

**D1**

**ALMOND:** *Prunus dulcis* (Miller) D. A. Webb

**EFFECTS OF INSECTICIDE TREATMENTS FOR NAVEL ORANGEWORM ON POPULATIONS OF PACIFIC SPIDER MITE IN ALMOND, 2010****David Haviland**

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Pacific spider mite: *Tetranychus pacificus* McGregor

In 2010 we conducted a navel orangeworm trial at the University of California West Side Research and Extension Center in Five Points, Fresno Co., CA. The trial evaluated the populations of spider mites at harvest approximately 4 wk after treatments for navel orangeworm at hull split. A total of 84 nonpareil trees were organized into a RCBD with six blocks of 13 treatments and an untreated check. Trees were 3 years old and planted in a spacing of 22 ft × 15 ft. Treatments were applied to individual trees with a hand gun using 200 gpa at 150 PSI on 22 Jul. This corresponded with the second flight of navel orangeworm and the initiation of hull split. Mite densities were evaluated on 17 Aug. A total of twenty random leaves were collected from each individual tree. Leaves were transported to a laboratory where the numbers of motile Pacific spider mites (larvae, nymphs, and adults) per leaf were counted. Avg number of mites per leaf were analyzed by ANOVA with means separated by Fisher's Protected LSD ( $P = 0.05$ ).

Most treatments for navel orangeworm resulted in mite densities that were statistically inseparable from the untreated check. Mite densities in plots treated with pyrethroids or with treatments that were premixed or tank mixed with pyrethroids (Voliam Xpress, Danitol, Brigade, Turismo + Brigade, Athena, Hero) had mite densities 1.4 to 2.3 times higher than in the untreated check. Significantly higher mite densities occurred in plots treated with bifenthrin in combination with other insecticides (Brigade + Turismo, Athena, and Hero).

Treatment/ formulation <sup>a</sup>	Rate amt form/acre	Avg no of mites/leaf
Tourismo SC	14 fl oz	23.8a
Untreated check	--	26.7a
Belt 480SC	4 fl oz	28.9a
Delegate 25WG	6.4 oz	30.3a
Intrepid 2F	16 fl oz	30.3a
Altacor 35WG	4 oz	34.1ab
HGW86 10SE	13.5 fl oz	36.0ab
Voliam Xpress 1.25ZC	12 fl oz	37.3abc
Proclaim 5SG	4 oz	39.0abc
Danitol 2.4EC	21.3 fl oz	39.2abc
Brigade 10WSB	1 lb	41.3abcd
Tourismo SC + Brigade 10WSB	14 fl oz + 1 lb	50.4bcd
Athena EW	13.5 fl oz	55.8cd
Hero EW	11.2 fl oz	60.2d

<sup>a</sup> Dyne-Amic used as a surfactant at 20 fl oz per 100 gallons.

Means in a column followed by the same letter are not significantly different ( $P > 0.05$ , Fisher's protected LSD).

**Part II. Materials Tested for Arthropod Management****D1****David R. Haviland**

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**EFFECTS OF INSECTICIDE TREATMENTS FOR NAVEL ORANGEWORM ON POPULATIONS OF PACIFIC SPIDER MITE IN ALMOND, 2010**

Brand Name	Formulation	Common Name	Composition	Manufacturer
Altacor	35WG	chlorantraniliprole	3-Bromo-N-[4-chloro-2-methyl-6-[(methylamino)carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide	DuPont Crop Protection, 1007 Market St., Wilmington, DE 19898
Athena	EW	bifenthrin and abamectin	(2-methyl[1,1'-biphenyl]-3-yl) methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate and (butyl)-7-((2,6-dideoxy-4-O-2,6-dideoxy-3-O-methyl- $\alpha$ -L-arabinohexopyranosyl)-3-O-methyl- $\alpha$ -L-arabino-hexopyranosyl)oxy)-5'c6,6",7,10,11,14,15,17a,20,20a,20b-dodecanydro-20b-dihydroxy-5'6,8,19-tetramethylspiro (11,16-methano-2H,13H,17H-furo (4,3,2-pg)(2,6) benzodioxacyclotadecin	FMC Corporation, Agricultural Products Group, 1735 Market St., Philadelphia, PA 19103
Belt	480SC	flubendiamide	(N <sup>2</sup> -[1,1-dimethyl-2-(methylsulfonyl)ethyl]-3-iodo-N <sup>1</sup> -[2-methyl-4-[1,1,1,1-tetrafluoro-1-(trifluoromethyl)ethyl]phenyl]-1,2-benzenedicarboxamide	Bayer CropScience, P.O. Box 12014, 2 T.W. Alexander Dr., Research Triangle Park, NC 27709
Brigade	10WSB	bifenthrin	(2-methyl [1,1'-biphenyl]-3-yl) methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate	FMC Corporation, Agricultural Products Group, 1735 Market St., Philadelphia, PA 19103
Danitol	2.4EC	fenpropathrin	Alpha-cyano-3-phenoxybenzyl 2,2,3,3-tetramethylcyclopropanecarboxylate	Valent U.S.A Corporation, P.O. Box 8025, Walnut Creek, CA 94596-8025
Delegate	25WG	spinetoram	A mixture of: (2R,3aR,5aR,5bS,9S,13S,14R,16aS,16bR)-2-[(6-deoxy-3-O-ethyl-2,4-di-O-methyl- $\alpha$ -L-mannopyranosyl)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-hexadecahydro-14-methyl-1H-as-indaceno[3,2-d]oxacyclododecin-7,15-dione and (2S,3aR,5aS,5bS,9S,13S,14R,16aS,16bS)-2-[(6-deoxy-3-O-ethyl-2,4-di-O-methyl- $\alpha$ -L-mannopyranosyl)oxy]-13-[[[(2R,5S,6R)-5-(dimethylamino)tetrahydro-6-methyl-2H-pyran-2-yl]oxy]-9-ethyl-2,3,3a,5a,5b,6,9,10,11,12,13,14,16a,16b-tetradecahydro-4,14-dimethyl-1H-as-indaceno[3,2-d]oxacyclododecin-7,15-dione	Dow AgroScience LLC, 9330 Zionsville Rd., Indianapolis, IN 46268
Dyne-Amic			Proprietary blend of polyalkyleneoxide modified polydimethylsiloxane, polyoxypropylene block copolymer, and methylated vegetable oils	Helena Chemical Company, 225 Schilling Blvd, Suite 300, Collierville, TN 38017
Hero	EW	Zeta-cypermethrin and bifenthrin	S-Cyano (3-phenoxyphenyl) methyl (+) cis/trans 3-(2,2-dichloroethenyl)-2, 2 dimethylcyclopropane carboxylate and (2-methyl[1,1'-biphenyl]-3-yl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate	FMC Corporation, Agricultural Products Group, 1735 Market St., Philadelphia, PA 19103
HGW 86	10SE	cyantraniliprole	n/a	DuPont Crop Protection, 1007 Market St., Wilmington, DE 19898
Intrepid	2F	methoxyfenozide	Benzoic acid, 3-methoxy-2-methyl-,2-(3,5-dimethylbenzoyl)-2-(1,1-dimethylethyl) hydrazide	Dow AgroScience LLC, 9330 Zionsville Rd., Indianapolis, IN 46268

Proclaim	5SG	Emamectin benzoate	Avermectin B1, 4"-deoxy-4"- (methylamino)- (4"R)-, benzoate (salt)	Syngenta Crop Protection, Inc., P.O. Box 18300, Greensboro, North Carolina 27419-8300
Tourismo	SC	Flubendiamide and buprofezin	N <sup>2</sup> - (1-1-dimethyl-2-methylsulfonylethyl)3-iodo-N <sup>1</sup> -{2-methyl-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]phenyl}phthalamide and 2- <i>tert</i> -butylimino-3-isopropyl-5-phenylperhydro-1,3,5-thiadiazin-4-one	Nichino America, Inc., Linden Park, Suite 501, 4550 New Linden Hill Road, Wilmington, DE 19808
Voliam Xpress	1.25ZC	Lambda-cyhalothrin and chlorantraniliprole	[1a(S*),3a(Z)]-cyano(3-phenoxyphenyl)methyl-3(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate and 3-Bromo-N-[4-chloro-2-methyl-6-[(methylamino)carbonyl]phenyl]-1-(3-chloro-2-pyridiny)-1H-pyrazole-5-carboxamide	Syngenta Crop Protection, Inc., P.O. Box 18300, Greensboro, North Carolina 27419-8300