(E50)

TOMATO: *Lycopersicon esculentum* (Mill.) 'Tygress'

CONTROL OF TOMATO PINWORM AND SOUTHERN ARMYWORM ON STAKED TOMATO, 2007

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

Tomato pinworm is a late season pest of tomato, egg plant and potato in Florida, producing blotch mines in leaves and damaged fruit which in tomato, often consists of small larval entry holes hidden beneath the calyx and difficult to detect during commercial grading. Southern Armyworm is usually a fall pest of tomato but may also appear late in the spring season as was the case in this trial. Greenhouse-raised seedlings of the TYLCV resistant variety 'TYgress' were planted on 16 Mar at 18-inch spacing on 2 beds. Beds were 32 inches wide, 240 ft long on 6 ft centers, covered with black polyethylene film. Each bed was divided into 8 plots, each 30 ft long and the 16 plots assigned to 3 treatments and control in a randomized complete block (RCB) design with 4 replications. Approximately 25 % of the granular fertilizer (15-0-15) was preplant soil incorporated to account for the seasonal application and remainder applied as liquid 8 – 0- 8, 5 times a week through the drip tape. Admire Pro at 8.5 fl oz/acre was applied by soil drench to all plants on 19-Mar. In addition, maintenance fungicides Kocide 2000 and Manzate 75 DF were applied twice weekly to control foliar diseases at rates of 2 lbs and 1 or 2 lbs per 100 gal, respectively. Due to the presence of late blight, a rotation spray of Ridomil Gold, Tanos and Ranman was also applied every 3-5 days from 5- Apr to 21- May. All sprays were applied with a high clearance sprayer operating at 200 psi and 2.3 mph with two vertical booms using yellow ATR - 80 hollow cone nozzles delivered 10 gpa. As nozzles were added the gpa increased, but the product rate per acre was kept constant by adjusting concentation. Applications began at 40 gpa and ended at 80 gpa at crop maturity. TPW presence and damage was monitored on 10, 17, 24, and 31- May by choosing one leaflet randomly from the lower portion of 20 plants in each plot. The number of TPW mines and larvae were counted on each of the leaflets. Twelve plants from the center section of each plot were harvested on 30-May and 11-Jun and fruit was graded as marketable or culls. Marketable fruit was sorted by size according to USDA standards and damage determined to have been caused by TPW or SAW. Fruit with any signs of pinworm feeding under the calyx was considered culled regardless of the presence/absence of larvae. Data were subjected to ANOVA, and means were separated with Fisher's Protected LSD, $P = 0.05$.

Both Synapse and A15397 significantly reduced the number of TPW mines and larval density compared to the untreated control and did not differ significantly from the grower standard, Avaunt, in effectiveness. These effects yielded into increased number and weight of fruit in all treatments compared to untreated control with no differences among treatments. Both products also significantly decreased the number and the weight of fruit culled compared to the untreated control and were not different from the grower standard. Approximately 67 % of the culled fruit in the untreated blocks and 33% in the treated blocks resulted from SAW damage. This difference may be attributed to the fact that SAW came in late and were not seen until first harvest. Subsequent treatments on 29-May and 5-Jun protected fruit destined for the second harvest from SAW, thus the greater proportion of TPW damaged fruit from treated plants compared to the untreated check.

Table 1. Spray Schedule.

Treatment	Rate amt/acre	3-May 40 gpa	15-May 60 gpa	22-May 80 gpa	29-May 80 gpa	5-Jun 80 gpa
Avaunt 30 WG	3.5 oz	X	X	X	X	X
Synapse	3 oz	X	X	X	X	X
A15397	8.22 fl. oz	X	X	Z	X	X

Z= Avaunt 30 WG @ 3.5 oz/acre

Table 2.

Treatment	Rate oz/acre	Pinworm mines/leaflet	Pinworm larvae/leaflet	Marketable fruit (total harvest)		Culled fruit (total harvest)	
				Number	Weight (lb)	Number	Weight (lb)
Untreated check		0.61a	0.20a	48.0a	16.6a	102.8a	27.5a
Avaunt	3.5	0.33b	0.02b	150.8b	48.6b	45.0b	13.7b
Synapse	3.0	0.31b	0.04b	179.5b	61.4b	39.3b	12.0b
A15397	8.22	0.23b	0.01b	162.8b	53.9b	49.8b	17.7b