Management of Citrus Thrips

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Citrus thrips populations vary from year to year and require that growers and pest control advisors monitor carefully and apply treatments on an as-needed basis. A number of natural enemies (e.g., *Euseius tularenensis*, spiders, lacewings) assist in reducing citrus thrips numbers, but in some years, citrus thrips levels exceed treatment thresholds and lead to economic fruit scarring unless corrective measures are applied. Broad-spectrum pesticide treatments appear to exacerbate citrus thrips populations. This research project attempts to optimize cultural, biological, and/or chemical controls, which might be used to manage economic citrus thrips populations.

Greenhouse Pesticide Screening Trials: Because we have been frustrated by low levels of fruit scattering by citrus thrips in small plot pesticide screening trials at the Lindcove Research and Extension Center over the past several years, we re-instituted pesticide screening trials on laurel sumac plants at Riverside. Two greenhouses have been obtained for this purpose and to date, these trials have been quite productive.

In Sumac Trial #3, we evaluated a new formulation of abamectin from Rotam USA LLC (Lucid) and a related avermectin product (A-8612-A) against the abamectin (Agri-Mek) we have had available on citrus for a number of years. Syngenta’s patent on abamectin has expired, and several new formulations of abamectin will soon be available, hopefully leading to more competitive pricing. In addition, we compared the efficacy of TD-2472 (an alternative formulation of acetamiprid, the active ingredient in Assail) against Assail. In such trials, we use Success + Oil as our standard and always run a water-sprayed control for comparison.

Data from the trial suggested that the performance of all three avermectins was similar (although perhaps the Lucid should be re-run to see if it is weaker) and also that TD-2472 was at least as strong as Assail.

![Figure 1. Average Severe (cross-hatch) and Total Citrus Thrips Scarring Over 5 Years on 16 Varieties of Citrus](image)

**Figure 1.** Severe (complete ring scar or heavy incomplete scar similar to what we believe would cause downgrading in a packing-house) and total citrus thrips fruit scarring averaged over 5 years with moderate to severe scarring on 16 varieties of citrus (20 single tree replicates per variety) in Riverside. Slight fruit scarring is any ring scar that can be assigned to citrus thrips feeding (slight = the unshaded part of each bar graph which when added to severe scarring [cross hatched portion of the bar] yields total scarring).
In Sumac Trial #4 we finally had the opportunity to run a trial looking at the importance of water pH on the efficacy of Success. This is a question we are often asked and in checking with Dow AgroSciences, we were surprised to hear that limited research data were available indicating the optimal pH range that should be used.

To summarize results, little difference was seen with pH 5-8, quite high thrips levels were observed with pH 9 (inactivation of the Success is suggested), and the leaves were burned badly at pH 10, making them quite unattractive to citrus thrips. Thus, it appears the pH is not critical to Success efficacy, as long as it is in the 5-8 range.

**Fruit Damage Caused by Citrus Thrips on Different Varieties of Citrus:** We recently competed a long-term study evaluating the degree to which citrus thrips causes fruit scarring on different varieties of citrus. We started with a field in which each of 18 varieties of citrus were planted in a randomized block design with one tree of each variety randomly assigned a location in every two adjacent rows (9 trees per row, every two rows had one tree of each variety, 40 rows in total, 20 trees of each variety in total). The field was planted in June 1986 and the study was initiated in 1997 when the trees were 11 years old. For the next 9 years, no pesticides were applied and we assessed levels of fruit scarring caused by citrus thrips in the fall of each year. Two varieties of trees were excluded due to inconsistent tree health and in 4 years of the study, citrus thrips scarring was low (less than 5% of the outside lower Atwood navel orange fruit were severely scarred by citrus thrips).

Figure 1 (page 1) shows the results of the study averaged over the 5 years when citrus thrips scarring was moderate to severe. Navel oranges were scarred by citrus thrips to a greater degree than were other citrus varieties.

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