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(E44)

PEPPER 'Jalapeno' *Capsicum annuum* (L.), 'Tormenta'

BIORATIONAL CONTROL OF PEPPER WEEVIL ON 'JALAPENO' PEPPER, 2010

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Pepper weevil: *Anthonomus eugenii* Cano

Pepper weevil is the key pest of pepper in the southern parts of the US due destruction of fruit through larval feeding. Control with conventional insecticides is difficult due in part to the inaccessibility to insecticide sprays of all but the adult stage. Therefore, novel control approaches are required. Greenhouse-grown pepper plants were transplanted at SWFREC in Immokalee on 1 March 2010 at 18 inch spacing in single rows 240 ft in length on 6 ft centers and covered with black polyethylene film mulch. Beds were divided into 8 plots and treatments distributed in an RCB design with 3 replicates. Each plot contained 10 pepper plants with four collard plants between plots as a buffer. Approximately 25 % of the fertilizer was preplant soil incorporated (granular 13-2-13) with the remainder applied as liquid 8-0-8 delivered daily through drip irrigation. Foliar applications were made with a high clearance sprayer operating at 180 psi at 2.3 mph with spray delivered through two vertical booms fitted with 4 yellow Albuz® hollow cone nozzles that discharged 10 gpa each. Dropped fruit was confined to the bed top by 2" x 2" x 8' wooden lathe fastened to the edges of the raised beds with ground cloth staples to prevent fruit from falling to the ground. On 7, 14, 21, and 28 of June all fallen fruit were collected, counted and removed from the plots. All fruit greater than 2 inches in length was also removed from the plant and taken to the lab for further evaluation. Externally damaged and undamaged fruit were separated, counted and weighed. Half the apparently undamaged fruit up to 25 per plot were cut longitudinally and inspected for pepper weevil with the percentage damaged fruit used to estimate number of weevil-damaged fruit in each lot. Thus total number of damaged fruit for each plot was equal to the number of fallen, externally damaged and internally damaged fruit. Marketable fruit was estimated by taking the total number of fruit harvested and subtracting the number damaged.

Yields were low and variable due to heavy infection of bacterial spot brought about by unseasonable rainfall. The percentage of marketable fruit was highest and damaged fruit least from plants treated with the standard Actara - Vydate rotation. However, differences between this treatment and the two including Requiem or the one with diatomaceous earth were not significant in regard to marketable fruit nor compared to the Rimon rotations or Surround treatments in regard to culls. This research was supported by industry gift(s) of pesticide and/or research funding.

Table 1

Product/ Formulation	Rate (Product/acre)	Application Dates								
		24 May	1 Jun	4 Jun	8 Jun	11 Jun	15 Jun	18 Jun	22 Jun	25 Jun
Untreated check	NA									
Actara 25 WG	3.67 oz	x	x	x						
Vydate 2 L	4 pts				x	x	x	x	x	x
Requiem 25 EC	4 qts	x	x	x	x	x	x	x	x	x
Requiem 25 EC	2 qts	x	x	x	x	x	x	x	x	x
Diatomaceous earth	5 lbs	x	x	x	x	x	x	x	x	x
Surround WP	0.5 lbs/gal	x	x	x	x	x	x	x	x	x
Rimon 0.83 EC	12.0 oz	x		x		x		x		x
Vydate 2 L	4 pts		x		x		x		x	
Rimon 0.83 EC	12.0 oz	x		x		x		x		x
Actara 25 WG	3.67 oz		x		x		x		x	

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Table 2

Product/ Formulation	Rate (product/acre)	Marketable (%)	Damaged (%)
Untreated check	NA	28.0d	72.0a
Actara 25 WG	3.67 oz	56.7a	43.3d
Vydate 2 L	4 pts		
Requiem 25 EC	4 qts	30.1cd	69.9ab
Requiem 25 EC	2 qts	39.6bcd	60.4abc
Diatomaceous earth	5 lbs	39.2bcd	60.8abc
Surround WP	0.5 lbs/gal.	48.0ab	52.0cd
Rimon 0.83 EC	12.0 oz	44.5abc	55.5bcd
Vydate 2 L	4 pts		
Rimon 0.83 EC	12.0 oz	45.7abc	54.3bcd
Actara 25 WG	3.67 oz		

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