

(E84)

SQUASH (ZUCCHINI): Cucurbita pepo L., 'Senator'

Pickleworm (PW): Diaphania nitidalis (Stoll)

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CONTROL OF PICKLEWORM ON ZUCCHINI SQUASH WITH SELECTIVE INSECTICIDES, 1999: Pickleworm is a serious pest of cucurbits grown in the southern U.S. and elsewhere in the new world tropics and subtropics. As broad spectrum insecticides can be detrimental to pollinators thereby reducing yields, selective materials are preferred for control. Zucchini squash was direct seeded on 16 Apr at 18-inch spacing into 2 beds 240 ft long on 24-ft centers covered with a white polyethylene mulch prepared by fertilizing with a bottom mix of 800 lb/acre 5-16-8 NPK and fumigating with 300 lb/acre of 67/33% methyl bromide/chloropicrin. The two rows were divided into 30 ft long plots to make two replicates of four plots on each bed to which treatments were assigned in a RCB with four replicates. Plants were drip irrigated and fertigated with 8-0-8 liquid fertilizer to provide 120 lb N and K/acre for the growing season. The plants were sprayed weekly for disease control with Maneb 75 DF at 1.5 lb/acre. All treatments were applied using a high clearance sprayer operating at 200 psi. The sprayer was equipped with 3 yellow hollow cone Albuz[®] ceramic nozzles/row, 1 overhead and 1 on each side, for a delivery rate of 33 gpa for the first application 18 May. On subsequent applications 24 May, 28 May, 3 Jun and 10 Jun an additional nozzle was added to each of the side booms for a delivery rate of 55 gpa. Ambush and Neemix with Javelin were applied on all dates but SpinTor was sprayed 18 and 24 May, and 3 Jun only. Evaluations for the presence of PW larvae were made on 20 open blooms per treatment on 26 May, 2 and 6 Jun. Harvests of fruit 6 inches or longer were made on 2, 9, 14, 16 and 21 Jun from the same 12 centrally located plants in each plot, recording the number and weight of marketable fruit from each. Unmarketable fruits due to PW damage, unpollinated blooms or disease were also counted and weighed.

No infested blooms were found on plants treated with SpinTor, compared to 75% from untreated plots. Other treatments were intermediate. The greatest number of marketable fruit were harvested from plots treated with SpinTor, but not significantly more than other treatments except the untreated check. Total fruit weight from plants treated with SpinTor was significantly greater than other treatments except Ambush, and this latter was not significantly more than the control. Most fruit from untreated plants was unmarketable, primarily due to insect damage. Fewest worm-damaged fruit were harvested from plants treated with SpinTor, although not significantly less than plants treated with Javelin plus Neemix. There were fewest fruit culled for reasons other than insect damage from untreated plants, possible because so many fruit were damaged by pickleworm. Thus SpinTor provided better control of pickleworm than other treatments including the broad-spectrum pyrethroid chosen as a grower standard.

Treatment/formulation	Rate amt prod/acre	Worm-infested blooms ^a	Marketable fruit ^b		Unmarketable fruit ^b			
					Insect-infested		Other ^c	
		%	No	Wt (lb)	No	Wt (lb)	No	Wt (lb)
SpinTor 2 SC	6oz	0.0c	8.9a	8.1a	0.9c	0.6b	5.1ab	0.8a
Javelin WG +	1 lb	15.7bc	7.4a	4.9bc	3.3bc	1.2b	5.6a	0.8a
Neemix 4.5 %	4 oz							
Ambush 2 EC	8oz	16.7b	7.1a	5.1ab	3.8b	0.8b	5.7a	0.7ab
Untreated check		75.0a	2.3b	2.0c	9.8a	2.3a	1.8b	0.2b

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

^aCombined data for three dates at 20 blooms per treatment per date; All were pickleworms except for 2 melon worms in the check 2 Jun.

^bHarvested fruit for all dates from 12 plants per plot.

^cIncludes fruit that were unpollinated and diseased.