(D11)

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

EVALUATION OF TWO FOLIAR INSECTICIDES FOR CONTROL OF ASIAN CITRUS PSYLLID ON ORANGE, 2006

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Asian citrus psyllid (ACP): *Diaphorina citri* Kuwayama

ACP attacks and damages young citrus flush and is also a vector of citrus greening or huanglongbing disease. Control of ACP is considered a key tactic in management of this disease. The study was carried out at the Southwest Florida Research and Education Center (SWFREC), Immokalee, Florida in Jun-Jul 2006. The study block consisted of 12-yr-old sweet orange *Citrus sinensis* (L.) Osbeck 'Valencia' trees planted on double-row raised beds at a density of 133 trees/acre. Trees were irrigated by micro-sprinklers and subjected to conventional cultural practices. The bed sides of the experimental trees were pruned with a tractor mounted box blade mower to induce new flush and encourage psyllid infestation. Each of 4 replicates consisted of a row of 21 trees divided into 3 plots of 7 trees each. Plots within rows were separated by an unsprayed tree and replicates by an unsprayed buffer row. Treatments of Assail 30 SG and Provado 1.6 F were applied on 20 Jun 2006 to the bed side of the trees using a tractor mounted Durand Wayland 3P-10C-32 air blast speed sprayer with an array of seven # 5 T-Jet stainless steel cone nozzles per side operating at a pressure of 200 psi delivering 150 gpa at a tractor speed of 1.5 mph. The pretreatment and post treatment data were taken from four central trees in each plot. The pre treatment data were collected one day before the application of the treatments, and post treatment data on 3, 7, and 14 DAT. Twenty randomly selected flushes were observed and the number of flushes infested with psyllid eggs or nymphs recorded. Two infested flushes of these were collected if available and examined in the lab under a stereoscopic microscope to count the eggs and different instars of *D. citri*. The number of ACP nymphs per flush was estimated by multiplying the proportion of 20 flush infested by the number counted from the collected flush. Adult ACP density was estimated by counting insects falling on an 8 ½ × 11 inch white paper sheet (on a clipboard) placed under branches chosen at random which were then tapped three times. The data for the adult counts taken over the three sample dates were combined for the analysis. The number of larvae and adults of four predatory coccinellids *Curinus coeruleus* Mulsant, *Olla v-nigrum* Mulsant, *Harmonia axyridis* Pallas and *Cycloneda sanguinea* (L.) were also recorded from the 20 flushes and the data were combined for analysis. All data were subjected to ANOVA and the means separated using LSD ($P = 0.05$) to evaluate treatment effects on psyllid and the ladybeetles.

No significant differences were found among blocks the day before treatment. At 3 DAT, significantly more nymphs were seen on untreated flush compared to treated flush with no difference between the two treatments. At 7 DAT, significantly more nymphs were observed on flush treated with Assail 30 SG than on untreated trees or trees sprayed with Provado 1.6F, with no significant difference between the latter and untreated trees. At 14 DAT, there was no longer a significant treatment effect on nymphs. Fewest nymphs and adults were seen on trees sprayed with Provado 1.6F compared to the trees sprayed with Assail 30 SG or untreated trees over all 3 sampling dates. Significantly more ladybeetles were observed on untreated trees than treated trees. Thus, better control was seen with Provado compared to Assail, but control was short-lived with either product. Furthermore, the sprays appeared to suppress ladybeetles, the primary natural enemies of ACP in south Florida, indicating the need to evaluate the long term benefits of spraying these materials for psyllid control.

Treatment/ formulation	Rate lb(AI)/acre	No. ACP nymphs/flush				Adult ACP/ trap[a]	Ladybeetles/ 20 flushes[a]
		3 DAT	7 DAT	14 DAT	Total over three samples		
Assail 30 SG	0.131	28.59a	27.63b	5.17a	20.46b	3.52b	0.23a
Provado 1.6 F	0.125	27.09a	1.98a	5.38a	11.48a	0.98a	0.02a
Untreated check		48.02b	7.44a	3.28a	19.58b	3.04b	1.13b

Means within columns not followed by the same letter are significantly different (LSD, $P < 0.05$).
[a]Total numbers of ACP or ladybeetles collected over three sampling dates.