(E52)

PEPPER (JALAPEÑO): *Capsicum annuum*(L.), 'Grande'

INSECTICIDAL CONTROL OF PEPPER WEEVIL AND INCIDENCE OF GREEN PEACH APHID ON JALAPEÑO PEPPER, 2003

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Pepper weevil: *Anthonomus eugenii* Cano
Green peach aphid: *Myzus persicae* (Sulzer)

Pepper weevil is the major pest of all pepper varieties in the southern parts of the US, due in part to the impossibility of controlling the cryptic immature stages. In this study, we looked at new products, application timing, and rotational protocols to increase options and improve efficiency of older products for controlling this pest. Greenhouse-raised pepper plants were transplanted on 26 Feb at 10-inch spacing in single rows on two sets of three beds 240 ft in length and covered with polyethylene film mulch. 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 33 ft long to which treatments were assigned in an RCB design with four replications. Peppers infested with weevil larvae were placed under the plants in the inoculum row on 25 Mar to introduce the pest into the trial area. A survey on 14 Apr showed that 6 out of 50 peppers collected from the inoculum rows contained larvae. No adults were found and no infested peppers were found in the treated rows. Prokil Cryolite 96 was tested as a deterrent prior to the detection of weevils with 6 weekly applications at 4 lb per acre beginning on 12 Mar or four weekly applications at 6 lb per acre were beginning on 19 Mar (Table 1). A high clearance sprayer was used operating at 200 psi with the spray delivered through two vertical booms, each fitted with two ceramic yellow Albuz hollow cone nozzles for a total of 44 gpa. The regimen was changed 22 Mar to an Actara/Vydate rotation on detection of weevils, at which time the remaining four weekly treatments were also initiated (Table 1). Pepper weevil damage was monitored by collecting fallen fruit from both sides of 21 centrally located plants per plot on 21 and 28 Apr and 5, 12, and 19 May. An infestation of green peach aphid, *Myzus persicae,* first observed on 21 Apr, was rated on 20 leaves per plot on 5, 12 and 19 May using the following system: 1 = no aphids, 2= 1-2 aphids per leaf, no significant plant damage and 3 = 10+ aphids per leaf causing significant plant stress. Mature peppers were harvested from 21 plants per plot on 21 Apr and the percentage of infested fruit was estimated by dissecting 50 peppers per plot for weevils or damage. On 20 May, all fruit 2.5 inches or more in length was harvested and weighed from the same 21 plants per plot harvested earlier. Weight of marketable fruit was estimated by dissecting a random sample of up to 50 harvested fruit per plot to obtain a percentage infested with weevils and adjusting the total weight accordingly. Data were subjected to ANOVA and means were separated using LSD ($P = 0.05$).

A significantly lower proportion of fruit from plants treated with Cryolite was found infested at the first harvest indicating that Cryolite provided early protection since this was the only material applied to that point (Table 2). Also, fewest fallen peppers overall were observed under plants treated initially with Cryolite followed by the Actara/Vydate rotation, although not significantly fewer than those treated only with Actara/Vydate or Actara/Warrior during the follow-up period. The remaining two treatments were not significantly different from the untreated check in this regard. Aphids were significantly more abundant on plants treated with DPX-E2Y45 than all other treatments including the untreated check. This was attributed to a paucity of ladybeetles observed on plants treated with DPX-E2Y45, although no counts were made. All insecticide treated plants produced more peppers,

fewer infested peppers and more marketable pepper than untreated plants except those receiving DPX-E2Y45. Thus, the rotational treatments used protected the crop from losses due to pepper weevil infestation.

Table 1.

Treatment/ formulation	Rate amt product/acre	Application dates									
		12 Mar	19 Mar	27 Mar	3 Apr	10 Apr	17 Apr	22 Apr	29 Apr	6 May	13 May
Prokil Cryolite 96	4 lb	X	X	X	X	X	X				
Actara 25WG	4 oz							X		X	
Vydate 2L	3 pt								X		X
Prokil Cryolite 96	6 lb			X	X	X	X				
Actara 25WG	4 oz							X		X	
Vydate 2L	3 pt								X		X
Actara 25WG	4 oz							X		X	
Vydate 2L	3 pt								X		X
Actara 25WG	4 oz							X		X	
Warrior Z 1CS	0.03 lb(AI)								X		X
Provado 1.6F	6 fl oz							X	X	X	
Vydate 2L	3 pt										X
DPX-E2Y45 35WG	0.067 lb(AI)							X	X	X	X
Untreated check	--										

Table 2.

Treatment/ formulation	Rate amt product/acre	% infested at first harvest (21 Apr)	Mean no. fallen fruit (5 dates)[a]	Mean aphid rating (3 dates)	Total wt (lbs)[b]	Second harvest (20 May)	
						% infested	Market wt (lbs)[c]
Prokil Cryolite 96	4 lb	2.3 a	8.7 c	1.0 b	49.1 a	1.0 c	48.6 a
Actara 25WG	4 oz						
Vydate 2L	3 pt						
Prokil Cryolite 96	6 lb	0.3 a	7.6 c	1.0 b	44.4 ab	2.5 c	43.2 a
Actara 25WG	4 oz						
Vydate 2L	3 pt						
Actara 25WG	4 oz	--	15.9 bc	1.0 b	51.2 a	5.5 bc	48.6 a
Vydate 2L	3 pt						
Actara 25WG	4 oz	--	16.9 bc	1.0 b	47.9 ab	9.0 bc	43.5 a
Warrior Z 1CS	0.03 lb(AI)						
Provado 1.6F	6 fl oz	--	43.1 ab	1.0 b	41.9 abc	6.5 bc	39.0 a
Vydate 2L	3 pt						
DPX-E2Y45 35WG	0.067 lb(AI)	--	46.7 a	2.7 a	33.0 c	14.5 ab	28.2 b
Untreated check	--	13.3 b	66.5 a	1.0 b	37.2 bc	22.5 a	28.6 b

Means in columns followed by the same letter are not significantly different (LSD, $P > 0.05$).
[a]Mean per plot from 21 plants.
[b]Total weight of infested and marketable fruit at second harvest (50 peppers per plot); the combined first and second harvest weights of infested and
marketable fruit (100 pepper per plot) were not significantly different ($P > 0.05$).
[c]Total weights minus infested fruit weights for both harvests combined.