

SWFREC Update

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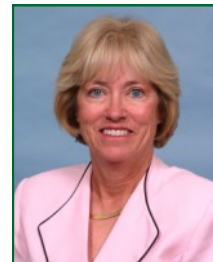
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 SOUTHWEST FLORIDA RESEARCH
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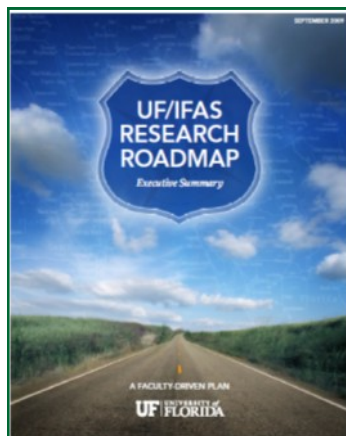
Center Director's Corner



In 2008, Dr. Mark R. McLellan, UF/IFAS' Dean for Research and Director of the Florida Agricultural Experiment Station (FAES), issued a challenge to every IFAS department and research and education center: to conduct a self-analysis that would examine the current state of each unit and its research plans for the future. The resulting plans ultimately culminated into the UF/IFAS Research Roadmap, and an executive summary of the plan can be found online in PDF format on the FAES Web site located at <http://research.ifas.ufl.edu/files/ResearchRoadmapExecutiveSummary.pdf>.



"The IFAS Research Roadmap," explains Dr. McLellan, "is a faculty-driven, faculty-based plan that is a comprehensive self-examination of who we are as researchers, what we need to be as a viable and enviable research team for the next 20-30 years, and how we want to get there!"



In conducting the self-analysis, each unit was asked to answer ten guidance questions, such as:

- ◆ What areas of research is your department or center best known for by others?
- ◆ What are your research weaknesses, gaps that are not covered now, yet you deem essential for the future direction and scientific impact of your discipline or center?
- ◆ Where is your discipline or center moving to in the future? For RECs, what research needs of your regional stakeholders are currently unmet by your REC?
- ◆ What are the cross-cutting research topics that need to be addressed through partnerships with other disciplines in UF, at other universities, or with other agencies?

◆ Knowing the faculty that you must have in place to accomplish your goals, what critical hires in order of importance in your discipline or center will be necessary to position your department or center as the leader?

"IFAS research is very strong right now," says Dr. Larry Arrington, IFAS' Interim Senior Vice-President. "Our research strengths are recognized across the country and within the University of Florida. I believe that all of our programs, whether it's teaching or extension, rely on a strong base of science."

The executive summary includes unit visions, such as that for the SWFREC, which spotlight research opportunities, core programs of the future, and critical hires. I invite our clientele to peruse the summary online and regard it as a vision document for the future of our center and for the future of IFAS.

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Spotlight On . . . Citrus Physiology Program

The Citrus Physiology Program at SWFREC is designed to understand how stress affects citrus trees so that methods can be developed to modify that stress for the benefit of the commercial industry. Citrus trees are normally under stress, whether from climate or soil conditions, or insects and diseases. In most cases, commercial grove managers implement practices that mitigate that stress, although there are times when stress is intentionally imposed to produce some horticultural benefit. Dr. Bob Ebel, associate professor of horticulture, oversees the Citrus Physiology Program and is aided by Peter Newman, biological research associate, and Dr. Naveen Kumar, a post-doctoral research associate who is an expert in stress physiology.

Dr. Ebel is conducting research to develop protocols for



Dr. Bob Ebel (above) oversees the Citrus Physiology Lab (left), where post-doctoral research associate Dr. Naveen Kumar (left) and biological research associate Peter Newman (right) set up HPLC (high performance liquid chromatography) parameters for analysis.

using an abscission agent for loosening sweet oranges as an aid to mechanical harvesting. “The abscission agent we are studying functions by promoting the formation of the abscission layer of the fruit,” he explains. “This is one of those cases where we’re intentionally imposing stress for a horticultural benefit. Fortunately, this stress does not adversely affect the rest of the tree.”

Efficacy of the abscission agent is a function of several factors. “We are determining the relationship between the various factors affecting efficacy and the rate of loosening of the fruit,” Dr. Ebel says. “Our ultimate goal is to develop a mathematical decision-making tool for the commercial industry that would aid scheduling of sprays and harvest.” Sunehali Sharma, who has just begun a Ph.D. program with Dr. Ebel, will be taking the lead on developing the mathematics behind the model.

Dr. Ebel also leads large field studies that relate the amount of loosening by the abscission agent to harvest efficiency of mechanical harvesters. As he explains, “In order to develop the most effective commercial protocols for using this abscission agent, we also have to understand how the amount of loosening affects the percent of the crop removed by the harvesters.” These studies are being conducted in conjunction with the Harvest Council, agricultural economist Dr. Fritz Roka and soil and water scientist Dr. Kelly Morgan from SWFREC, and Dr. Jackie Burns and Dr. Tim Spann from the CREC in Lake Alfred. Furthermore, these field studies have been great opportunities for Dr. Spann to study how this abscission agent and mechanical harvesting affect debris going into trailers and for Dr. Michelle Danyluk, also from CREC, to evaluate how this process affects microbial contamination. “This is a truly collaborative program,” Dr. Ebel noted. “It has been a great experience for me to work with all the wonderful folks from IFAS. I’ve also had a tremendous opportunity to directly work with the commercial industry as well, since these trials are conducted in their groves.”

Dr. Ebel expresses the importance of keeping the industry informed of his progress: “I try to give updates to the Harvest Council at their quarterly meetings, I just gave a presentation on our current status at the Citrus Expo, and I give presentations at our annual mechanical harvesting field days. We are also beginning a series of workshops on mechanical harvesting at county extension meetings.”



Pull-test measurements help to determine the loosening effect abscission applications have on citrus trees prepped for mechanical harvesting.

Dr. Ebel is beginning a new program to evaluate commercial products that are being advertised as promoting Systemic Acquired Resistance (SAR) against greening and canker. “There are a lot of products being sold that claim to help fight these two serious diseases,” he explains. “Our goal is to establish a research program to screen these chemicals and determine not only if they reduce disease and bacterial load but how they affect the plant’s natural defense mechanism. It is our hope that we can find a combinatorial mix of products that together would reduce the bacterial load and disease symptoms.”

This program is being conducted in conjunction with the Gulf Citrus Growers Association (GCGA) and plant pathologist Dr. Pam Roberts at SWFREC and is being funded by the USDA Specialty Crop Block Grant Program. Dr. Ebel details the structure and functioning of this program: “This is designed to be very responsive to the industry. The decisions concerning the products we test and the protocols we use are going to be made by myself and a subcommittee of the board of directors of the GCGA.” The monies from this grant will be used to hire a molecular biologist and a Ph.D. student. “Dr. Kumar will help with physiological markers that we’ll use to determine efficacy of the compounds, but we also need a molecular biologist to study changes in gene expression to complete the picture,” Dr. Ebel says. “This program will be a tremendous opportunity for a Ph.D. student to not only contribute to the program but to study gene expression and down-stream products with the two post-docs who will also be working on the project.”

Dr. Ebel has high hopes for the SARs screening program: “It is our belief that we’ll be able to find answers to some of the growers’ most pressing questions concerning SARs, but more than that, we hope to deliver to them protocols for using SARs in managing these diseases.”

SWFREC Staff News

- ◆ Agricultural economist Dr. Fritz Roka presented “Uncertain Adoption Despite Certain Benefits—Citrus Mechanical Harvesting in Florida” at the Caribbean Food Crops Society annual meeting in St. Kitts in July, and “Citrus Production Systems to Survive Greening—Economic Thresholds” at the Citrus Expo in Fort Myers in August. In addition, Dr. Roka participated in the 35th Annual Agricultural Labor Relations Forum in Orlando and presented seminars on mechanical harvesting at a citrus growers meeting in Indian River earlier this month.
- ◆ Plant pathologist Dr. Pam Roberts is representing the SWFREC on the 2009-2010 UF/IFAS Faculty Members Assembly. In addition, Dr. Roberts recently welcomed Dr. Ryan Donahoo to her program as a post-doc research associate. Ryan is a graduate of UF with a degree in plant science, received his master’s from UF in plant pathology, and completed his Ph.D. work in plant pathology from the University of Tennessee in 2008. His focus at SWFREC is on population genetics of *Phytophthora infestans*, the pathogen that causes late blight.
- ◆ Smita Barkatky, who studied under soil and water scientist Dr. Kelly Morgan as her committee chair, recently completed her UF master’s degree coursework in soil and water science. She now works as a biological scientist under Dr. Morgan. In addition, Dr. Kamal Mahmoud, who received his Ph.D. from UF under Dr. Morgan’s leadership two years ago, was promoted to assistant professor of soil and water science—irrigation and nutrient management with Zagazig University in Zagazig, Egypt, in August.
- ◆ Vegetable horticulturalist Dr. Monica Ozores-Hampton served as a conference organizer for the 2009 Tomato Institute in Naples earlier this month. She also presented “Can We Use Controlled Release Fertilizers in Tomato Production?” at the conference.
- ◆ Invited talks by entomology program staff: Dr. Phil Stansly presented “Integrated Management of the Asian Citrus Psyllid” at the XIII Simposium Internacional de Citricultura in July in Ciudad Victoria, Tamaulipas, Mexico. Post-doctoral research associate Dr. H. Alejandro Arevalo presented “Monitoring the Asian Citrus Psyllid in the Field and the Internet” at the same meeting. And on invitation by the Citrus Growers Association in Dangriga, Belize, Dr. Stansly presented information about management of the Asian citrus psyllid at the Citrus Research and Education Institute in July.



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We're on the Web!

<http://swfrec.ifas.ufl.edu/>

Upcoming Events

October 6: *Low Volume Application Technology for Citrus Pests.* 8:30am-12pm, SWFREC, Immokalee. 2 CEUs each for pesticide license renewal and Certified Crop Advisors. Call Hendry County Coop. Ext. office to RSVP: 863-674-4092. For agenda, visit: swfrec.ifas.ufl.edu.

October 8: *Vegetable Growers Meeting.* 6-8pm, SWFREC. Check Web site, swfrec.ifas.ufl.edu, for agenda. To RSVP, call the Hendry Co. Ext. office: 863-674-4092.

October 14: *Certified Crop Advisor Training.* 7:30am-5:30pm, SWFREC (via videoconference; program originates from the UF/IFAS Citrus Research and Education Center, Lake Alfred). 5 CEUs each for soil and water management and crop management. For registration information and program, visit http://www.crec.ifas.ufl.edu/crec_websites/cca/.



October 16: *UF Homecoming.* In observance of UF's homecoming, all UF/IFAS research and education centers (RECs) will be closed. SWFREC's regular business hours (8am-5pm) will resume on Monday, Oct. 19.

October 28: *Florida Ag Expo.* 7:30am-4pm, UF/IFAS Gulf Coast Research and Education Center, Balm. SWFREC entomologist Dr. Phil Stansly will present "New Vegetable Pesticide Materials Update," and vegetable horticulturalist Dr. Monica Ozores-Hampton will present "Tomato Yellow Leaf Curl Resistance Tomato Trials." For agenda and registration information, go to www.floridaagexpo.com.

November 11: *Veterans Day Holiday.* In observance of Veterans Day, all UF/IFAS RECs will be closed. SWFREC will reopen Thursday, Nov. 12.

Late November/early December: *SWFREC Fall Vegetable Field Day.* Date to be announced. Check Web site, swfrec.ifas.ufl.edu, for updated information and agenda.

December 1-2: *2nd International Phytophthora capsici Conference.* Hawks Cay, Duck Key, FL. SWFREC plant pathologist Dr. Pam Roberts serves as a conference organizer. For more information, visit swfrec.ifas.ufl.edu.

December 8: *Citrus Squeezer: Mechanical Harvesting.* 10am-1pm, SWFREC. Agenda and registration information posted soon to swfrec.ifas.ufl.edu.

