(E)

PEPPER (Jalapeño): *Capsicum annuum* (L.) 'Ixtapa'

INSECTICIDAL CONTROL OF PEPPER WEEVIL AND EFFECTS ON BROADMITE, JALAPEÑO PEPPER, 2007

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Pepper weevil: *Anthonomus eugenii* (Cano)

Broadmite: *Polyphagotarsonemus latus* (Banks)

Pepper weevil is the major pest of all pepper varieties in the southern parts of the US, damaging fruit primarily through larval feeding. Control is difficult due in part to the inaccessibility of all but the adult stage to insecticide sprays. For this field trial, greenhouse-raised pepper plants were transplanted on 5 Apr at 18 inch spacing in single rows on a set of 3 beds, 240 ft in length and covered with polyethylene film mulch. Approximately 25 % of the fertilizer was preplant soil incorporated (granular 15-0-15) with the remainder applied as liquid 8-0-8 delivered by drip irrigation. Each bed was divided into 4 plots 60 ft long and the 3 treatments assigned across the 3 beds 4 times in a randomized complete block design. A high clearance sprayer was used operating at 200 psi and 2.3 miles per hour with the spray delivered through two vertical booms using yellow Albuz® hollow cone nozzles that applied 10 gpa each. Both May and Jun applications were conducted with 4 nozzles that delivered 40 gpa. Applications were made 16, 21, 25, 30 May and 1, 5, 8, 13, 18 Jun. Pepper weevil damage was monitored 29 May and 4, 12, 19 June by counting fallen fruit and fallen flowers from 10 plants per plot collected by fixing a barrier of wood lathing onto the plastic. All fruit 2.5 inches or more in length was harvested 15 and 22 Jun from 20 plants located centrally in each plot. No fruit of harvestable size was available from any plot in replicate 3 during the entire experiment and therefore was not included in the harvest analysis. Fruit was weighed and then cut open to determine if weevil larvae and/or larval feeding damage were present. Broadmite damage was evaluated as light = less than 33% of whorls with visible damage and less than 10% with severe curling, and severe = more than 67% of whorls with visible damage or more than 33 % with severe curling.

Mean (± SEM) of fallen flowers per plant was 18.1 ± 6.0 and of fallen fruit per plant was 2.1 ± 2.1 across all plots with no significant treatment effect was observed. Significantly more fruit

was harvested from plants treated with Assail than with XDE-175 or untreated. Fruit with larvae or feeding damage was less by a factor of 4 in the Assail treatment than in the XDE-175 treatment, although not statistically significant for the presence of larvae. Broadmite damage was least on untreated palnts and greatest on plants treated with Assail, with XDE-175 treated plants intermediate. This result was attributed to effects on a predaceous mite *Amblyseius swirskii* that had been released in an adjacent block and had dispersed into the treated blocks.

Treatment	Formulation	Rate	Pepper Weevil Damage Assessment on Fruit				Broadmite Damage	
			Total (No)	Weight (lbs)	Fruit with Larvae (%)	Fruit with feeding damage	Light	Severe
Control			0.67 b	0.00 a	NA	NA	8.3 a	1.5 c
Assail	30 SG	4 oz/ac	277.3 a	6.12 a	8.2 a	17.1 b	0.8 c	9.3 a
XDE-175	SC 120 g/l	8 fl oz/ac	33.0 b	0.39 a	32.9 a	66.86 a	4.0 b	5.8 b

Part II: Materials Tested for Arthropod Management

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Brand Name	**Formulation**	**Common Name**	**Composition**	**Manufacturer**
Assail	30 SG	Acetamiprid	(*E*)-N^1-[(6-chloro-3-pyridyl)methyl]-N^2-cyano-N^1-methylacetamidine	Cerexagri, Inc. 630 Freedom Bus. Center. Suite 402 King of Prussia, PA 19406
XDE-175 (Radiant)	1 SC	Spinetoram	1-H-as-Indaceno[3,2-d]o oxacyclododecin-7,15-dione, 2-[(6-deoxy-3-O-ethyl-2,4-di-O-methyl-a-Lmannopyranosyl)oxy]-13-[[(2R,5S,6R)-5-(dimethylamino) tetrahydro-6-methyl-2H-pyran-2-yl]oxy]-9-ethyl-2,3,3a,4,5,5a,5b,6,9, 10,11,12,13,14,16a,16b-hexadecahydro1 14-methyl-, (2R,3aR,5aR,5bS,9S,13S,14R,16aS,16bR) and 1H-as-Indaceno[3,2-d]oxacyclododecin-7,15-dione, 2-[(6-deoxy-3-O-ethyl-2,4-di-O-methyl-a-Lmannopyranosyl)oxy]-13-[[(2R,5S,6R)-5-	Dow Agrosciences LLC Indianapolis IN 46288

			(dimethylamino)tetrahydro-6-methyl-2H-pyran-2-yl]oxy]-9-ethyl-2,3,3a,5a,5b,6,9,10,11,12,13,14,16a,16btetradecahydro-4,14-dimethyl-, (2S,3aR,5aS,5bS,9S,13S,14R,16aS,16b	