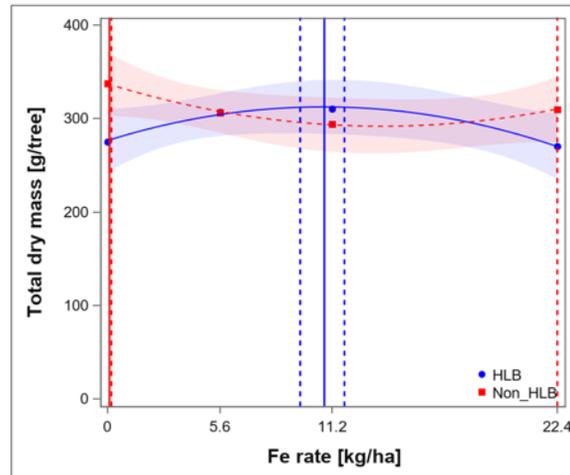


Variable Rates of Iron: Impacts on Growth and Development of HLB-affected ‘Bingo’ Trees in Florida

Researchers: Davie Kadyampakeni, Alan Wright, Tripti Vashisth, Kelly Morgan

Contact: Davie Kadyampakeni, dkadyampakeni@ufl.edu

UF/IFAS CREC



Take Home Message:

- The averages of leaf Fe contents were found to be within sufficiency range except the control.
- The Fe rate of 8.6 to 10 lbs per acre improved growth and development for young HLB-affected trees.

Effort Statement: This project is now completed.

Summary: Huanglongbing (HLB) has been the major cause of declining tree growth and development in citrus production in Florida. A greenhouse experiment was established in 2018 at UF/IFAS Citrus Research and Education Center to assess the impact of variable rates of iron (Fe) on the growth and development of 1-year-old HLB-affected ‘Bingo’ trees. This

study seeks to generate important data to update micronutrient recommendations focusing on Fe for HLB-affected trees. Fifty percent of the trees were affected by the HLB pathogen and eight treatments were applied on a randomized complete block design with 7 replicates. The treatments applied were 0, 1x, 2x and 4x of manganese (Mn) on the HLB-affected and healthy ‘Bingo’ trees (1x represents UF/IFAS recommendation for citrus). Data including trunk diameter, tree height, and leaf samples were collected, processed, and analyzed at an interval of three months, following treatment application. There was no significant difference recorded on tree height and diameter for both HLB-affected and healthy trees. Considering leaf

nutrient composition, there was significant difference between trees which received Fe (1x, 2x and 4x, 1x was equivalent to 5 lbs/acre) and the control (no Fe), with 4x accumulation the highest. The content of Fe in leaves is found to be increasing with increasing rate of soil applied Fe. The averages of leaf Fe contents for all rates of Fe applied, except the control, were found to be within sufficiency range of Fe in plant tissue. A 95% confidence interval (CI) at which total biomass was nearly maximum corresponded to an Fe rate of 8.6 to 10 lbs per acre, which was close to the 2x rate. Thus, soil Fe application between the above-mentioned rates may be appropriate for better growth and development for young HLB-affected trees.

Funding:

