

Water Use Assessment for Citrus Trees Affected by HLB

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Increasing irrigation efficiency in citrus trees is achieved by matching water supply with plant water demand and maintaining adequate moisture in the root zone throughout the critical growth stages of citrus trees. A greenhouse experiment was established in October 2019 at the UF/IFAS CREC to assess water use dynamics in 2- to 4-year-old HLB-affected 'Valencia' orange (*Citrus sinensis*) trees on Kuharske citrange rootstock (*Citrus sinensis* x *Poncirus trifoliata*). Four treatments comprised of trees receiving water equivalent to 100% evapotranspiration (ET) and 80% ET, on HLB positive and non HLB-affected trees were

evaluated in the greenhouse. Stem water potential, sap flow, weekly pot weight, trunk diameter, tree height, leaf nutrient content, and soil moisture were monitored and compared among all treatments. Stem water potential data showed no significant water stress among HLB-affected trees which received 100% ET and 80% ET. HLB-affected trees which received 80% ET showed no significant difference in height to trees which received 100% ET. However, trees that received 100% ET treatment had significant increase in trunk diameter when compared to trees that were treated with deficit irrigation at 80% ET. Estimates of 24-hour sap flow data showed

that trees used available water between 10:00 and 20:00 hours in April 2021 with the highest peaks at 13:00 and 15:00 hours. Sap flow data from August 2020 showed a comparable water use between 100% ET and 80% ET in both HLB and non HLB-affected trees. Reducing the amount of irrigation from 100% ET to 80% ET did not affect nutrient absorption, tree-water-stress, and tree height in HLB-affected trees. However, higher water use was observed with 100% ET treatments as compared to 80% ET in HLB-affected trees within a 24-hour period.

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