

Current Research Objectives

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Research topic: Evaluate and further develop a noninvasive root mapping system.

Primary Research Objective(s): Develop an advanced and non-invasive root mapping system utilizing a Ground Penetrating Radar (GPR) technology and a 3D “root mapping” software.

Research Goal: Provide a tool to citrus growers and researchers to evaluate HLB-infected citrus rootstocks.

Outcomes to date: We have evaluated three antennas with frequencies: (i) 400 MHz (up to 4 m); (ii) 900 MHz (up to 1 m; better resolution than the 400 MHz); (iii) 1.6 GHz (up to 0.5 m; better resolution than the 900 MHz). Several maps of citrus tree rootstocks were created to visualize and evaluate the root morphology of HLB-infected trees. The results from this study were analyzed and compared to determine the antenna with better accuracy. The 1600MHz (and the 900MHz) antenna generates good quality maps.

We are working to make the system more accurate and precise by automating the data collection process. Preliminary data from different field studies demonstrated considerable differences in root architecture based on rootstock variety.

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