

Southwest Florida
Research and
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WINTER 2018

Center Director's Corner

We were honored to host Florida Gulf Coast University (FGCU) President Mike Martin for a visit in January. FGCU and UF/IFAS plan to



partner on some upcoming ag-related projects, and Dr. Martin paid a visit to the SWFREC to learn more about our latest research projects. In the photo below, Dr. Martin (left) is talking with water resources scientist Dr. Sanjay Shukla (right) about his program's bed geometry project.



I also was grateful to speak to the Rotary Club of LaBelle during its January luncheon meeting. I showed a PowerPoint presentation that highlighted the SWFREC mission, research programs

being conducted by our fourteen faculty members, and our community outreach efforts (photo below).



As far as our center goes, we continue to make repairs to structures that sustained heavy damage from Hurricane Irma last September. It is a slow process, but we are making progress.

In addition, we will be building four additional greenhouses that will be connected to four existing greenhouses. These will provide our newest faculty members with research space in addition to their laboratories.

Last but certainly not least, please mark your calendar and plan to participate in our Open House on November 15! See page 8 for more info.

Calvin Arnold

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Latest SWFREC Research

Citrus Horticulture Program an Instrument for Serving Growers in Florida

Dr. Fernando Alferez,
Citrus Horticulturist

It has been a year since my appointment as the new Citrus Horticulturist at SWFREC began. During this time, I have started several projects aimed at providing growers with new tools for better success. My program targets areas of traditional citrus horticulture and its interface with modern plant physiology and citrus pathology.

One of the main challenges that the citrus industry faces in Florida is huanglongbing (HLB). This disease has decimated fruit production by 70 percent in the last few years. Currently, there is no cure, and viability of citrus in Florida is compromised by rising production costs and a shrinking crop every

year. The industry is in need of immediate, ready-to-apply solutions that increase productivity (lowering costs and increasing yield and quality) until we find a viable long-term solution.

To help growers through science-based procedures for increasing the productive life of citrus trees while maximizing fruit yield and quality, I am adopting different approaches. These include assaying and evaluating novel therapies against disease and studying performance of new varieties with an emphasis in fresh fruit production from the selections available through UF and USDA breeding programs.

Our research also targets the early preharvest fruit drop that is responsible for a big percentage of industry losses. We are assaying a new method involving a comprehen-

sive hormonal treatment that considers the physiological stage of the tree (i.e. flushing and blooming status) and time of application to prevent fruit drop. This year is especially bad because we are dealing also with the stress caused by hurricane Irma. Still, Irma left some interesting data regarding rootstock behavior, showing that trees on Cleopatra and Swingle were more resistant to winds than trees on other rootstocks such as Volkameriana or Flying Dragon. These observations have been confirmed by several growers.

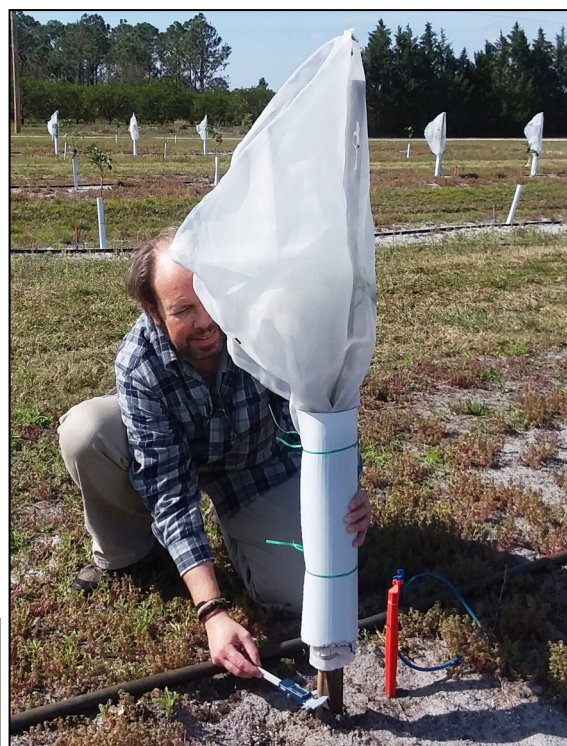
We are also working on ways to better harmonize bloom and fruit development to get them back as they used to be before HLB. Especially promising for our industry is the availability of new varieties with a focus on the fresh market.

However, little is known about the fruiting physiology of these new varieties, such as the SugarBelle, Tango, and Early Pride. We are planting them in the open grove but also under the new CUPS (Citrus Under Protective Screen) facility that we are building at our Center. By assessing hormonal balances during blooming, fruit development, and maturation, we will be able to maximize fruit yield and quality in both scenarios, because we will know which hormonal and nutritional treatments to apply and when. And assessing root health will help growers to fine tune nutrition plans and save costs by adding nutrients only when necessary and in the correct quantity. Results will assist growers in managing newly planted varieties, improving root lifespan, and maximizing yield of better quality fruit, which ulti-

mately will result in benefits.

Other examples of current research include testing tree defenders (tree covers that keep young trees protected from pests) and using compost to increase tree health.

For more information, contact Dr. Alferez at alferez@ufl.edu.



Above: Dr. Alferez measures trunk diameter of a tree in the defender experiment. Below: The variety of developmental stages in Valencia trees in May. Left: Measuring fruit detachment force in SugarBelle.



Staff News



- ◆ Plant physiologist Dr. Ute Albrecht is one of fifteen UF/IFAS faculty members recognized as a 2018 Early Career Scientist Seed Grant award winner. The UF/IFAS Dean for Research office oversees the program, designed to “facilitate development of new faculty research, jumpstart research programs, and provide a platform for future success.” Dr. Albrecht’s proposal was “Deciphering Citrus Rootstock-Scion Interactions and Consequences for HLB Disease Development.” She also receives \$50,000 for her research program.

- ◆ Water resources

engineer Dr. Sanjay Shukla was featured in a guest commentary article written by UF/IFAS Senior Vice-President Jack Payne for the Naples Daily News. The story’s title was “Agricultural Scientist Relies on Farmers, Research to Succeed” and focused on Dr. Shukla’s bed geom-



etry research and his efforts to convince vegetable growers to begin utilizing higher and more narrow beds, which require less water, nutrients, and plastic mulch than traditional

beds that are shorter and wider. To see the full article, click here:

<https://www.naplesnews.com/story/opinion/contributors/2018/01/05/commentary-agricultural-scientist-relies-farmers-research-succeed/997821001/>.

- ◆ Soil microbiologist

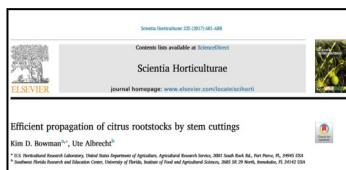
Dr. Sarah Strauss was the guest speaker at the “Friday Seminar” at the UF/IFAS Everglades Research and

Education Center in Belle Glade in early February. The title of her presentation was “Microbial Ecology in Agroecosystems: Examining and Manipulating Soil Microbial

Staff News continued

Communities for Improved Crop Production.”

- ◆ Recently published articles authored by SWFREC faculty and staff include: Efficient Propagation of Citrus



Rootstocks by Stem Cuttings, Scientia Horticulturae (plant physiologist Dr. Ute Albrecht); The Effect of Huanglongbing on Young Citrus Tree Water Use, HortTechnology (post-doctoral research associate Said Hamido and soil and water scientist Dr. Kelly Morgan); Effect of Phosphorus Rates on Growth, Yield, and Postharvest

Quality of Tomato in a Calcareous Soil, HortScience (vegetable horticulturist Dr. Monica Ozores-Hampton and Dr. Kelly Morgan); Survival of *Zanthomonas campestris* pv. *Viti-*ans on Lettuce in Crop Debris, Irrigation Water, and Weeds in South Florida, European Journal of Plant Pathology (vegetable plant pathologist Dr. Pam Roberts); Identification of Metolachlor Mineralizing Bacteria in Aerobic and Anaerobic Soils Using DNA-stable Isotope Probing, Biodegradation (weed scientist Dr. Ramdas Kanissery); Evidence of Behavior-based Utilization by the Asian Citrus Psyllid of a Combination of UV

and Green or Yellow Wavelengths, PLoS ONE (former graduate student Thomson Paris and entomologist Dr. Phil Stansly).

- ◆ The Weed Science program recently participated in Gardens Day at Lakes Regional Park in Fort Myers. The group had a booth at the event, plus program leader Dr. Ramdas Kanissery conducted a “weed walk” through the park’s community garden.

Weed Science master’s student Biwek Gairhe (left) and lab technician Shea Teems talk to garden day participants at Lakes Park in Fort Myers.



Dorm Funding Campaign Kicks Off

Nearly fifty people participated in the Southwest Florida Research and Education Foundation's Leadership Luncheon on February 1 at the center. The event marked the official kick-off of a fundraising campaign to have a new graduate student dormitory built on the SWFREC property.

Mike Taylor, President of the Foundation, served as emcee for the luncheon. Speakers included Cody Helmer and Christy Chiarelli, executive director and senior director of the UF/IFAS Office of Development, respectively. They provided information about "Go Greater," the university's Capital Campaign, as well as SWFREC's goal to raise \$500,000 to build a dorm that will house eight students. The pair also shared plans for donor recognition opportunities: Gifts of \$1,000 or more will be honored on a donor recognition wall in the new dorm; a dona-

tion of \$30,000 or more will be honored with the naming of an individual room in the dorm; and a gift of \$250,000 or more will be honored with the naming of the entire dorm.

Additional speakers at the luncheon included two graduate students: Ph.D. candidate Angelica Engel, pursuing her degree in agricultural and biological engineering, and master's student Nicholas Johnston, pursuing his degree in entomology. They spoke about the importance of having dormitories on the SWFREC property, especially that they provide a safe home close to their

research projects and help form a sense of community among all SWFREC students.

For more information about the fundraising campaign, the proposed new dormitory, and how to make a donation, please click here:

http://swfrec.ifas.ufl.edu/docs/pdf/SWFREC_Graduate_Student_Dormitory.pdf



Top photo: Graduate students Angelica Engel and Nicholas Johnston speak to luncheon attendees about the importance of on-property housing.

Bottom photo: Attendees ask questions about donating to the fund-raising campaign.

Spotlight On . . . Student Research Project

By Ibukun “Timothy” Ayankojo, Ph.D. student, soil and water science, Kelly Morgan, chair

My research focuses on using best management practices to improve irrigation and nutrient management in tomato production in Florida. Based on my experience, I participated in the Trellis Fund program that worked with a group of tomato farmers in Africa on nutrient management in tomato production.

Akumadan is a town in the Ashanti region of Ghana, a country in Western Africa. In Ghana, this commu-



nity is well known for its agricultural activities and is the largest tomato-producing area in the country. In this communi-

ty, about 90 percent of the natives above eighteen years of age are tomato farmers. Although tomato is a primary crop of this community, nutrient management is one of the major limiting factors to production, resulting in a very low yield. In Akumadan, a very good tomato season yields about 300 boxes per acre, compared to about 3,000 boxes in Florida for the same area of land.

My role in this program was to conduct training with these farmers on nutrient management to improve their productivity. This involved identification of better fertilizer composition; understanding fertilizer application rates, timing, and amount; early identification of nutrient deficiencies and their corrections; effective planting depth for seedling; and much more. It was after one of the exciting interactive training sessions that one of the farmers approached me, shook my hand, and said: “Thank you! I have been growing tomato for years, but I

have never heard (about doing it) that way before.”

In conjunction with local

resident researchers in Ghana, we are conducting nutrient management experiments based on the train-



ing. They are coordinated by local extension agents and managed by the farmers themselves, which reinforces the knowledge obtained and allows them to see how effective nutrient management can improve their yields. I am working with them remotely on the project and providing them with extension materials as needed.

This was an exciting experience for me, and I look forward to seeing how this program will improve tomato production in Ghana. I want to thank Trellis Fund for funding this program.

Save the Date!

You're invited to the Southwest Florida Research and Education Center Open House on November 15!

- ♦ Laboratory Tours
- ♦ Educational Science Demonstrations
 - ♦ Farm Trolley Tours
 - ♦ Extension Displays
- ♦ Refreshments and Lunch

Watch your e-mail for details and your invitation!

Coming Events



March 7: *Citrus Squeezer: Scouting and Managing Citrus Diseases.* 9am-1pm. SWFREC. RSVP required at 863-674-4092 or dcabrera@ufl.edu.

March 9: *Remote Pilot License Training.* 9am-2pm. SWFREC. For more info and to register: <https://www.eventbrite.com/e/remote-pilot-license-training-tickets-43140325876>.

April 11: *Certified Crop*

Advisor Workshop. Restricted to individuals who currently hold a CCA license. 8am-6pm. SWFREC (via videoconference).

April 27: *Southwest Florida Research and Education Foundation Board Meeting.* 10am-1pm. SWFREC. RSVP at 239-658-3400 or jderleth@ufl.edu.

May 1: SWFREC Vegetable Advisory Committee Meeting. 10am-1pm.

SWFREC. RSVP at 239-658-3400 or jderleth@ufl.edu.

May 4 and 5: *28th Annual UF/IFAS Farm Safety Day.* Same program offered both days. 7:30am-1pm. SWFREC. For more info, agenda, and registration form, click here and advance to the May calendar of events: <http://swfrec.ifas.ufl.edu/about-us/calendar/>.