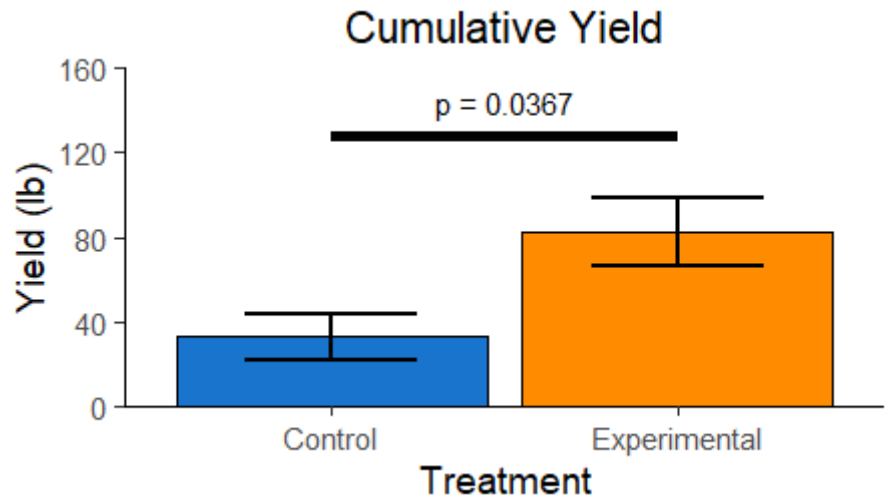


Improved Irrigation Practices to Enhance Fruit Growth and Retention in Huanglongbing-affected Sweet Orange

Researchers: Tripti Vashisth

Contact: Tripti Vashisth,
tvashisth@ufl.edu

UF/IFAS CREC



Summary: Huanglongbing (HLB)-affected trees experience considerable root dieback that limits their capacity to take up water. Given the same amount of water, an HLB-affected tree will take up less water than a healthy tree. This limited uptake capacity is reflected in lower leaf water potentials in severely symptomatic trees compared to mildly symptomatic trees suggesting trees become more susceptible to drought stress as the disease progresses. However, this may only be an issue during the dry season (October-May) when trees are reliant on supplemental irrigation. The dry season overlaps with flowering, fruit set, and fruit maturation in

sweet orange, so any water deficits experienced during this time could impact these developmental stages. As off-season flowering, increased rates of fruit drop, reduced canopy growth, poor fruit quality, and lower yields are characteristic of both HLB and drought stress, drought stress may exacerbate the symptoms already associated with HLB. We explored alternative irrigation practices to mitigate these symptoms. The experimental treatment involved irrigating three times daily for 20 minutes each while the control involved irrigating every other day for two hours. The experimental schedule increased bud production and fruit set. Trees under the control regime

experienced a late burst of flowering consistent with drought stress. This was not seen in the experimental schedule suggesting the experimental schedule better maintained trees in a well-watered state. Canopy volume was also better maintained under the experimental regime. Over the 2-year course of this study, frequent, smaller doses of irrigation resulted in significantly higher yields at harvest.

Take Home Message:

- Standard irrigation practices do not meet the water needs of HLB-affected trees.
- Frequent irrigation improved yield in HLB-affected trees.

Funding:

UF IFAS
UNIVERSITY OF FLORIDA

