Leaf Sampling: Selecting the Right Leaf Makes a Difference

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Take Home Message:

- Although fruiting branches are lower in the macronutrients year-round, leaf sampling from non-fruiting branches should continue for management decisions.
- Currently suggested to perform multiple leaf nutrient analysis in a year, more research is needed to solidify leaf nutrient sampling methods and timing.
- A final year of leaf collection and analysis is in progress.

Effort Statement: For two years, nutrient analysis continues to be generally consistent - macro nutrients are lower in fruiting branches than nonfruiting branches whereas Ca and Mg are the opposite. The presence of fruit on a branch influences nutrient concentrations, counterintuitively the differences are observed in the later stages of fruit development than early.

Funding:

Summary: Leaf nutrient concentrations vary between nonfruiting and fruiting branches. When leaf sampling methods were established, many factors went into where leaf samples should be collected from on the tree. One key factor was samples should be consistently collected from either nonfruiting or fruiting branches. Methods and interpretations were created based on consistency and the ease of leaf collection. UF/IFAS recommendations are based on leaf nutrient concentrations from nonfruiting branches. When sampling, all leaves should be from nonfruiting branches. Due to the variability of leaf nutrient concentration between branch types, consistency is key to obtaining an accurate analysis. It is also critical to not collect leaf samples from both nonfruiting and fruiting branches. Mixing leaf samples can skew the leaf analysis and lead to inadequate fertilization. Recently, there have been questions about the leaf sampling methods on HLB-affected trees. Since the current recommendations are based on healthy trees, should the sampling methods be different for HLB-affected trees? Two years of research has indicated macro nutrients (nitrogen (N), phosphorus (P), potassium (K)) in HLB-affected trees follow the same pattern of healthy trees with lower nutrient concentrations in fruiting branches than in nonfruiting branches. Secondary macro nutrients (Calcium (Ca), Magnesium (Mg)) leaf nutrient concentrations in HLB-affected trees are generally higher in fruiting branches than nonfruiting branches, the same as healthy trees. The continuation of this citrus nutrition research project on HLB-affected trees will help to solidify how nutrient concentrations vary between nonfruiting and fruiting trees and aid in determining leaf sampling recommendations for HLB-affected trees. Collecting leaves from both nonfruiting and fruiting branches or only fruiting branches can skew the nutrient results and lead to unnecessary fertilizer purchases. Consistent leaf sampling from nonfruiting branches will provide the most accurate leaf analysis and aid in making appropriate fertilizer decisions.