

APPLE: *Malus domestica* Borkhausen, 'Delicious'

EVALUATION OF MITICIDES FOR CONTROL OF PHYTOPHAGOUS MITES, 2015

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European red mite (ERM): *Panonychus ulmi* (Koch)

Twospotted Spider Mite (TSSM): *Tetranychus urticae* (Koch)

Predaceous mite (TP): *Typhlodromus pyri* (Scheuten)

The purpose of this test was to evaluate miticides for control of European red mite and twospotted spider mite. Several blocks within a research orchard containing 'Delicious' trees were managed to flare both species. Lannate LV was applied several times (27 May, 17 Jun, 27 Jul) for this purpose and treatment applications and sampling dates are listed in Tables 1 and 2. On each sampling date, 25 leaves were sampled and brushed with a mite brushing machine and then counted under a microscope. Phytophagous motiles (ERM and TSSM combined), phytophagous eggs and predaceous motiles were counted. Miticides were applied when threshold was reached (avg. 5.0 mites/leaf, 2015 Cornell Pest Management Guidelines for Commercial Tree Fruit Production) with a Durand-Wayland airblast sprayer at 100 gpa on 3 Aug. Treatments, including an untreated check, were replicated three times with four trees/plot and arranged in a RCB design. Data were transformed and subjected to an ANOVA, and means were separated with Student's *t*-test.

Phytophagous mites were slow to respond to the Lannate LV applications. This was more than likely due to the frequency of rain events during the months of June and July. Not only was the residue not being retained, but it is also likely that any mite populations were being washed off the leaves as well. After the third Lannate LV application, phytophagous mites rose above threshold levels and the treatments were applied on 3 Aug. While the treatments did not separate from the untreated check on any of the sampling dates, it is evident that the Envidor 2SC application gave efficient control 4 DAT. Zeal 72WDG also gave adequate control, but this was not evident until 10 DAT. The presence of predatory mites in the treatments also suggests that neither of these materials would be detrimental to their populations. Phytotoxicity was not observed in any of the treated plots. This research was supported in part by industry gift(s) of pesticides and research funding.

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Table 1

<u>Treatment/formulation</u>	<u>Rate/A</u>	<u>Date Applied</u>
Envidor 2SC + LI-700	18.0 fl oz 32 fl oz	3 Aug
Zeal 72WDG	3.0 oz	3 Aug

Check

*Lannate LV 2.0 16.0 oz/a applied to all treatments on 27 May, 17 Jun and 24 Jul

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Table 2 Phytophagous mites, Phytophagous Eggs and Predaceous mites /Leaf

Treatment/formulation	Rate amt/acre	Phytophagous mites/leaf						
		8-Jun	24-Jun	20-Jul	31-Jul	7-Aug	13-Aug	22-Aug
Envidor 2SC + LI-700	18.0 fl oz 32 fl oz	0.0a	0.04a	3.1a	8.9a	1.9a	0.5a	0.4a
Zeal 72WDG	3.0 oz	0.0a	0.04a	2.4a	6.6a	9.1a	1.6a	0.7a
Check		0.0a	0.02a	4.3a	7.7a	9.8a	10.9a	7.1a

Treatment/formulation	Rate amt/acre	Phytophagous eggs/leaf						
		8-Jun	24-Jun	20-Jul	31-Jul	7-Aug	13-Aug	22-Aug
Envidor 2SC + LI-700	18.0 fl oz 32 fl oz	0.0a	0.03a	2.5a	11.5a	12.3a	3.3a	1.3a
Zeal 72WDG	3.0 oz	0.0a	0.03a	1.9a	39.1a	22.4a	16.6a	6.8a
Check		0.0a	0.04a	3.4a	17.7a	43.2a	33.7a	8.5a

Treatment/formulation	Rate amt/acre	Predaceous mites /leaf						
		8-Jun	24-Jun	20-Jul	31-Jul	7-Aug	13-Aug	22-Aug
Envidor 2SC + LI-700	18.0 fl oz 32 fl oz	0.0a	0.0a	0.05a	0.0a	0.0a	0.03a	0.0a
Zeal 72WDG	3.0 oz	0.0a	0.0a	0.05a	0.0a	0.4b	0.03a	0.01a
Check		0.0a	0.0a	0.01b	0.0a	0.0a	0.09a	0.1a

Lannate LV applied to all treatments 27 May, 17 Jun and 24 Jul

Applications made to treatments 3 Aug

Means within a column followed by the same letter are not significantly different (Student's t Test, $P \leq 0.05$).

Data was transformed arcsine ($\text{Sqrt } x$) prior to analysis