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(E57)

YELLOW SQUASH: *Cucurbita pepo* L., 'Goldbar'

CONTROL OF PICKLEWORM ON YELLOW SQUASH WITH SPRAY AND SOIL-APPLIED INSECTICIDES, 2011

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

Barry C. Kostyk
Email: bkostyk@ufl.edu

Pickleworm: *Diaphania nitidalis* (Stoll)

Pickleworm is a destructive pest of squash, cucumber and cantaloupe in south Florida, feeding first on flowers, then boring into fruit and reducing yield. Greenhouse raised seedlings were transplanted 3 Mar 2011 into raised beds covered with black polyethylene mulch at the Southwest Florida Research and Education Center in Immokalee FL. Four beds on 6 ft centers and 430 ft long were used, each with two drip lines emitting at 4-inch intervals to provide 60 gph/100 ft. Plants were spaced at 24-inches and received 25% of the required fertilizer incorporated as a 10-2-10 bottom mix on 9 Feb with additional fertilizer provided by daily application of 7-0-7 liquid by drip. A RCB design was used with 4 replications and 10 treatments plus an untreated check. Each plot contained 15 plants with 3 buffer plants between plots. A soil drench of Durivo on 7-Mar was made by delivering a 120 ml suspension to the base of each plant using an EZ-Dose® sprayer operating at a pressure of 45 psi and a flow rate of 3.7 gpm. HGW 86 20 SC was applied by drip on 15 and 29 Mar by sectioning off each treated plot with a ball valve and pressurizing the tape using a 12-volt pump operating at 0.23 gpm to inject 2 L water, followed by 3 L of suspension and finally 3 L of water (Table 1). Foliar treatments of Vetica, Synapse and HGW 86 10 SC were applied with a high clearance sprayer operating at 180 psi and 2.3 mph with delivery through two vertical booms, each equipped with 2 yellow Albuz® hollow cone nozzles plus one overhead for a total of 50 gpa (Table 1). All appropriately sized fruit from 6 plants per plot were removed weekly but evaluated on 8, 13, 18, 22, 27 Apr, 2 May from untreated plants and those receiving Durivo and early application of HGW 86 20 SC. Once spraying commenced, fruit from all plots were evaluated on 6, 11, 16, 20, 25 May. Evaluation included surface and internal feeding damage by pickleworm. Marketable and culled fruit were counted and weighed by category on each harvest date. Data were subjected to ANOVA and means separated using LSD (P = 0.05).

Incidence of pickleworm was low and no differences were observed in the number or weight of marketable fruit or of number of damaged fruit through 2 May. Subsequently, significantly less pickleworm damage compared to the control was seen with all treatments except the 6.75 and 10.2 oz/ac drip applications of HGW86 made on 15-29 March. No differences were seen between Vetica applied weekly or every two weeks.

The best treatments were the 10.1 and 13.5 oz.1 and 13.5 oz/ac rates of HGW 10 SC applied as a foliar spray on 2 and 9 May, probably because pressure was late. However, damage on these plants was not significantly less than with the remaining treatments except for Synapse and 5.1 oz/ac HGW86 SC. This research was supported by industry gift(s) of pesticide and/or research funding.

Table 1.

Treatment/ Formulation	Rate (Product/acre or % vol/vol	7 Mar	15 Mar	29 Mar	2 May	9 May	17 May	23 May
Synapse 24 WG	3.0 oz				x	x		
Induce	0.25%							
Vetica	17.0 oz				x	x	x	x
Induce	0.25%							
Vetica					x		x	
Induce	0.25%							
Durivo	13.0 oz	x						
HGW86 20 SC (drip)	5.1 oz		x	x				
HGW86 20 SC (drip)	6.75 oz		x	x				
HGW86 20 SC (drip)	10.2 oz		x	x				
HGW86 10 SC (spray)	6.75 oz				x	x		
HGW86 10 SC (spray)	10.1 oz				x	x		
HGW86 10 SC (spray)	13.5 oz				x	x		

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Table 2

Formulation Treatment/	Rate Product per acre Or % vol/vol	Marketable fruit and weight per 6 plants				Pickleworm damaged fruit per 6 plants	
		8 April to 2 May		6 May to 25 May		8 April to 2 May	6 May to 25 May
		(No.)	(lbs)	(No.)	(lbs)	(No.)	(No.)
untreated check	na	66.8	27.7	20.5	8.6	4.0	14.3a
Synapse 24 WG	3.0 oz	na	na	24.5	7.6	na	7.0bc
Induce	0.25%						
Vetica (weekly)	17.0 oz	na	na	28.0	10.4	na	4.0bcd
Induce	0.25%						
Vetica (every 2 wks)	17.0 oz	na	na	27.3	8.3	na	5.8bcd
Induce	0.25%						
Durivo	13.0 oz	67.0	29.7	35.5	12.2	0.3	2.5cd
HGW86 20 SC (drip)	5.1 oz	62.8	31.1	24.8	8.9	2.3	8.5b
HGW86 20 SC (drip)	6.75 oz	65.8	33.3	22.5	9.6	4.0	14.0a
HGW86 20 SC (drip)	10.2 oz	71.0	37.2	27.0	11.3	1.5	16.0a
HGW86 10 SC (spray)	6.75 oz	na	na	30.5	11.8	na	4.0bcd
HGW86 10 SC (spray)	10.1 oz	na	na	28.3	9.7	na	1.8d
HGW86 10 SC (spray)	13.5 oz	na	na	35.8	12.1	na	1.0d

Means followed by same letter are not statistically different ($\alpha = 0.05$).