

(E79)

TOMATO: *Lycopersicon esculentum* (Mill.), 'Neptune'

CONTROL OF SOUTHERN ARMYWORM ON STAKED TOMATO, 2002

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Southern Armyworm (SAW): *Spodoptera eridania* (Cramer)

Southern armyworm is the principal early-season pest of fall tomatoes in southwest Florida, capable of destroying a crop if left uncontrolled. This trial evaluated a wide range of insecticide types alone and in combination or rotation toward the goal of providing more options for controlling these pests. Greenhouse-raised seedlings were planted 23 Sep at 18-inch spacing on raised beds on 6-ft centers, each covered with whiteface polyethylene film. Plants were irrigated and fertilized using Netafim drip tape with 12-inch spacing between emitters. The center bed of each set of three beds was left untreated to serve as a source of SAW. The treated beds were divided into plots 35 ft long to which 13 treatments were assigned in a RCB design with four replications. A pre-count on 28 Oct showed worms present in 14% of 110 plants sampled over all blocks. Treatments were applied in five weekly applications initiated 30 Oct using a high clearance sprayer with two vertical booms operating at 200 psi. Each boom was fitted with two horizontally directed ceramic yellow Albuz hollow cone nozzles for the first treatment to deliver 44 gpa. An additional nozzle was added to each boom for the next two applications delivering 66 gpa and two more for the last two applications raising the output to 88 gpa. Number of larvae and damage on eight plants per plot were monitored weekly five times starting 12 Nov. Damage was rated as 0 = no damage, 1 = 1% leaflets with damage, 2 = 2 to 5%, 3 = 6 to 15%, 4 = 16 to 30% and 5 > 30%. All fruit of marketable size from 16 plants per plot was harvested on 3 and 16 Dec. Fruit was classified as marketable or not and sized on a commercial grading table. Data were subjected to ANOVA and means were separated using LSD ($P = 0.05$).

SAW numbers increased in the control plots during early Nov, peaking at a mean of 2.4 per plant on 12 Nov before decreasing to 0.6 by the first harvest in early Dec. Significant differences between the untreated check and all treatments with no differences among the latter in number of SAW larvae of all stages and damage were seen at each sample date and over all dates. A 66% loss in harvested fruit number and weight was observed from untreated plants compared to the best treatments. No differences in fruit number were observed among sprayed treatments but the treatment of SpinTor plus Intrepid yielded significantly greater weight of marketable fruit than did the low rates of Avaunt or Renounce. Both number and weight of worm-damaged fruit was significantly different between the check and all other treatments with no differences among the latter. These results demonstrated that a number of materials could be rotated to obtain effective control and forestall rapid selection for resistance.

Treatment/ formulation	Rate lb(AI)/acre	Larvae	Damage	Marketable				Unmarketable ^a	
				Large + extra-large		Total harvested ^a		Worm damaged	
				No.	Wt. (lb)	No.	Wt. (lb)	No.	Wt. (lb)
XDE-225 0.5SC	0.012	0.0a	0.2a	176.0a	83.3a	250.3a	101.1ab	4.3a	2.0a
SpinTor 2SC	0.094	0.0a	0.2a	181.1a	85.3a	245.1a	102.7ab	10.7a	4.4a
Intrepid 2F	0.100	0.0a	0.1a	158.5a	75.6a	218.4a	89.8b	3.6a	1.4a
SpinTor 2SC + Intrepid 2F	0.094 + 0.050	0.0a	0.1a	196.3a	91.5a	280.1a	111.2ab	5.8a	2.1a
SpinTor 2SC + Intrepid 2F	0.094 + 0.100	0.1a	0.1a	183.5a	87.4a	283.7a	114.9a	4.0a	1.8a
DPX-E2Y45 20WP	0.090	0.0a	0.3a	171.3a	81.4a	248.5a	99.4ab	3.0a	1.3a
Avaunt 30WG	0.065	0.0a	0.2a	156.3a	74.0a	220.1a	89.7b	2.8a	1.0a
Avaunt 30WG Crymax	0.065 1 lb product	0.0a	0.2a	176.3a	82.6a	258.0a	101.7ab	5.5a	2.4a
Renounce 20WP	0.022	0.0a	0.1a	160.7a	72.9a	220.8a	89.0b	3.3a	1.9a
Renounce 20WP	0.044	0.0a	0.1a	171.1a	81.9a	228.2a	100.4ab	2.3a	0.9a
Warrior Zeon 1CS	0.022	0.0a	0.2a	179.5a	82.6a	232.8a	104.0ab	3.5a	1.6a
Crymax	1 lb product	0.0a	0.3a	174.2a	83.3a	243.8a	100.1ab	13.6a	5.5a
Untreated check	--	1.6a	3.5b	65.1b	30.9b	95.3b	38.0c	87.8b	35.4b

Means in columns followed by the same letter are not significantly different (LSD, P > 0.05)

^aSum of small, medium, large and extra-large from 16 plants over two harvests.