per acre was applied as a soil drench in 100 ml water the day after transplanting to protect plants from whiteflies and whitefly-borne tomato yellow leaf curl virus (TYLCV). Greenhouse-raised seedlings were planted 11 Mar at 18-inch spacing on three sets of three beds. Beds were 32 inches wide, 240 ft long on 6-ft centers, covered with black polyethylene film and irrigated through Netafim streamline drip-tape with emitters at 12-inch intervals. The outer two beds of each set was divided into 10 plots, each 48 ft long and assigned to treatments in a RCB design with three replications, the middle row of each 3-bed set was left untreated to serve as a source of pinworms. Three wing-type sticky traps were baited with TPW pheromone (Scentry) produced peaks of 66, 75 and 51 moths on 14, 28 Apr and 12 May respectively with daily average of 29.0 from 3 Apr to 30 May. Four weekly applications of DPX-E2Y45 and Avaunt were made 17 Apr to 8 May. Three applications of Agri-Mek were made on 17, 24 Apr and 8 May. Five applications of S1812 or Proclaim were made from 17 Apr to 15 May. Treatments were applied using a high-clearance sprayer driven by a hydraulic pump operating at 200 psi and delivering the spray through two drop-booms equipped with yellow hollow cone ceramic Albuz nozzles. Two nozzles per drop were used on 17 Apr for a rate of 44 gpa. Volume was increased to 66 gpa on 24 May by the addition of a third nozzle and to 88 gpa on 2 May with the addition of a fourth nozzle on each boom. Five weekly evaluations were made starting 23 Apr of live larvae from three leaflets on eight plants per plot. Fruit of marketable size was harvested 14 and 27 May from 24 plants per plot and the non-culls graded on a commercial table. Unmarketable fruit was separated into categories of armyworm and pinworm and disease. Data were subjected to ANOVA and means were separated using LSD ( $P = 0.05$ ).

All products tested reduced the number of TPW larvae in leaves compared to the untreated control. In addition, significantly fewer TPW larvae were observed on plants treated with DPX-E2Y45, Avaunt, or S 1812 compared to plants treated with Proclaim or Agri-Mek. Only DPX-E2Y45 at the low rate reduced the number and weight of fruit damaged by TPW compared to the untreated control. However, more fruit damaged by SAW were observed on treated plants compared to the control, presumably because there were more fruit to damage. More marketable fruit were harvested from any of the treated plants compared to the untreated plants. Among treatments, production was greater from plants treated with DPX-E2Y45 at either rate, than plants treated with Proclaim or Agri-Mek, with the other treatments intermediate. Thus, DPX-E2Y45 provided the best control of lepidopteran pests on tomato, followed by Avaunt and S1812.

Treatment/ formulation <sup>a</sup>	Rate lbs(AI)/acre	TPW larvae (No./leaf)	Losses per plot from harvested fruit				Marketable fruit total	
			Pinworm		Armyworm		No.	Lbs
			No.	Lbs	No.	Lbs		
DPX-E2Y45 35WG	0.027	0.2 c	5.7b	0.9c	3.0c	0.7b	254.3a	87.8a
DPX-E2Y45 35WG	0.067	0.1 c	11.3ab	3.6bc	1.3c	0.4b	258.3a	87.4a
Avaunt 30WG	0.065	0.3 c	12.7ab	4.1abc	1.7c	0.5b	212.3abc	77.2ab
S-1812 35WP	0.15	0.4 c	16.0ab	5.4abc	4.0bc	1.1b	223.7abc	75.0ab
S-1812 35WP	0.20	0.6 c	19.0ab	6.3abc	3.0c	1.1b	228.3ab	75.1ab
Proclaim 5SG	0.0075	3.1 b	28.0a	8.7ab	1.3c	0.5b	188.0bc	59.7b
Proclaim 5SG	0.0100	2.7 b	29.3a	10.2a	2.7c	0.9b	201.7bc	67.1b
Agri-Mek 0.15EC	0.0070	2.8 b	23.0ab	7.4abc	13.7ab	4.6a	178.3c	60.2b
Admire 2F control	16 fl oz	5.5 a	28.0a	6.9abc	22.3a	5.6a	96.3d	31.9c
Untreated check	--	5.7 a	28.3a	7.7ab	11.0bc	3.1ab	54.0d	15.1c

Means in the same column followed by the same letter are not significantly different (LSD,  $P < 0.05$ ).

<sup>a</sup>All plots except the untreated check received 16 fl oz of Admire as a soil drench.