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

PACIFIC SPIDER MITE CONTROL IN ALMOND, 2008

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Pacific spider mite: *Tetranychus pacificus* McGregor

For the past three seasons we have conducted Kern County almond miticide trials at hull split. This year’s trial was conducted near McFarland, Kern Co. CA, to evaluate the effects of miticides on mite density in mature almond trees. Approximately 22 acres of trees were divided into 36, 1.9 acre plots that each contained 4 rows by approximately 10 trees in a 21 × 24 ft spacing. Each plot was assigned to one of seven treatments in a RCB design with 4 blocks. Plots were sprayed on 9 Jul 2008 using a commercial air-blast sprayer at 200 gpa. All treatments were combined with 1% 415 Oil. Mite densities were evaluated in each plot prior to treatment on 7 Jul and then on 11 Jul (2 DAT), 17 Jul (9 DAT), 24 Jul (16 DAT), 31 Jul (23 DAT), 6 Aug (29 DAT), 13 Aug (36 DAT), 18 Aug (41 DAT), 25 Aug (48 DAT), 3 Sep (58 DAT), and 11 Sep (6 DAT). On each evaluation date, two leaves were randomly collected from each of 15 trees in the center two rows of each plot. Leaves were transported to a laboratory where the numbers of motile Pacific spider mites (larvae, nymphs, and adult) per leaf were counted. Average number of mites per leaf were analyzed by ANOVA using transformed data (square root (x + 0.05)) with means separated by LSD (*P* = 0.05).

Spider mite pressure within the trial was high. Mite density prior to application averaged 4.4 mites per leaf across the whole trial and 7.4 mites per leaf in the untreated check. There were also high numbers of beneficial arthropods, such as lacewings and predatory coccinellid beetles, present in the trial. All miticide treatments, including 2% oil, reduced spider mite densities to less than 0.1 mites per leaf through 16 DAT compared to 1.41 to 2.19 for the Untreated Check. Beginning with 36 DAT, we began to see numerical increases in mite densities in treated plots. The periods of time required for mite densities in treated plots to return to 1.0 per leaf were 23 DAT (Kanemite), 36 DAT (Acramite), 41 DAT (Zeal, Brigade, Oil), and not for the remainder of the season (>65 DAT) for Envidor and Fujimite.

Table 1

Rate form/acre	Average spider mites per leaf at indicated DAT											
	Pre	2	9	16	23	29	36	41	48	58	65	
Zeal 72WDG ¹	3 oz	4.4a	0.03a	0.83a	0.00a	0.58a	0.10a	0.90a	1.40a	3.72a	1.16a	0.39a
Envidor 2SC ¹	25.6 fl oz	2.4a	0.06a	0.01a	0.00a	0.02a	0.02a	0.02a	0.10a	0.29a	0.90a	0.15a
Kanemite 15SC ¹	31 fl oz	5.0a	0.02a	0.01a	0.03a	0.99a	1.05bc	2.15a	1.21a	1.76a	1.83a	0.46a
Acramite 50WS ¹	16 oz	3.3a	0.02a	0.05a	0.00a	0.20a	0.35ab	1.03a	1.05a	2.68a	1.23a	1.04a
Brigade 10WSB ¹	16 oz	2.5a	0.00a	0.00a	0.00a	0.01a	0.04a	0.18a	2.37a	1.54a	2.48a	0.24a
Fujimite 5EC ¹	2 pt	6.3a	0.00a	0.03a	0.00a	0.04a	0.18ab	0.50a	0.28a	0.40a	0.20a	0.66a
415 Oil	2%	1.7a	0.13a	0.10a	0.00a	0.28a	0.49ab	0.48a	1.23a	2.30a	2.40a	0.18a
Untreated check	---	7.4a	2.19b	1.41b	2.05b	2.15a	1.58c	1.98a	2.61a	1.24a	2.07a	0.16a

¹415 oil used as a surfactant at 1% v/v

Means in a column followed by the same letter are not significantly different (*P* > 0.5, Fisher’s protected LSD) after square root (x + 0.5) transformation of the data. Untransformed means are shown.