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ORANGE: *Citrus sinensis* (L.) Osbeck, 'Valencia'

ACARICIDAL CONTROL OF CITRUS RUST MITE, 2008

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

Citrus rust mite is a key pest of fresh market citrus in Florida, Texas and elsewhere. Feeding by this pest causes a characteristic "russet" on peel that can downgrade the fruit. This trial was conducted at the University of Florida Southwest Research and Education Center in Immokalee, Florida, on 13-yr-old 'Valencia' orange trees planted at 15 X 22 ft spacing on double-row beds running north-south. A RCB design was used to assign 4 replications of each of the 8 treatments and an untreated check. The single-row replicates were divided into 5-tree plots separated by three untreated trees within the row and treated rows were separated by an untreated

buffer row. Treatments were made on 1 Jul 2008 using a Durand Wayland 3P-10C-32 air blast speed sprayer with an array of four # 5 T-Jet stainless steel cone nozzles per side operating at a pressure of 200 psi delivering 130 gpa at a tractor speed of 1.5 mph. Four fruit were sampled from each of four trees within each plot. A 14X Bausch & Lomb Hastings hand lens was used to view an area of approximately 1.0 cm², referred to as the “lens field”, on two partially shaded areas on each fruit and the total number of mites recorded. A pre-treatment sampling from 4 fruit per plot prior to the treatment application resulted in an average of 0.58 ± 1.7 (mean ± SE) mites per lens field. Post treatment evaluations were made at 7, 16, 21, 29, 36, 43 and 61 days after treatment (DAT). All data were subjected to ANOVA for treatment effect on CRM and the means separated using LSD (P = 0.05). On 12-Nov, 20 fruit from each of three trees in each plot were collected and the percentage of the fruit surface with russeting was estimated and recorded.

Significantly fewer CRM compared to the check were seen at 7 days after treatment (DAT) except on trees treated with EXP-BA1 alone at 10.3 oz/acre. From 16 to 36 DAT there was a clear separation between EXP-BA1 alone and with 435 oil, the tankmix performing consistently better over all rates as did QRD. Also at 36 DAT and continuing through 43 DAT, trees sprayed with either rate of Agrimek + oil had significantly fewer CRM than all other treatments. No more treatment effects were seen at 61 DAT. The russeting evaluation reflected CRM results: no significant effect of EXP-BA1 alone, significant reduction with the tankmix and QRD, and least russeting with either rate of Agrimek + Oil. To summarize, a moderate level of control was observed with EXP-BA1 + 435 oil or QRD, Agrimek + Oil held through 43 DAT, with no improvement seen by increasing the rate from the standard 10 oz/ac to 20 oz/ac.

Table 1:

Treatment	(Fl.oz/ac)	Adjuvant	rate	Citrus Rust mites / lens field							% of fruit surface
				8-Jul (7DAT)	17-Jul (16DAT)	22-Jul (21DAT)	30-Jul (29DAT)	6-Aug (36DAT)	13-Aug (43DAT)	2-Sep (61DAT)	With russeting 12-Nov
Untreated	n/a	none	n/a	2.59 a	4.87 a	4.92 a	7.35 a	8.87 a	6.75 a	0.59 a	27.83 a
EXP - BA1	6.85	none	n/a	0.84 bc	3.76 a	4.58 a	6.43 ab	7.17 ab	6.83 a	0.31 a	24.06 ab
EXP - BA1	10.3	none	n/a	1.66 ab	3.66 a	3.41 a	5.52 b	5.25 b	3.04 b	0.49 a	25.60 ab
EXP - BA1	13.7	none	n/a	1.49 b	5.47 a	3.78 a	5.25 b	5.45 b	3.14 b	0.69 a	25.54 ab
EXP - BA1	6.85	435 Oil	2% v.v	0.14 c	0.36 b	0.83 b	1.56 c	2.37 c	4.01 b	0.60 a	22.15 b
EXP - BA1	13.7	435 Oil	2% v.v	0.19 c	0.50 b	0.89 b	1.78 c	2.31 c	4.90 ab	0.20 a	14.87 c
QRD 416	4 qts	435 Oil	2% v.v	0.08 c	0.15 b	0.50 b	1.20 c	2.96 c	4.46 ab	0.68 a	17.10 c
Agrimek	20	435 Oil	2% v.v	0.02 c	0.06 b	0.20 b	0.20 c	0.23 d	0.20 c	0.08 a	7.63 d
Agrimek	10	435 Oil	2% v.v	0.06 c	0.07 b	0.16 b	0.17 c	0.33 d	0.31 c	0.31 a	10.23 d

means within each column not followed by the same letter are significantly different (LSD < P < 0.05).

Part II: Materials Tested for Arthropod Management

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<u>Common name</u>	<u>Trade name/ Cultivar</u>	<u>Concentration/ Formulation</u>	<u>Chemical name</u>	<u>Manufacture/source</u>
<u>abamectin</u>	<u>Agri-Mek</u>	<u>0.15 EC</u>	<u>(Butyl)-7-((2,6-dideoxy-4-O-2,6-dideoxy-3-O-methyl-x-L-arabinohexopyranosyl)-3-O-methyl-x-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) benzodioxacyclopentadecan</u>	Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419
Experimental	EXP-BA1		Experimental	BASF P.O. Box 13528 26 Davis Drive Research Triangle Park, NC 27709-3528 919-547-2000
Experimental	QRD 416		Experimental	AgraQuest 1540 Drew Avenue Davis, CA 95618
horticultural spray oil	435 oil	98.8%L	Refined petroleum distillate	Drexel Chemical Company P.O. Box 13327 Memphis, TN 38113-0327

