

(E)

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

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

Philip A. Stansly

University of Florida/ IFAS

Southwest Florida Res. and Ed. Center

2686 State Road 29 North

Immokalee, FL 34142-9515

Phone: (239) 658-3427

Fax: (239) 658-3469

Email: pstansly@ufl.edu

James M. Conner

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 oz 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 3 sets of 3 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 2 beds of each set was divided into 10 plots, each 48 ft long and assigned to treatments in a completely randomized block design with 3 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 AgriMek 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 3 leaflets on 8 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.

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 AgriMek. 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 was harvested from any of the treated plants compared untreated plants. Among treatments, production was greater from plants treated with DPX-E2Y45 at either rate, than plants treated with Proclaim or AgriMek, with the other treatments intermediate. Thus, DPX-E2Y45 provided the best control of lepidopteran pests on tomato, followed by Avaunt and S1812.

Florida Agricultural Experiment Station Journal Series No. N-02642

Treatment/ formulation	Rate lbs(AI)/acre	TPW larvae (No./leaf) ¹	Losses per plot from harvested fruit				Marketable fruit	
			Pinworm		Army worm		total	
			no.	lbs	no.	lbs	no.	lbs
DPX-E2Y45 35 WG	0.027	0.2c	5.7b	0.9c	3.0c	0.7b	254.3a	87.8a
DPX-E2Y45 35 WG	0.067	0.1c	11.3ab	3.6bc	1.3c	0.4b	258.3a	87.4a
Avaunt 30 WP	0.065	0.3c	12.7ab	4.1abc	1.7c	0.5b	212.3abc	77.2ab
S-1812 35 WP	0.15	0.4c	16.0ab	5.4abc	4.0bc	1.1b	223.7abc	75.0ab
S-1812 35 WP	0.20	0.6c	19.0ab	6.3abc	3.0c	1.1b	228.3ab	75.1ab
Proclaim 5 SG	0.0075	3.1b	28.0a	8.7ab	1.3c	0.5b	188.0bc	59.7b
Proclaim 5 SG	0.0100	2.7b	29.3a	10.2a	2.7c	0.9b	201.7bc	67.1b
Agri-Mek .15 EC	0.0070	2.8b	23.0ab	7.4abc	13.7ab	4.6a	178.3c	60.2b
Control		5.5a	28.0a	6.9abc	22.3a	5.6a	96.3d	31.9c
Untreated	untreated	5.7a	28.3a	7.7ab	11.0bc	3.1ab	54.0d	15.1c

¹All treated plots including control received 16 oz of Admire as a soil drench. Untreated plots received no Admire

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

Part II: Materials Tested for Arthropod Management

TOMATO: *Lycopersicon esculentum* Mill. 'Florida 91'

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

Philip A. Stansly

University of Florida/ IFAS
Southwest Florida Res. and Ed. Center
2686 State Road 29 North
Immokalee, FL 34142-9515
Phone: (239) 658-3427
Fax: (239) 658-3469
Email: pstansly@ufl.edu

Common name	Trade name/ Cultivar	Concentration/ Formulation	Chemical name/resistance	Manufacture/source
abamectin	Agrimek	0.15EC	(Butyl)-7-((2,6-dideoxy-4 ⁰ -2,6-dideoxy-3-0-methyl-x-L-arabino-hexopyranosyl)-3-0-methyl-x-L-arabino-hexopyranosyl)oxy)-5 ⁶ c6,6 ⁷ ,7,10,11,14,15,17a,20,20a,20b-dodecanydro-20b-dihydroxy-5 ⁶ 8,8,19-tetramethylsprio (11,16-methano-2H,13H,17H-furo (4,3,2-pg)(2,6) benzodioxacycloclootadecin	Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419
emamectin benzoate	Proclaim	5SG	Avermectin B1, 4 ² -deoxy-4 ² -(methylamino)-,(4 ² R)-,benzoate (salt)	Syngenta Crop Protection P.O. Box 18300

				Greensboro, NC 27419
indoxacarb	Avaunt	30WP	(S)-methyl 7-chloro-2,5-dihydro-2-((methoxycarbonyl)(4-(trifluoromethoxy)phenyl)amino)-carbonyl)indeno(1,2-e)(1,3,4)oxadiazine-4a(3H)-carboxylate	DuPont Company Stine-Haskell Research Center Dupont Crop Protection Newark, DE 19711
pyridlayl	S-1812	35WP	(2-(3-(2,6,-dichloro-4-(3,3-dichloroprop-2-enyloxy)phenoxy)propoxy)-5-(trifluoromethyl)pyridine)	Valent U.S.A. Corporation 1333 N. California Blvd., Suite 600 Walnut Creek, CA 94596
unknown	DPX-E2Y45	35WG	unknown	DuPont Company Stine-Haskell Research Center Dupont Crop Protection Newark, DE 19711