ag management strategies

FIELD REPORT

UNIVERSITY OF FLORIDA

CITRUS

OVERVIEW

Lee Rain, with its agricultural analytics division Earthtec Solutions, teamed up with Dr. Larry Parsons of the University of Florida's Citrus Research and Education Center (CREC) in Winter Garden, Florida to pursue the answers to several critical questions regarding citrus irrigation. The team hoped to discover when and how traditional and leading-edge irrigation practices impacted yield and the interrelationships between water, soil nutrients, and roots across all levels of the soil profile. Could irrigation practices be enhanced to improve production while reducing operational waste? Methods of water allocation are a matter of some concern for growers in Florida. Agricultural irrigation is regulated by five water management districts in the state. The districts issue water permits for reasonable and beneficial uses, like citrus production. The research hoped some innovative thinking could yield some new solutions regarding water usage.

The conventional estimate of daily water needed for a citrus tree is 20-40 gallons. Using Earthtec Solution's patented Advirguard™ software, which was designed to identify irrigation inefficiencies and implement new practices based on the analysis, the research team made an in-depth study of how much of the water applied to the citrus trees at CREC were actually being used by the plants. A fully automated plant-triggered irrigation system was installed that would trigger and irrigate according to the actual water uptake and consumption of each tree. Understanding how crops responded when irrigation events and quantities were precisely managed according to the plant's need had the potential to redefine how districts and growers approached the issues of water allocation.

What we discover inside the plants themselves is illuminating new paths to decreasing waste, saving time and money, and creating a more sustainable tomorrow.

DISCOVERIES

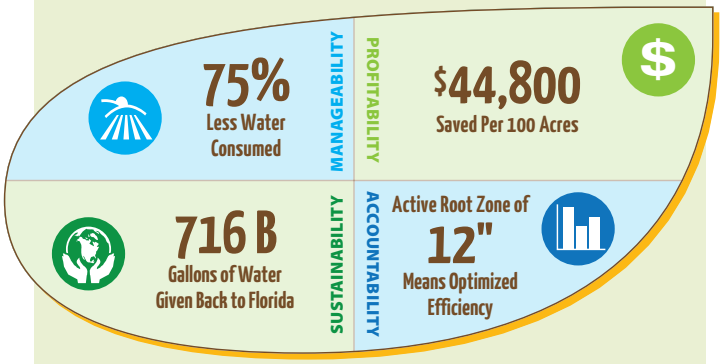
The study yielded some dramatic findings. By letting the needs of the crop determine the amount of water applied, considerably less water was used without any negative impact on crop production. The study found:

- **Water consumption equaled 10 gal. of water per tree per day**
- **Crop-controlled irrigation resulted in a 50% to 75% improvement over conventional irrigation**
- **The most active root zone is the top 12 inches of soil**

STRATEGIES FOR THE FUTURE

The insights gleaned from the in-depth analysis of data collected at the University of Florida and other studies around the country are changing the way we look at irrigation and agriculture. The more we understand about how crops consume water and nutrients and interact with the environment, the more we can increase efficiencies across the board. Lee Rain and Earthtec Solutions are turning this research into action with Ag Management Strategies, customized solutions that enable agricultural providers optimize their operations in terms of profitability, manageability, accountability, and sustainability. What we discover inside the plants themselves is illuminating new paths to decreasing waste, saving time and money, and creating a more sustainable tomorrow.

UNIVERSITY OF FLORIDA – CITRUS IRRIGATED WATER USE



- **MANAGEABILITY.** 75% less water consumed means time savings. Plant-triggered irrigation meets the tree's demands for water automatically.
- **PROFITABILITY.** $44,800 saved per 100 acres. 75% reduction of water applied per tree results in reduced fuel consumption of approximately $448 per acre.
- **ACCOUNTABILITY.** Active root zone of 12 inches. A precise understanding of the crop's water uptake means optimized irrigation efficiency.
- **SUSTAINABILITY.** 716 Billion Gallons of Water. More efficient irrigation for orange crops in Florida would give back 716 billion gallons of water to the state.

For more information about Ag Management Strategies, call 856.691.4030 or email agms@leerain.com.

LEE RAIN SINCE 1946

2079 East Wheat Road
Vineland, NJ 08361-2594
Toll Free: 1.877.533.7878
Phone: 856.691.4030

sales@leerain.com | www.leerain.com

AGMS.UF.052016