

PEPPER (HOT): *Capsicum annuum* L. 'Magnifico'
Pepper weevil *Anthonomus eugenii* Cano

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INSECTICIDAL CONTROL OF PEPPER WEEVIL ON JALAPENO

PEPPER, 2001: Pepper weevil is a key pest of all pepper varieties in Florida as well as the American southwest, Mexico and Central America. Due to the inaccessibility of immature stages within the pepper fruit, the few effective alternatives for controlling adults must often be combined in rotation to provide season-long control. For this trial greenhouse-raised pepper plants were transplanted on 27 Feb at 10 inch spacing in single rows on 2 sets of 3 plastic mulched beds 240 ft in length. Water and fertilizer were provided through Netafim™ drip tape with 12 inch emitter spacing. The center bed in each set of 3 was left untreated to serve as a source of weevils. Each treated bed was divided into plots 30 ft long to which treatments were assigned in an RCB design with 4 replications. Plants designated for treatment with Avaunt or Lannate were sprayed in 8 weekly applications beginning 11 Apr. Vydate or Cryolite was applied in weekly rotation over this same period. Actara at 3 oz/acre was applied 4 times on 11, 25 Apr, and 9, 24 May. Actara at 4 oz/acre and Capture were applied 3 times on 11 and 25 Apr and 9 May, each followed by 2 applications of Vydate on 24 and 30 May. Calypso was applied 11, 18, 25 Apr and 1 May followed on 9, 15, 24 and 30 May by Vydate applied invariably at 0.75 lb (ai)/acre. Applications were made with a high clearance sprayer operating at 200 psi through two vertical booms, each fitted with 2 ceramic “yellow” Albuz™ hollow cone nozzles to deliver at total of 44 gpa. Seven adult weevils were found in the course of a pre-treatment count made 10 Apr from 60 randomly selected plants across the trial area. Pepper weevil damage was monitored by collecting fallen fruit from both sides of 21 plants per plot on 23 and 30 Apr and 8, 14, 21 and 29 May. On 21 May and 6 Jun all fruit 2.5 inches or more in length was harvested and weighed from the same 21 plants/plot monitored for dropped fruit. Weight of marketable fruit was determined by dissecting a random sample of up to 100 fruit per plot if available to find the percentage infected with weevils and adjusting the total weight accordingly.

There were no significant differences between the untreated check and treatments of Avaunt 30 WG at 0.65 lb(ai)/acre, Capture 2 EC at 0.067 lb(ai)/acre or Lannate LV at 0.9 lb(ai)/acre in number of fallen fruit. Significantly fewer fallen fruit were observed from the remaining treatments with no differences among them. This result was in general agreement with yield which was greater from treated plants, with the exception of those treated with Avaunt 30 WG, compared to the untreated check. Greatest production was seen from plants treated with Calypso, Actara and the Vydate /Cryolite rotation. However, most marketable fruit was obtained from plants treated with the high rate of Actara applied in 3 applications followed by Vydate, although this was not significantly different from yield obtained from plants treated with Calypso/

Vydate or the Vydate/Cryolite rotation. There was no significant difference in yield of marketable fruit between plants treated with Avaunt 30 WG or with Capture 2EC and the untreated check. Thus, given the conditions of this experiment, the industry standards of Vydate and Cryolite remain viable options for pepper weevil control, to which could be added Actara and, upon its registration, Calypso. In regard to Actara, our results indicated that 3 applications at the higher rate (0.060 lb (ai)/acre = 4 oz product/acre) followed by Vydate was preferable to 4 applications of the lower rate (0.047 lb (ai)/acre = 3) oz product/acre.

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Treatment/ formulation	Rate lb ai/acre	<u>Total for both harvests from 21 plants</u>			
		Fallen ^a peppers no.	Total fruit no.	Total fruit wt (lb)	Marketable fruit wt (lb)
Avaunt 30 WG	0.065	134a	124c	4.7cd	2.4cd
Actara 25 WG	0.047	61b	417a	16.0b	13.0b
Actara 25 WG	0.060	47b	494a	23.7a	19.4a
Calypso 4 SC	0.090	51b	457a	20.3ab	17.1ab
Capture 2 EC	0.067	138a	191bc	6.1c	4.0cd
Lannate LV	0.900	147a	223b	8.7c	5.3c
Vydate L rotation	0.750	68b	464a	19.1ab	16.6ab
Prokil Cryolite 96	12 lb prod				
Untreated check	SSSSS	156a	27d	0.9d	0.3d

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

^aData taken 29 May, only date with difference of fallen pepper from 21 plants per plot