# Florida Citrus Advanced Technology Program

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

**Instructions** Complete the fields based on your project specs. When finished, save the form to your local disk using a unique name. Then, go to **http://research.fcprac.com**, and log in with your user name and password using Researcher Login in the lower left. Find this project title and click on **Submit a Report**. Update your profile information if needed, then upload this report as directed.

| 2009-2010 REPORT | CATEGORY (drop-down) | TODAY'S DATE (m/d/yr) |
|---|---|---|
| ● *Quarterly Report* ○ *Annual Report* ○ *Final* | Management | 10/14/09 |

**WHAT IS THE "HEADLINE" FOR THIS REPORT (e.g. a one-sentence "newspaper headline" describing what you accomplished)**

Postharvest peel breakdown of fresh citrus reduced using a preharvest foliar application of K/Mg or an antitranspirant

**TITLE and CONTACT INFORMATION**

*Proposal Title* Grove Practices that Increase Fresh Fruit Quality and Reduce the Development of Peel Disorders


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| *Phone* 772-468-3922, ext. 167 | *Project Duration (years)* 2 *Year of Project* 2 |
| *Organization* UF/IFAS | *Total Direct Funds (current year)* $52,918.00 |


**REPORT UPDATE (650 words; provide details about your headline)**

Research results from the first season were successfully completed, the results reported at the 2008 annual Florida State Horticultural Society (FSHS) meetings and at Packinghouse Day and the Indian River Postharvest Workshop in Sept. 2008, a manuscript published in the FSHS proceedings (http://www.fshs.org/; Proc. Fla. State Hort. Soc. 2008. 121:322–325), and results reported in previous FCPRAC progress reports. To summarize, preharvest treatments included up to three foliar potassium (K) sprays (March, October, and January) or withholding irrigation for up to two months before harvest. In one commercial block, foliar mono-potassium phosphate (MKP) was applied at 23.5 lb MKP per acre (0-52-34; 8 lb K2O per acre) with 4 lb per acre low-biuret urea (46-0-0) applied at a total volume of 125 gal per acre. In another block, the grower applied 3 gal per acre of a commercial 3-18-18 formulation at a total volume of 250 gal per acre. Postharvest treatments included holding fruit for three days at 30%, 55%, or 100% (including wetting the fruit) RH before washing and storing at 70F under ambient RH. In the first grapefruit block, preharvest foliar MKP treatments applied 2 months or more before harvest did not significantly reduce peel breakdown. However, fruit set was poor in that block producing very large and misshapen fruit. In the second block, peel breakdown was significantly reduced with foliar 3-18-18 applied 2, 3, or 4 weeks before harvest. Preventing irrigation or rainfall for 49 days before harvest increased peel breakdown, whereas wetting the fruit after harvest and maintaining high postharvest RH reduced peel breakdown compared to exposing fruit to lower RH for 3 d before washing.

Funds for the second year of this study were received very late in the season on April 3, 2009. So the bulk of the funds will be used on experiments this coming season. However, we did conduct several additional experiments in 2008-09 before the project's approval. After three sets of field trials on White grapefruit and Valencia oranges, we found less promising results with foliar K than in the previous season. In one experiment, foliar K even increased peel breakdown. The reason for this is unclear. However, applying a combination of foliar K and Mg or use of an antitranspirant resulted in a significant reduction in peel breakdown during postharvest storage. Application of foliar Mg (Epsom salt) alone showed a trend in reducing peel breakdown that, while not significant, is worth repeating. Four sets of postharvest experiments gave similar results as the previous year. Interestingly, postharvest treatments with Imazalil sporadically reduced peel breakdown as was noted the previous year. The reason for this is unclear but worth investigating further.

For the current 2009-10 season we are establishing at least two field plots in two different commercial grapefruit groves to apply preharvest foliar K, antitranspirants, and Mg. We will also test combinations of these materials as well as other treatments that might be suggested by research and/or grower reports.