(D9)

MANDARIN: *Citrus reticulata* Blanco, 'Clemenules'

YUMA SPIDER MITE CONTROL IN CITRUS, 2005

David R. Haviland
University of California Cooperative Extension, Kern County
1031 South Mount Vernon Ave.
Bakersfield, CA 93907
Phone: (661) 868-6215
Fax: (661) 868-6208
E-mail: dhaviland@ucdavis.edu

Yuma spider mite: *Eotetranychus yumensis* (McGregor)

This experiment was conducted in a 4-yr-old commercial block of Clementine mandarins located in western Kern County, CA. A total of 75 trees were organized into a RCB design with five blocks of 13 treatments, a water check and an untreated check. Treatments, with the exception of Special Electric Sulfur, were applied on 26 Aug 2005 using a Schaben gas-powered sprayer equipped with a single-nozzle hand wand. Applications were made in 200 gpa of water at 100 psi. The Special Electric Sulfur was applied by placing it into a sock which was shaken and beaten over and within the tree canopy. Mite populations were evaluated prior to treatments on 25 Aug and then again 4 DAT (29 Aug), 7 DAT (1 Sep), 14 DAT (8 Sep), and 21 DAT (15 Sep). On each evaluation date, 10 leaves were randomly collected from each tree, placed in a paper bag in a cooler, and returned to the lab for evaluation. The total number of Yuma spider mite eggs and motiles (juveniles and adults) were counted. Mites per leaf were averaged for each tree and analyzed by ANOVA using transformed data (squareroot (x + 0.5)) with means separated by Fisher's Protected LSD at $P \leq 0.05$.

Table 1 shows the effects of miticide treatments on the number of motile (juvenile + adult) Yuma spider mites. There were no significant differences in pre-counts of spider mites. Data 4 DAT showed that all insecticide treatments (except for the water only check) significantly reduced the number of mites compared to the untreated check. The three treatments that reduced mites to the greatest extent 4 DAT were Danitol, Fujimite, and the high rate of Kanemite. By 7 DAT, Danitol, the high rate of Vendex, and Zeal had significantly lower mite densities compared to the water check and the untreated check. Data from 14 DAT was similar to that of 7 DAT with Danitol and the high rate of Vendex still having the lowest mite densities. By 21 DAT the mite densities in all treatments, including the untreated control, were very low (0.2 to 1.5 mites per leaf). This was primarily the result of large numbers of predatory thrips that entered the plot from an adjacent block of almonds that was heavily infested with Pacific spider mite. The Agri-Mek treatment had a significantly higher number of mites compared to the water and untreated checks, probably due to its efficacy against the predatory thrips. However this small increase (1.5 mites per leaf compared to 0.5 mites per leaf in the untreated check) could be considered inconsequential from a mite management perspective. Table 2 shows the effects of miticides on the mean number of Yuma spider mite eggs per leaf. There were no significant differences in pre-counts. By 4 DAT, the Danitol treatment exhibited the lowest egg density, significantly lower than the water check Beginning with data 7 DAT the number of spider mite eggs in all plots, including the untreated check, were <1.5 eggs per leaf. There were no significant differences in egg densities among treatments for the 7 DAT, 14 DAT, and 21 DAT evaluation dates.

Table 1.

Treatment/ formulation	Rate amt product/acre	Mean no. motile (juvenile + adult) mites per leaf				
		Pre	4 DAT	7 DAT	14 DAT	21 DAT
Agri-Mek 0.15EC + NR-415 Oil	15 fl oz + 1% v/v	29.5a	1.2abc	0.8ab	1.0ab	1.5c
Danitol 2.4EC	20 fl oz	26.2a	0.3a	0.2a	0.2a	0.6ab
Envidor 240SC	18 fl oz	37.5a	3.5bcd	0.6ab	0.5ab	0.4ab
Fujimite 5EC	2 pt	26.0a	0.5a	0.8ab	1.0ab	0.4a
Kanemite 15SC	21 fl oz	28.8a	1.7abc	1.0ab	0.8ab	0.3a
Kanemite 15SC	31 fl oz	28.0a	0.6a	0.5ab	0.5ab	0.2a
Nexter 75WP	10 oz	22.0a	2.4bcd	1.7bcd	1.4bc	0.5ab
Onager 11.8EC	20 fl oz	36.8a	2.1abc	1.0ab	0.7ab	0.2a
Vendex 50WP	2 lb	28.7a	1.2ab	1.1abc	0.8ab	0.3a
Vendex 50WP	4 lb	18.6a	2.0abc	0.2a	0.3a	0.3a
Zeal 72WDG	3 oz	30.4a	1.0ab	0.4a	0.7ab	0.4a
Evergreen EC 60-6	8 fl oz	31.1a	3.9cd	3.4d	2.5d	0.3a
Special Electric Sulfur	125 lb	30.2a	5.2de	1.7bcd	1.3bc	1.0bc
Water check	--	48.2a	7.9ef	1.6bcd	0.6ab	0.6ab
Untreated check	--	20.7a	9.9f	2.6cd	2.1cd	0.5ab

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.

Table 2.

Treatment/ formulation	Rate amt product/acre	Mean no. eggs per leaf				
		Pre	4 DAT	7 DAT	14 DAT	21 DAT
Agri-Mek 0.15EC + NR 415 Oil	15 fl oz 1% v/v	7.1a	1.6abc	0.5a	0.8a	1.1a
Danitol 2.4EC	20 fl oz	8.2a	0.1a	0.1a	0.1a	0.2a
Envidor 240SC	18 fl oz	8.2a	2.5abc	0.6a	0.6a	0.1a
Fujimite 5EC	2 pt	4.7a	0.3ab	0.6a	0.7a	0.4a
Kanemite 15SC	21 fl oz	6.4a	1.7abc	0.9a	1.0a	0.1a
Kanemite 15SC	31 fl oz	9.9a	0.3ab	0.5a	0.6a	0.1a
Nexter 75WP	10 oz	4.1a	1.7abc	1.3a	1.6a	0.4a
Onager 11.8EC	20 fl oz	7.3a	2.6abc	1.5a	1.1a	0.2a
Vendex 50WP	2 lb	6.9a	0.8abc	1.1a	1.1a	0.3a
Vendex 50WP	4 lb	3.2a	1.4abc	0.1a	0.3a	0.2a
Zeal 72WDG	3 oz	4.4a	2.6abc	0.6a	0.6a	0.3a
EverGreen EC 60-6	8 fl oz	4.6a	4.6cd	1.0a	1.5a	0.3a
Special Electric Sulfur	125 lb	5.8a	3.0bcd	1.1a	0.9a	0.6a
Water check	--	9.3a	3.3bcd	0.5a	0.6a	0.3a
Untreated check	--	3.7a	7.4d	1.0a	1.2a	0.3a

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.