

(E62)

**PEPPER (HOT):** *Capsicum annuum* L., 'Magnifico'

## **INSECTICIDAL CONTROL OF PEPPER WEEVIL ON JALAPENO PEPPER, 2001**

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Pepper weevil (PW): *Anthonomus eugenii* Cano

Pepper weevil is a key pest of all pepper varieties in Florida, as well as in the American Southwest, Mexico, and Central America. Because of 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 two sets of three 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 three 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 four replications. Plants designated for treatment with Avaunt or Lannate were sprayed in eight weekly applications beginning 11 Apr. Vydate or Cryolite was applied in weekly rotation over this same period. Actara at 3 oz/acre was applied four times on 11 and 25 Apr, and 9 and 24 May. Actara at 4 oz/acre and Capture were applied three times on 11 and 25 Apr and 9 May, each followed by two applications of Vydate on 24 and 30 May. Calypso was applied on 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 two ceramic yellow Albus hollow-cone nozzles to deliver a total of 44 gpa. Seven adult weevils were found in the course of a pretreatment count made on 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 of infected fruit 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 with 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 three 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 2 EC 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 three applications at the higher rate (0.060 lb (AI)/acre = 4 oz product/acre)

followed by Vydate was preferable to four applications of the lower rate (0.047 lb (AI)/acre = 3 oz product/acre).

TABLE 1.

Treatment/ formulation	Rate lb (AI)/acre	No. fallen peppers <sup>a</sup>	Total for both harvests from 21 plants		
			Total fruit		Marketable fruit
			No.	Wt (lb)	Wt (lb)
Avaunt 30 WG	0.065	134 a	124 c	4.7 cd	2.4 cd
Actara 25 WG	0.047	61 b	417 a	16.0 b	13.0 b
Actara 25 WG	0.060	47 b	494 a	23.7 a	19. a
Calypso 4 SC	0.090	51 b	457 a	20.3 ab	17.1 ab
Capture 2 EC	0.067	138 a	191 bc	6.1 c	4.0 cd
Lannate LV	0.900	147 a	223 b	8.7 c	5.3 c
Vydate L	0.750	68 b	464 a	19.1 ab	16.6 ab
rotated with Prokil Cryolite 96	12 lb prod				
Untreated check		156 a	27 d	0.9 d	0.3 d

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

<sup>a</sup> Data taken 29 May, only date with difference of fallen pepper from 21 plants per plot