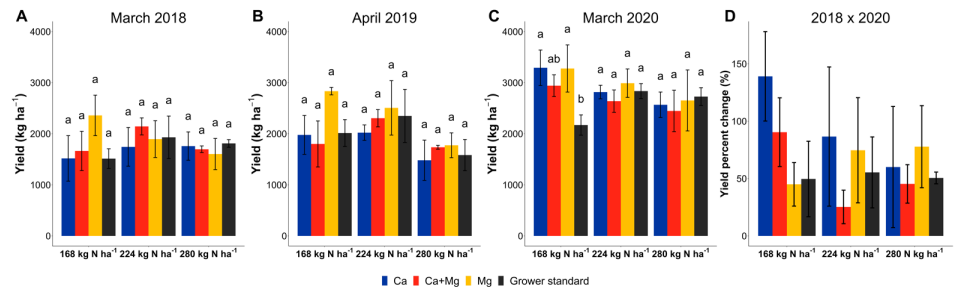


Citrus Nutrient Management on HLB-affected Round Orange and Grapefruit Groves on Flatwoods and Ridge Soils-Macronutrients

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Take Home Message:

- Nitrogen rates could potentially be reduced to 150 lbs per acre in HLB-affected citrus trees without affecting vegetative growth, fruit yield, and juice quality.
- There is a need to optimize the supply of secondary macronutrients and all other nutrients to develop a balanced nutritional program.

Effort Statement: The project continued but no yield was collected due to fruit drop in 2023.

Summary: The bacterial disease huanglongbing (HLB) has drastically reduced citrus production in Florida. Nutrients play an important role in plant defense mechanisms and new approaches to manage the disease with balanced nutrition are emerging. Nutrients like nitrogen (N), calcium (Ca), and magnesium (Mg) could

extend the productive life of affected trees, although interactions among these nutrients in HLB-affected citrus trees are still unclear. A two-year study was established in Florida to determine the response of HLB-affected trees to applications of N, Ca, and Mg. The study was conducted with ‘Valencia’ trees on Swingle citrumelo rootstock established on Candler sand. Applications of N at 150 lbs per acre, 200 lbs per acre (recommended rate), and 250 lbs per acre were used as the main plots. Split-plots consisted of a control treatment receiving no Ca nor Mg; Ca applied at 40 lbs per acre; Mg applied at 40 lbs per acre; and Ca + Mg applied at 20 lbs per acre for each of Ca and Mg. The following variables were measured: tree size, fruit yield, and juice quality. Although some differences in tree growth among treatments were statistically

significant (e.g., greater canopy volume with Mg fertilization at 150 lbs per acre), there was no clear and consistent effect of plant nutrition on these variables. Fruit yield was higher with Ca and Mg relative to the control at the lowest N rate in 2020, and there were no other statistically significant differences among treatments. Juice acidity was significantly higher with Mg fertilization relative to other treatments in 2019, 2020, and 2021. As N rates had no significant effect in this study, unlike secondary macronutrients, N rates could potentially be reduced to 150 lbs per acre in HLB-affected citrus trees without affecting vegetative growth, fruit yield, and juice quality. However, this will require optimizing the supply of secondary macronutrients and all other nutrients to develop a balanced nutritional program.

Funding:

