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E70

ZUCCHINI SQUASH: *Cucurbita pepo* L., 'Radiant'

CONTROL OF PICKLEWORM ON ZUCCHINI SQUASH, 2010

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Pickleworm: *Diaphania nitidalis* (Stoll)

Pickleworm can be a destructive pest of squash, cucumber and cantaloupe in south Florida, feeding first on flowers, then boring into the fruit and reducing yield. Seeds were sown in 128 cell trays on 25 Feb 2010 and maintained in a screened greenhouse until transplanted on 8 Mar 2010 into raised beds covered with black polyethylene mulch at the Southwest Florida Research and Education Center in Immokalee FL. For this trial, 6 beds 230 ft in length and spaced 6 ft apart with 18-inch within row plant spacing were used into which 25% of the required fertilizer had been incorporated as a 13-2-13 bottom mix on 23 Feb. Remaining requirements were provided by daily fertigation of an 8-0-8 liquid. A RCB design was used with 4 replications and 9 treatments plus 3 control plots per block. Each plot contained 15 plants with a 6 ft open buffer between plots. Foliar treatments were applied with a high clearance sprayer operating at 180 psi and 2.3 mph with delivery through two vertical booms each equipped with 3 yellow Albuz® hollow cone nozzles that applied 60 gpa (Table 1). One newly emerged male flower bud was sampled weekly from each of 5 plants per plot from 28 Apr through 19 May and the total number of pickleworm were counted. All appropriately sized fruit from 8 plants per plot were removed on 27, 29 Apr, 3, 6, 10, 13, 17, 20 May and evaluated for surface and internal feeding damage by pickleworm. Total number of marketable fruit and culled fruit in each category were counted and weighed on each harvest date. Data were subjected to ANOVA and means separated using LSD (P = 0.05) are presented.

Only HGW 86 at 6.75 and 13.5 oz/acre, Voliam Flexi and biweekly Synapse treatments resulted in fewer pickleworms in blooms on 28 Apr, 5 days after the first spray (Table 2). It is likely many larvae had already been established in the base of the male flowers and protected from these initial foliar sprays. Thereafter, all products tested significantly reduced the number of larvae found in the male flowers with the exception of the Synapse 24 WG applied every other week on 5 May. All products significantly increased the number of marketable fruit collected and reduced the number of damaged fruit found during the trial, although more damaged fruit were found on plants receiving Synapse applied either weekly or biweekly compared to all other treatments. No phytotoxicity was observed for any of the treatments.

Table 1.

Treatment/ formulation	Timing	Rate amt product/acre	Application Dates (60 GPA) 23 Apr	30 Apr	7 May	14 May
Untreated						
Coragen 20 SC	weekly	3.5 oz	x	x	x	x
HGW 86 10 SC	weekly	6.75 oz	x	x	x	x
HGW 86 10 SC	weekly	10.1 oz	x	x	x	x
HGW 86 10 SC	weekly	13.5 oz	x	x	x	x
Voliam Express	weekly	9.0 oz	x	x	x	x
Voliam Flexi	weekly	7.0 oz	x	x	x	x
Rimon 0.83 EC	weekly	12.0 oz	x	x	x	x
Synapse 24 WG	weekly	3.0 oz	x	x	x	x
Induce		0.25% vol/vol	x	x	x	x
Synapse 24 WG	every 2 weeks	3.0 oz	x		x	
Induce		0.25% vol/vol	x		x	

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Table 2.

Treatment/ formulation	Rate amt product/acre	Pickleworm Larvae per flower 28-Apr	5-May	12-May	19-May	Total number of fruit from 8 harvests (27-Apr thru 20-May) Market No	Damage No
Untreated	NA	0.55a	0.44a	0.42a	0.58a	28.8c	30.5a
Coragen 20 SC	3.5 oz	0.25ab	0.00c	0.00b	0.00b	63.0ab	2.8c
HGW 86 10 SC	6.75 oz	0.10b	0.00c	0.05b	0.05b	79.5a	2.3c
HGW 86 10 SC	10.1 oz	0.30ab	0.00c	0.00b	0.00b	72.0ab	5.5c
HGW 86 10 SC	13.5 oz	0.00b	0.00c	0.00b	0.00b	77.3ab	1.8c
Voliam Express	9.0 oz	0.30ab	0.00c	0.00b	0.00b	76.0ab	4.3c
Voliam Flexi	7.0 oz	0.05b	0.00c	0.00b	0.00b	74.3ab	2.8c
Rimon 0.83 EC	12.0 oz	0.25ab	0.10bc	0.05b	0.00b	71.3ab	5.3c
Synapse 24 WG	3.0 oz	0.30ab	0.00c	0.10b	0.00b	67.0ab	12.3b
Induce	0.25%						
Synapse 24 WG	3.0 oz	0.20b	0.25ab	0.05b	0.15b	60.3b	17.5b
Induce	0.25%						

Means followed by the same letter within a column are not statistically different (LSD P>0.05).