

CRDF Discusses Research Questions Relating to Citrus Nutrition

By Tom Turpen



With both fruit prices and the incidence of HLB disease on the rise, the topic of optimizing citrus nutrition is of great interest to Florida growers. The Research Management Committee (RMC) of the CRDF invited its Scientific Advisory Board Chair, Dr. George Bruening, and citrus stress physiology expert, Dr. Jim Syvertsen, to join it for a committee meeting and public hearing to assess field trials on citrus nutritional supplements in Lake Alfred on Aug. 24. More than 60 growers and other members of the public heard results from 10 field experiments and the panel noted several important open questions for future research emphasis. Answers to some of these questions will have important immediate applications, such as: What is the basis for adjusting nutrient levels? How much is too much? Other questions seek to better understand the phenomena of disease progression and tree decline such as: Are there disease specific nutritional effects? What is the susceptibility of HLB-infected trees to other stress?

The field trials presented varied in experimental design under different disease and environmental conditions. Some experiments look at yields and pound solids from demonstration plots using various commercially available materials in large blocks while others subtract individual components in an attempt to measure effects of macro- and micro-nutrient deficiencies in relatively small but randomized and controlled plots.

Optimizing citrus nutrition is subject to enormous variability in yield that is both site- and season-dependent. Additionally, the rate of decline of HLB-infected groves is highly dependent on the age of the trees at the time of infection and overall condition of the grove, including genotype, environmental interactions, soil, salinity, root disease and the overall level of abiotic and biotic stress already imposed on a specific site. Many groves may not be at an optimal level of nutritional support and foliar sprays are recommended in such conditions:

“(Foliar sprays) are useful when soil or environmental conditions are unfavorable for nutrient uptake by roots...because it is the most rapid way to effect nutrient uptake by citrus trees.” Nutrition of Florida Citrus Trees, 2nd ed., Obrero and Morgan, eds., IFAS Extension publication SL253 p. 47.

There will be a great deal of risk and continued uncertainty for some time. Therefore, it is prudent for production managers to maintain stringent psyllid control and to monitor nutritional status with accurate tissue and soil sampling to look at the effects of staying toward the high side of the traditionally recommended ranges for nutritional supplements in their groves, especially if they choose not to remove infected trees.

In other actions, the RMC made several recommendations. An additional field trial proposal from Dr. Phil Stansly will be funded to compare the effects of nutritional supplements and psyllid control in a young planting at a single site. Dr. Ron Brlansky has presented interesting images of phloem structure and the uptake of fluorescent dye by citrus leaves. It was recommended that he pursue this observation in an attempt to develop a useful and validated assay of phloem-health and that this research objective be amended to an existing project with Dr. Bob Rouse as a collaborator. Furthermore, the Foundation and IFAS will explore the feasibility of developing a system to collect and pool data from grower experience within Citrus Health Management Areas. This is perhaps the most valuable and relevant information.

Tom Turpen is Research Program Manager of the CRDF.



Column sponsored by the Citrus Research and Development Foundation