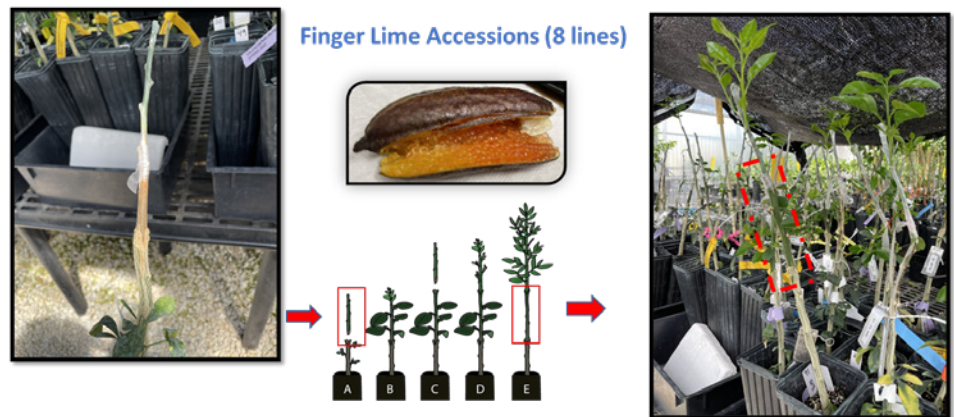


Can Finger Limes Help ‘Valencia’ and ‘Hamlin’ Trees be More Tolerant of Huanglongbing?

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Effort Statement: These experiments are designed to generate reliable data within a short period, which will offer stakeholders additional tools to reduce HLB susceptibility in Florida citrus.

Summary: To evaluate the ability of huanglongbing (HLB)-tolerant finger limes to protect susceptible scions such as ‘Valencia’ and ‘Hamlin’ against HLB, we utilized the interstock grafting technique. The idea is to assess whether antimicrobial peptides (and potentially other molecules) found in finger limes are graft-transmissible and can provide HLB tolerance to our citrus tree cultivars grown in Florida. For this, we established numerous ‘Valencia’ and ‘Hamlin’ plants interstock grafted with various finger lime types in the greenhouse in the UF/IFAS SWFREC

in Immokalee (see figure). We challenge-inoculated these plants with Asian citrus psyllids carrying HLB-causing bacterium. We determined that UF-SL and R1T98 interstock grafted scions (‘Valencia’ grafted on Swingle rootstock) accumulated HLB bacterium significantly less than regularly grafted scions (‘Valencia’ grafted directly on Swingle rootstock). We are still following the HLB infection rate and amount of bacterium accumulating in these plants with monthly visual observations for symptoms in the greenhouse and with qPCR assays in the lab. This study will allow us to understand better the mechanism of HLB tolerance in these graft combinations and evaluate the chemical composition of the sap, root, and leaf metabolites. The

greenhouse experiments are designed so that the data generated from these experiments in a relatively short time (approximately 12-18 months) will be helpful to stakeholders in Florida, California, and Texas.

Take Home Message:

- This project aims to transfer antimicrobial peptides of the HLB-tolerant citrus relative, finger lime, into ‘Valencia’ and ‘Hamlin’ citrus through an interstock graft technique.
- Citrus trees interstock-grafted with two different finger lime accessions had significantly less HLB-causing bacteria accumulation than regularly grafted scions.
- Ongoing greenhouse experiments will show whether these antimicrobial peptides provide lasting protection against HLB.

Funding:

 National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE