Florida Greening in Lemons
Background

- South Africa and China have HLB (Citrus Greening), and flourishing citrus industries
- We traveled to South Africa and China to learn about Greening management
- Space trees close, produce as much fruit as possible before Greening tree losses eliminate profit
In Florida, need High Tech

Two Components – OHS and APS

- “OHS” = Open Hydroponics
- “APS” = Advanced Production Systems
Open Hydroponics

- OHS = Water and Fertilizer Management.
- Apply water through low-flow drip irrigation.
- Pulse applications in small amounts throughout daylight hours.
- Irrigation water contains fertilizer with a complete mixture of nutrients (similar to true hydroponics).
OHS Operation Parameters

- Water and fertilizer schedule is based on the tree canopy size – 100% is when trees have reached their “containment size”.
- Schedule pulse times based on emitter discharge rate, soil, % canopy coverage.
- Pause between pulse applications necessary to allow air to enter soil.
Open Hydroponics

- Roots form dense “ball” under each emitter and efficiently absorb water and nutrients.
- Stress-free environment promotes rapid tree growth and high fruit production.
- Manage conditions in the “Root Ball” to promote growth, flowering, fruting, and influence fruit quality.
Arapahoe Citrus Management

- 2006 - Florida’s first OHS/APS grove on 10-mile Creek in Ft. Pierce
- Grapefruit and Honeybells on multiple rootstocks and spacings
- Two soil types
- Multiple OHS Zones plus Microsprinkler comparison zone
Full Automation is Required
After 3 years, we’ve proven the concept, and confirmed that significant water and fertilizer use reductions over microsprinkler are possible while maintaining rapid tree growth.

Daily application of 1 day’s worth of fertilizer, which the tree uses in a day, means no nutrient contamination of runoff = water quality BMP

IFAS, USDA, Growers have systems - continues to show promise

Calibration for Florida still necessary
Thank You Very Much!

Peter Spyke
Arapaho Citrus Management, Inc.
Dr. William Castle
IFAS
Japie Kruger
OHS Consulting, Australia

www.ArapahoCitrus.com