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GRAPEFRUIT: *Citrus paradisi* (Macfadyen), 'Marsh'

ANTAGONISTIC EFFECTS OF COPPER AND VENDEX FOR CONTROL OF CITRUS RUST MITE, 2000

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Citrus rust mite (CRM): *Phyllocoptruta oleivora* (Ashmead)

Copper has been reported to shorten residual control of citrus rust mite with Vendex (Dean 1979, J. Rio Grande Valley Hortic. Soc. 33: 55-57; Childers 1994, Fla. Entomol. 77: 349-365), and although Lye et al. (1990, Fla. Entomol. 73: 230-237) saw no such effect, tank mixing this product with copper is not recommended in Florida (Childers et al. 2000, Florida Extension Service, University of Florida, Gainesville). Our objective was to evaluate the combined effects of Vendex and copper compared with copper alone under conditions in a commercial grapefruit orchard in southwest Florida. The trial was conducted at the Duda Grove in Hendry County, FL, on 35-yr-old 'Marsh' grapefruit trees planted at 16 x 24-ft spacing. Four treatments including an untreated check were assigned in an RCB design with 10 tree plots, separated by a 10 tree buffer. There were four replications, each in single row separated by 2 buffer rows. A precount made 5 Jul on eight trees per replication produced an average of 1.6 CRM per standard 10x lens field. Test materials were tank mixed, copper added first, and were applied on 6 Jul using a Durand Wayland 3P100-32 air blast speed sprayer with an array of seven #3 T-Jet stainless steel cone nozzles per side, at a pressure of 400 psi delivering 100 gpa. Treatments were evaluated for CRM incidence seven times over a 76-day period starting 13 Jul. Four fruit, two per side, were sampled from 8 trees for a total of 32 fruit per plot. All mobile CRM were counted in two, 1.5-cm-diameter fields using a 10x Bausch and Lomb Triplex lens on each partially shaded side of each fruit.

CRM populations were lower on fruit treated with all products compared with the untreated check through 46 days after treatment. At 60 days, CRM counts increased on all treated fruit but were lower on fruit treated with Vendex alone compared with Vendex plus either copper formulation, although none were significantly less than the check. At 76 days there were no significant difference among any treatments. Thus, there was no measurable antagonism between Vendex and copper through 46 days, although it might be there at 60 days. Further testing would be required to determine whether this is a chance or consistent effect.

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No. CRM/lens field (1.5 cm diam)

Treatment/ formulation	Rate lb/acre	No. CRM/lens field (1.5 cm diam)						
		7 DAT	14 DAT	20 DAT	33 DAT	46 DAT	60 DAT	76 DAT
Vendex 50 WP	2.0	0.13 b	0.13 b	0.03 b	0.13 b	0.79 b	2.03 b	2.44 a
GX-306 + Vendex 50 WP	4.0 2.0	0.18 b	0.28 b	0.14 b	0.30 b	1.54 b	4.53 a	3.31 a
GX-435 + Vendex 50 WP	6.0 2.0	0.12 b	0.08 b	0.17 b	0.40 b	1.32 b	4.65 a	3.14 a
Untreated check		1.39 a	1.20 a	0.89 a	2.55 a	3.58 a	3.49 ab	2.53 a

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