



Nutrient Differences in Fruiting and Non-Fruiting Leaves

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Abstract

Nutritional analysis is an important part of a successful citrus management program. To obtain accurate analysis, the right plant part must be collected from the right part of the tree. Historically, leaf nutrient analysis has always been done on 4-6-month-old spring leaves from non-fruiting branches in July or August. However, it has been noted that growers randomly collect leaves regardless of fruiting or non-fruiting branches. Today, almost all commercial Florida citrus orchards are affected by Huanglongbing (HLB), a systemic bacterial disease causing extensive tree health decline. All the nutrients especially micronutrients are needed in higher amounts for HLB-affected trees. Preliminary observations suggest a tree with a good nutrient profile drops less fruit, therefore higher yields. It is recommended for more frequent leaf nutrient analysis to adjust fertilizer applications. It becomes critical to determine how different the nutrient concentrations are in fruiting or non-fruiting branch leaves of HLB-affected trees. In these preliminary results, leaves were sampled in August 2021, December 2021, and February 2022 from 'Hamlin' and 'Valencia' sweet oranges in central Florida. Thirty leaves were collected from both fruiting and non-fruiting branches and leaf nutrient analysis was conducted. There was a pattern of secondary macro nutrients and micronutrients decreasing in 'Hamlin' non-fruiting branches from August to December. In August, there were significant differences in manganese (Mn) and zinc (Zn) with a higher nutrient concentration in non-fruiting leaves, then in December, there was a significant decrease in non-fruiting leaves. In December, all micronutrients in 'Valencia' non-fruiting leaves decreased except for iron (Fe). 'Valencia' leaf concentrations were also significantly different between fruiting and non-fruiting in all nutrients analyzed except sulfur (S) and Fe. Both 'Hamlin' and 'Valencia' had a significant increase of potassium (K) in non-fruiting leaves in August and December. 'Hamlin' fruiting leaves in February 2022 contained fruitlets and there was a significant difference in the macronutrients and Zn between fruiting and non-fruiting leaves. Further analysis is needed to determine how fruit growth affects leaf nutrient analysis throughout the growing cycle.

The full paper, with a title change to
"The Most Critical Step to a Good Nutrition Program"
can be accessed at:

https://crec.ifas.ufl.edu/media/crecifasufledu/extension/extension-publications/2022/2022_dec_critical.pdf

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