

Research Projects Aim to Assist Growers



By Rick Dantzler, CRDF chief operating officer

The Citrus Research and Development Foundation (CRDF) recently awarded eight research grants. The funded projects place an emphasis on providing practical help to growers. The projects are:

1. A project will study the interactions between the causative agent of HLB, citrus parasitic nematodes and Diaprepes root weevil to help growers manage root damage.

2. Some growers are still using antimicrobials, so CRDF has funded a project to determine which commercial adjuvants achieve systemic delivery of antimicrobials.

3. While the phytophthora root rot/HLB interaction has been well documented, the economic benefit of managing phytophthora on HLB-affected trees is currently unknown. Therefore, CRDF has funded a project to determine new guidelines, based on economic analyses, for treating trees with low, medium and high levels of phytophthora.

4. Whether a grower sprays aggressively to kill psyllids or not, we can all agree that a spray program should not include insecticide applications that don't produce more economic benefit than they cost. CRDF has funded a proposal that will ground-truth what these thresholds are believed to be, providing guidance to growers on when they *don't* need to spray.

5. Metabolites are the molecule products of metabolism. Metabolism converts food to energy to run cellular processes for synthesis of proteins, lipids, nucleic acids and certain carbohydrates. Metabolomics is the study of the unique chemical fingerprints that these cellular processes leave behind. University of Florida (UF) researchers have developed a platform that enables metabolomics profiling which will, hopefully, allow them to identify the metabolites that are present with HLB-tolerant citrus cultivars. If this can be perfected, new cultivars can be identified as HLB-tolerant without the need for years of field observation. CRDF has funded a project to do this.

6. HLB impacts on fruit can result in rejection by packinghouses and juice processing facilities because of inadequate size and poor quality. There are HLB-tolerant sweet orange/mandarin cultivars which, when blended with Valencia juice, make a very flavorful product. Whether the industry wishes to move in this direction remains to be seen. In case it does, CRDF has funded a project to analyze sensory and consumer acceptance, identify more HLB-tolerant cultivars with juice that resembles the quality of Valencia juice, and determine a chemistry definition of consumer-accepted orange juice.

7. HLB-tolerant trees have less root damage than non-tolerant trees. What is the mechanism of tolerance in the rootstock that prevents root loss, and could it be related to tolerant scions? CRDF has funded a project to answer this question.

8. An Israeli company has a biocontrol agent that has markedly reduced *Liberibacter* in carrots. Working with a UF researcher, the company has proposed testing the agent on *Liberibacter* in citrus. CRDF has agreed to fund preliminary work to see if this holds promise.

Still under consideration are research needs for nutrition and irrigation.



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