

EVALUATION OF WATER USE BY HUANGLONGBING (HLB) AFFECTED CITRUS TREES IN FLORIDA

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Increasing irrigation efficiency in citrus can be achieved by matching water supply with plant water demand, and maintaining adequate moisture in the root zone throughout the critical growth stages of citrus tree. Since HLB-affected citrus trees experience about 40% to 70% root loss to bacterial infection of roots, they may not require the same irrigation rate as non-infected trees. A greenhouse experiment was established in 2019 at Citrus Research and Education Center in Lake Alfred, Florida to assess the interaction of citrus water and nutrient use in 1 to 4-year-old HLB-affected Valencia orange (*Citrus sinensis*) trees. Four treatments, 100% ET and 80% ET, on HLB- and non HLB-affected trees were applied on a randomized complete block design with 5 replicates. Field capacity was estimated on the growth medium to determine how much water to apply. A drip irrigation system, controlled by a timer, was used to facilitate water delivery into the pots. All pots received equal amount of fertilizer and were covered to minimize surface evaporation. Soil water content and stem water potential will be measured with EM 50 moisture sensor device and pressure chamber instruments (Model 1515D), respectively, and results correlated with root growth and tree growth (height and diameter). Leaf nutrient content will also be measured for each replicate and results compared among treatments. It is expected that HLB-affected trees which received 80% ET will show similar root, height and trunk growth relative to trees which receive 100% ET. It is also expected that treatments which received 80% ET show acceptable amount of soil moisture around the root zone. This study aims to reduce the amount of irrigation water applied to HLB-affected citrus trees in Florida, which will in turn minimize leaching losses of some essential nutrients, specifically, nitrogen and phosphorus into aquifers and other water bodies.

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