**(D10)**

**ORANGE:** *Citrus sinensis* (L.) 'Hamlin' and 'Valencia'

## CONTROL OF CITRUS LEAFMINER AND ASIAN CITRUS PSYLLA IN SWEET ORANGE, 2001

**P. A. Stansly, J. M. Conner, and J. R. Brushwein**
Southwest Florida Research and Education Center
University of Florida/ IFAS
2686 State Road 29 North
Immokalee, FL 34142-9515
Phone: (941) 658-3427
Fax: (941) 658-3470
E-mail: pas@icon.imok.ufl.edu

Citrus leafminer (CLM): *Phyllocnistis citrella* (Stainton)
Asian citrus psyllid (ACP): *Diaphorina citri* Kuwayama

Damage to young foliage caused by CLM feeding is a concern in its own right as well as providing sites for disease entry, in particular citrus canker. ACP is an even more recent arrival in Florida; it also damages developing leaves and could vector greening disease should that also appear. This study included both pests since they are often present together on young flush. The trees were 2-yr-old nursery stock of sweet orange trees budded to 'Smooth Flat Seville' planted at 7-inch spacing in two rows 36 inches apart, one 'Valencia' and the other 'Hamlin'. The rows were divided into 25-ft plots to make four replications, two per row, and the treatments were assigned in an RCB design. New flush was induced by trimming the trees 40 days before the spray application. A precount on 2 July showed that all 40 randomly selected terminals were infested with CLM and ACP. Treatments were applied the next day using a Black and Decker battery-powered hand sprayer at a rate of 145 gpa. All test materials were tank-mixed with HMO petroleum oil FC435-66 at 3% vol/vol. Evaluations were made by collecting from each plot 10 pieces of flush approximately 6 inches long with the lower leaf about 1/3 expanded, 6, 13 and 27 DAT. Number of leaves, live CLM, live and dead psyllid eggs, nymphs, and pupa were recorded for each piece of flush collected 6 and 13 DAT. The mean number of leaves on each piece of flush was 14.7 and 13.3 for 6 and 13 DAT, respectively, with no significant treatment effect.

All treatments reduced the number of CLM larvae at 6 and 13 DAT compared to the untreated check. However, none reduced numbers below what was obtained with 3% v/v FC435-66 Oil alone. There were significantly more larvae on leaves from trees sprayed with Avaunt and Micromite compared to other treatments after 6 days, but these differences were no longer apparent 13 DAT, possibly because of fewer larvae in the untreated check at that time. On 27 DAT, the flush was fully expanded and no live CLM were found on any treated flush. At 6 DAT, all treatments had reduced the number of psyllid nymphs and pupae compared to the few on untreated trees. Most dead nymphs were found on trees treated with Provado, SpinTor, or Acetamiprid. At 13 DAT, there were too few psyllids on untreated trees to make meaningful comparisons.

TABLE 1.

| Treatment/ formulation[a] | Rate lb (AI)/acre | No. live CLM Larvae/ flush piece | | No. ACP/flush piece (6 DAT) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 6 DAT | 13 DAT | Live eggs | Dead eggs | Live nymphs | Dead nymphs | Live pupae | Dead pupae |
| Acetamiprid 70 WP | 0.075 | 0.00 d | 0.04 bc | 0.11 | 0.01 ab | 0.00 b | 0.24 ab | 0.00 b | 0.00 b |
| Actara 25 WG | 0.086 | 0.02 cd | 0.03 bc | 0.12 | 0.00 b | 0.00 b | 0.17 bc | 0.00 b | 0.01 ab |
| Avaunt 30 WP[b] | 0.110 | 0.10 b | 0.05 b | 0.10 | 0.00 b | 0.01 b | 0.20 bc | 0.01 b | 0.02 a |
| SpinTor 2 SC | 0.094 | 0.00 d | 0.00 c | 0.04 | 0.01 ab | 0.02 b | 0.25 ab | 0.00 b | 0.01 ab |
| Provado 1.6 F | 0.044 | 0.00 d | 0.00 c | 0.01 | 0.01 ab | 0.00 b | 0.32 a | 0.00b | 0.01 ab |
| Confirm 2F | 0.125 | 0.02 cd | 0.02 bc | 0.12 | 0.00 b | 0.00 b | 0.18 bc | 0.00 b | 0.01 ab |
| MicroMite 80WDG | 0.320 | 0.06 bc | 0.02 bc | 0.09 | 0.05 ab | 0.01 b | 0.22 b | 0.01 b | 0.01 ab |
| FC435-66 Oil | 3 % v/v | 0.04 cd | 0.03 bc | 0.10 | 0.00 b | 0.00 b | 0.18 bc | 0.00 b | 0.01 ab |
| Agri-Mek 0.15 EC | 0.060 | 0.00 d | 0.00 c | 0.13 | 0.03 a | 0.02 b | 0.11 dc | 0.00 b | 0.01 ab |
| Untreated check | --- | 0.91 a | 0.19 a | 0.10 | 0.00 b | 0.07 a | 0.07 d | 0.06 a | 0.00 b |

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

[a] FC 435-66 (470° F mean boiling point) was mixed at 3% v/v with all treatments.

[b] Kinetic a 99% silicone nonionic surfactant blend tank mixed at 0.06 % v/v.