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

PACIFIC SPIDER MITE CONTROL IN ALMOND, 2006

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Pacific spider mite: *Tetranychus pacificus* McGregor

Pacific spider mite is one of the most important arthropod pests of almonds in California. On non-bearing trees, mite-induced defoliation can cause stunting; on mature trees it can cause sunburn to fruit and scaffolds and result in yield reductions the following year. This trial was conducted near Blackwell's Corner, Kern Co. CA, to evaluate the effects of miticides on mite density in two-year old, non-bearing almond trees. Approximately 110 acres of trees were divided into 50, 2.1 acre plots that each contained 6 rows by approximately 30 trees in a 21 by 24 ft spacing. Each plot was assigned to one of nine treatments or an untreated check in a RCBD with 5 blocks. Plots were sprayed at night on 14 Jul 2006 using commercial air-blast sprayers at 200 gpa. All treatments were combined with either 1% 415 Oil or 16 fl oz of the non-ionic surfactant Exit. Mite densities were evaluated in each plot prior to treatment on 13 Jul and then 3, 6, 13, 20, 27, and 33 DAT on 17, 20, and 27 Jul and 3, 10, and 16 Aug. On each evaluation date, two leaves were randomly collected from each of 20 trees in the center two rows of each plot. Leaves were transported to a laboratory where the total number of Pacific spider mite motiles (larvae, nymphs, and adult) and eggs were counted, average numbers per plot calculated and data were analyzed by ANOVA using transformed data (squareroot (x + 0.05)) with means separated by LSD (P = 0.05). The only modification to this protocol was that due to heavy defoliation, the 27 DAT data for the untreated check were collected 25 DAT, after which the plots were oversprayed and removed from the trial. ANOVA of the data on 33 DAT include only the 9 treatments. Numbers of predatory mite motiles and eggs were also recorded, but are not reported since only 4 were found during all evaluation dates.

There were no significant differences in pretreatment counts which ranged from 0.4 to 4.8 motile stages of mites per leaf (Table 1). On 3, 6, 13, and 20 DAT all treatments resulted in significant reductions in mite density compared to the untreated check and there were no significant differences among treatments. By 27 DAT Envidor, Fujimite and Omite maintained mite densities below 2/leaf at a level significantly lower than Acramite or the untreated check; other miticides were also lower than the untreated check but were not statistically different from the other treatments. By 33 DAT, mite densities in plots treated with Fujimite and Omite were the only ones with mite densities $\leq$ the densities when the trial began (2.3 mites per leaf average in the pretreatment counts). All treatments caused significant reductions in spider mite eggs through 27 DAT (Table 2). These reductions, and the relationships among treatments closely paralleled the results previously described for motile forms of spider mites. As with data on motile forms of mites, Fujimite and Omite plots consistently had the lowest egg densities.

Table 1

Treatment/ formulation	Rate amt product per acre or v/v	Pacific spider mite motiles/leaf						
		Pretreatment counts	3 DAT	6 DAT	13 DAT	20 DAT	27 DAT	33 DAT
Acramite 50WS + 415 Oil	1 lb + 1% v/v	3.7a	0.1a	0.1a	0.9a	2.4a	11.1b	20.6c
Ecotrol 10EC + Exit	96 fl oz + 16 oz	4.3a	0.1a	0.0a	0.0a	0.4a	3.4ab	6.8ab
Envidor 2SC + 415 Oil	18 fl oz + 1% v/v	3.1a	0.2a	0.2a	0.2a	0.4a	0.7a	3.5ab
Fujimite 5EC + 415 Oil	32 fl oz + 1% v/v	1.4a	0.1a	0.0a	0.0a	0.2a	1.0a	1.4a
Kanemite 15SC + Exit	31 fl oz + 16 oz	0.9a	0.3a	0.1a	1.8a	2.2a	9.8ab	13.8bc
Omite 6E + Exit	64 fl oz +16 oz	1.7a	0.0a	0.0a	0.1a	0.1a	1.5a	1.4a
Onager 1EC + Exit	20 fl oz + 16 oz	0.9a	0.1a	0.2a	1.8a	2.7a	14.7ab	14bc
Vendex 50WP + Exit	2.5 lb + 16 oz	1.7a	0.1a	0.0a	0.2a	0.2a	3.8ab	3ab
Zeal 72WDG + Exit	3 oz + 16 oz	0.4a	0.2a	0.3a	0.5a	0.5a	3.7ab	6.5ab
Untreated check		4.8a	1.9b	3.6b	27.5b	55.9b	76.6c[a]	-

Means in a column not followed by the same letter are significantly different (*P* < 0.5, LSD) after square root (x + 0.5) transformation of the data. Untransformed means are shown.
[a]Due to mite-induced damage the 27 DAT data for the untreated check were collected on 8 Aug (25 DAT), after which the untreated checks were oversprayed and removed from the trial.

Table 2

Treatment/ formulation	Rate amt product per acre or v/v	Pacific spider mite eggs/leaf						
		Pretreatment counts	3 DAT	6 DAT	13 DAT	20 DAT	27 DAT	33 DAT
Acramite 50WS + 415 Oil	1 lb + 1% v/v	2.1a	0.1a	0.2a	1.0a	4.1b	6.2a	7.8d
Ecotrol 10EC + Exit	96 fl oz + 16 oz	1.9a	0.0a	0.0a	0.2a	0.5ab	4.2a	3.2abcd
Envidor 2SC + 415 Oil	18 fl oz + 1% v/v	3.2a	0.1a	0.0a	0.3a	0.5ab	0.7a	2.1abc
Fujimite 5EC + 415 Oil	32 fl oz + 1% v/v	2.0a	0.0a	0.0a	0.0a	0.1a	1a	0.1a
Kanemite 15SC + Exit	31 fl oz + 16 oz	0.3a	0.3a	0.0a	2.0a	2.3ab	5.8a	3.9bcd
Omite 6E + Exit	64 fl oz +16 oz	1.8a	0.1a	0.0a	0.0a	0.2a	1.5a	0.4ab
Onager 1EC + Exit	20 fl oz + 16 oz	1.0a	0.2a	0.0a	1.8a	3.5ab	7.6a	5.2cd
Vendex 50WP + Exit	2.5 lb + 16 oz	0.8a	0.2a	0.0a	0.2a	1ab	4.4a	1.3abc
Zeal 72WDG + Exit	3 oz + 16 oz	1.2a	0.4a	0.1a	0.2a	1ab	2.1a	2.9abc
Untreated check		3.4a	1.4b	2.2b	27.0b	36.5c	*48.1b	-

Means in a column not followed by the same letter are significantly different (*P* < 0.5, Fisher's protected LSD) after square root (x + 0.5) transformation of the data. Untransformed means are shown.
* Due to mite-induced damage the 27 DAT data for the untreated check were collected on 8 Aug (25 DAT), after which the untreated checks were oversprayed and removed from the trial.