# CITRUS ADVANCED TECHNOLOGY PROGRAM

**QUARTERLY & FINAL REPORTS:** Control of Citrus Greening, Canker & Emerging Diseases of Citrus

**SELECT PERIOD** September 2016

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Effect of Selected concentrations of calcium bicarbonate on expression of HLB in the greenhouse and grove

| Today's Date | Sponsoring Organization (drop-down) | Category (drop down) |
|---|---|---|
| 11/8/2016 | Citrus Research and Development Foundation | Vector Monitoring, Behavior, Cultivation |

**REPORT UPDATE** (500 words-It is not necessary in this public report to disclose your institution's proprietary information or intellectual property.)

Two citrus groves, one - 20 year-old Hamlin sweet orange trees predominately on Swingle rootstock and a second consisting of three year old Hamlin sweet orange trees on Swingle rootstock have received acid injection to selected blocks with and without sulfur applications for fifteen months. Irrigation water was acidified at one of four target water pH (7.5, 6.0, 5.0, and 4.0). A controlled release form of elemental sulfur was applied to half of the trees in each pH treatment (main effect) including the non-acidified control (pH~7.5). A controlled released form of elemental sulfur (Tiger 90) was allied at a rate of 500 pounds per treated acre to plots receiving either acidified irrigation water or control plots receiving irrigation water that was not acidified in June. Soil samples collected in July indicate that soil pH in the plots receiving sulfur applications increased to about 0.5 pH unit above the target pH level at both sites. The increase in soil pH is the low amount of irrigation required during the spring and summer months because of higher than normal rainfall. At both the mature and young tree site, no significant difference in root density was found in samples collected in July. Likewise, no significant increases in nutrient concentrations were found in leaves collected in August were found among treatments because of lower soil pH.

Average water uptake by trees affected with HLB were 15% lower than healthy trees. These data have been consistent for the past year. Therefore increasing evidence of reduced water uptake for trees receiving water supplemented with calcium bicarbonate have been documented. The cause of reduced water uptake appears to be lower but non-significant reductions in root density and soil pH increases in soil irrigated with higher concentrations of calcium carbonate. Reduced water uptake by trees receiving calcium carbonate in irrigation water would account for reduced leaf area and trunk diameter.


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*Total Funds (current year)*

Form PR-12 Quarterly Reports **SUBMIT REPORT**

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