(E44)

PEPPER (Jalapeño): *Capsicum annuum* L., 'Agriset 4001'

INSECTICIDAL CONTROL OF PEPPER WEEVIL ON JALAPEÑO PEPPER, 2002

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Pepper weevil: Anthonomus eugenii (Cano)
Broad mite: Polyphagotarsonemus latus (Banks)

Pepper weevil is a key pest of all pepper varieties grown in Florida and other subtropical areas of the United States, the Caribbean, and Central America. Insecticidal control confined to the adult is difficult due to the cryptic habitat of other stages in the fruit, and the few effective products available must often be combined in rotation to provide season-long control. For this trial, greenhouse-raised pepper plants were transplanted on 13 Mar 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 30-ft long to which treatments were assigned in an RCB design with four replications. One adult per 25 plants was observed during the course of a pre-treatment survey of 200 plants, already in flower, on 8 Apr. Seven weekly applications were made using a high clearance sprayer operating at 200 psi. Spray was delivered through two vertical booms, each fitted with two ceramic yellow Albuz hollow cone nozzles for a total of 44 gpa until 6 May when one nozzle was added to each boom for an output of 66 gpa. Pepper weevil damage was monitored by collecting fallen fruit from both sides of 28 centrally located plants per plot on 22 and 29 Apr and 6, 13, and 20 May. A petiole sap analysis of nitrogen and potassium was conducted on the SeaCide (cold pressed fish oil) and the untreated plots weekly during the growing season. Relative damage from broad mite was assessed 30 Apr on a rating scale of 1-4 where 1 implies <25% of plants showed damage; 2, 26-50% of plants showed damage; 3, 51-75% plants showed damage; and 4, >75% showed damage. All plots were then treated with Kelthane for broad mite control. All fruit 2.5 inch or more in length was harvested and weighed on 7 May and 29 May from the same 28 plants per plot monitored for dropped fruit. Weight of marketable fruit was determined by dissecting a random sample of up to 100 harvested fruit per plot if available, to obtain a percentage infested with weevils and adjusting the total weight accordingly.

Sap analyses for potassium and nitrogen didn't show any significant differences between the SeaCide and untreated plants sampled weekly over the growing season. The higher rates of Cryolite (12 lb/acre) induced higher broad mite populations but only Rotation B was significantly different from Calypso. Fewest fallen fruit were found on 29 Apr under plants treated with Rotation A, which was the only treatment significantly different from the untreated control. On 6 May fewest fallen fruit was found under plants treated with any rotation or weekly with Calypso, with no differences between other treatments and the check. On 13 May all treatments except Neemix had less fallen fruit than the check and all remaining treatments had fewer than SeaCide. On 20 May all but SeaCide and Neemix had fewer than the control and there were more under plants treated weekly with Calypso than other treatments. Nevertheless, most marketable fruit were

harvested from plants treated weekly with Calypso or Rotation A, with the other three rotations next in line and fewest from plants treated with SeaCide, Neemix, or untreated.

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Table 1.

		Spray dates and product amt/acre						
Treatments	Products	9 Apr	16 Apr	23 Apr	30 Apr	6 May	13 May	20 May
Rotation - A	Vydate L Actara 25 WG	Vydate @ 3 pt	Vydate @ 3 pt	Actara @ 4 oz	No spray	Actara @ 4 oz	Vydate @ 3 pt	Vydate @ 3 pt
Rotation - B	Prokil Cryolite 96 Actara 25 WG	Cryolite @ 12 lb	Cryolite @ 12 lb	Actara @ 4 oz	No spray	Actara @ 4 oz	Vydate @ 3 pt	Vydate @ 3 pt
Rotation - C	Prokil Cryolite 96 Actara 25WG	Cryolite @ 8 lb	Cryolite @ 8 lb	Cryolite @ 8 lb	Actara @ 4 oz	Vydate @ 3 pt	Actara @ 4 oz	Vydate @ 3 pt
Rotation - D	Prokil Cryolite 96 Provado 1.6 F	Cryolite @ 12 lb	Cryolite @ 12 lb	Provado 6 oz	Provado 6 oz	Provado 6 oz	Vydate @ 3 pt	Vydate @ 3 pt
Weekly	Neemix 4.5	8 oz	8 oz	4 oz	4 oz	4 oz	4 oz	4 oz
Weekly	SeaCide	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v
Weekly	Calypso 2 EC	3 oz	3 oz	3 oz	3 oz	3 oz	3 oz	3 oz
Untreated check	---	---	---	---	---	---	---	---

Table 2.

		No. fallen peppers/28 plants/plot				Broad mite damage	Marketable fruit[2] (lb/ 28 plants)
Treatments	Products	29 Apr	6 May	13 May	20 May	30 Apr	Wt (lb)
Rotational - A	Vydate L Actara 25 WG	1.5d	17.5b	17.8c	43.8c	2.1bc	44.8a
Rotational -B	Prokil Cryolite 96 Actara 25 WG	20.cd	8.5b	10.5c	19.3c	3.8a	31.3b
Rotational - C	Prokil Cryolite 96 Actara 25WG	3.3bcd	16.0b	18.0c	55.3c	3.0ab	27.2b
Rotational - D	Prokil Cryolite 96 Provado 1.6 F	2.0cd	18.5b	16.0c	61.0c	3.1ab	28.0b
Weekly	Neemix 4.5	7.5a	60.5a	152.0ab	248.3a	2.4bc	12.1c
Weekly	SeaCide	6.8ab	64.5a	136.5b	254.3a	2.4bc	11.6c
Weekly	Calypso 2 EC	2.3cd	13.0b	35.8c	155.8b	1.1c	49.0a
Check untreated	---	5.8abc	78.0a	200.0a	256.3a	2.3bc	8.1c

Means in columns followed by the same letter are not significantly different (LSD, $P < 0.05$).
Totals minus infected fruit for both harvest combined.