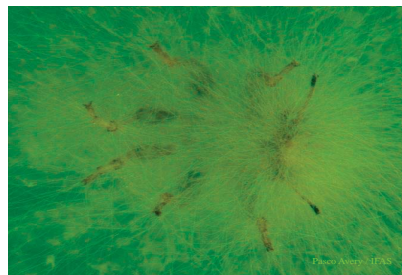


From the Director



Photo by Velma Spencer



PFR-97 about to be distributed,
page 3

Much has been accomplished in 2010 at IRREC. Faculty, staff and student awards are abundant. A faculty member published a book, another was promoted and a new biopesticide will soon be released as a result of research performed here. Five IRREC students received scholarship awards.

Dr. Brian Boman has published a second book about irrigation best management practices. The book, *Apple Irrigation and Fertigation in Serbia*, was published in the Serbian language and was completed following Dr. Boman's tour to one of the world's most important apple growing regions.

Dr. Avery worked with UF and U.S. Department of Agriculture scientists testing an entomopathogenic fungus, PFR-97, against the Asian citrus psyllid that vectors the citrus greening disease. PFR-97 is at this time in the process to receive a tolerance-exemption registration from the EPA sometime in 2011. Upon approval of the new label, a biological pesticide company will distribute the product expected to be widely used by citrus growers throughout the nation.

Dr. Bill Overholt, as a member of a research team, and Dr. Pasco Avery, were recognized by the Florida Entomological Society during the organization's last annual meeting with Entomological Achievement Awards.

Jane Bachelor has been named senior lecturer and in addition, she was named UF College of Agricultural and Life Sciences Affiliate, a designation appointment.

The new affiliate appointment qualifies her as a faculty member at both the UF Fort Pierce location, as well as with the faculty among UF's College of Agricultural and Life Sciences department in Gainesville.

Scholarship funds are invaluable to the center's teaching program. On behalf of the center and all IRREC students, we are grateful for student awards provided to them by the Garden Club of Indian River County and St. Lucie Master Gardeners. Student garden club scholarship recipients are Adrienne Smith and Regina Conley; Kristin Campbell and Cecil Montemayor received Master Gardener scholarship awards; graduate student Matthew Dimaggio received the Seascape Scholarship Award.

Dr. Pete Stoffella

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On the left, a Serbian vegetable grower, Dr. Brian Boman met with while serving as a consultant in Europe



“The orchard was very high density planting, about 4,000 trees per hectare and the entire orchard, which was over 40 hectares (about 100 acres), was under hail net covers.”

Dr. Boman Publishes Second Irrigation Book

Following a 3-week trip last summer as a consultant to the Republic of Serbia agriculturalists, Dr. Brian Boman wrote and published a book on irrigation and fertilization to serve as a guide for Serbian farmers. The 80-page book, “Apple Irrigation and Fertigation in Serbia,” was completed in less than six months following Dr. Boman’s visit. The book provides information on how to economically manage water and nutrients for the rapidly expanding tree fruit industry in Serbia.

As part of a USAID project, Dr. Boman toured the region’s many apple orchards and made recommendations and presentations to growers at well-attended lectures. His task to write the book began during the visit to the south central European country. Upon his return to IRREC, he worked along with international industry representatives to complete the book in March. Cooperators were agricultural chemical, fertilizer and irrigation suppliers from Israel, Italy, Norway, and Serbia.

“I was so impressed with one apple orchard I visited because it was very modern and well-managed” said Dr. Boman. “The orchard was very high density planting, about 4,000 trees per hectare and the entire orchard, which was over 40 hectares (about 100 acres), was under hail net covers.”

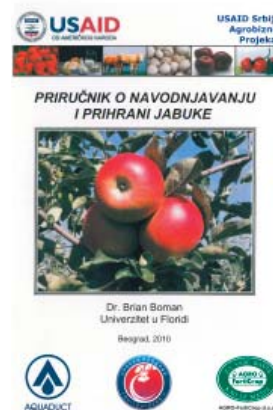
Each agricultural region and commodity grower must face their crop’s particular pathogens and the area’s climatic challenges. In some areas of Serbia, Dr. Boman said, hail storms are frequent and hail can severely damages apples. Trees situated at the orchard’s border, where the nets ended, were badly bruised; the summer 2009 apple crop had endured three hail storms.

Equally impressive about the orchard he said, was the use of modern rootstocks and all of the modern varieties such as Granny Smith, Fuji, Golden Delicious and Gala apples. He said that single orchard had produced 27 tons of apples per hectare in the second year after planting. While visiting the orchards, Dr. Boman’s recommendations were applied nearly at once. Upon inspection of the orchard’s 2-year-old irrigation lines, he identified sediment clogging and oversaw the lines being flushed. He also worked with the growers to determine irrigation and fertigation (fertilizer distributed along with irrigation methods) timing and amounts, and system maintenance. He determined growers were paying excessive amounts for fertilizer and created a plan to reduce their chemical costs by one fourth of what they had been paying for fertilizers.

At a second orchard just south of the nation’s Belgrade capital, Dr. Boman identified issues with maintenance on system filtration. The grower was pumping water for use in irrigation from a lake on his property with a very high pH. He recommended and showed the apple producer how to inject acid into the water so that the pH level would be acceptable for use in agricultural irrigation.

“It was a really good visit there,” said Dr. Boman. “We really made a difference.”

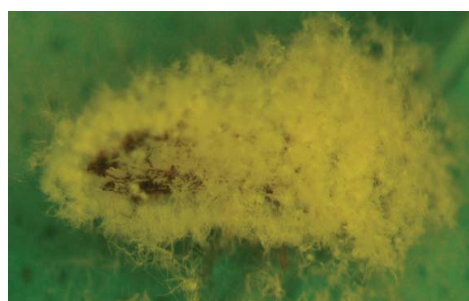
The new book, “Apple Irrigation and Fertigation in Serbia,” is published and distributed in Serbian Cyrillic language. Dr. Boman’s first book, “Water and Florida Citrus: Use, Regulation, Irrigation, Systems and Management,” was published by UF/IFAS in 2003.



IRREC SUCCESS



Dr. Pasco Avery, Post
Doctoral Fellow



Psyllid being consumed by PFR-97

the psyllid." Dr. Avery worked with UF and U.S. Department of Agriculture scientists testing the fungus, *Isaria fumosorosea*, called PFR-97, against the psyllid. PFR-97 is at this time in the process to receive a tolerance-exemption registration from the Environmental Protection Agency sometime in 2011. Upon approval of the new label, Certis USA LLC, a pioneer biological pesticide company based in Columbia, Maryland, will manufacture and distribute the product expected to be widely used by citrus growers in Florida, California and Texas. According to Certis scientists, PFR-97 is most effective when applied before or early after insect infestation and that its effectiveness takes place over a number of days.

Avery said, "Early research showed 33 percent of the insect's eggs were infected and up to 29 percent of the psyllid's nymphs were infected 21 days following fungal applications."

Avery collaborated with scientists at the USDA-Agricultural Research Service, Beneficial Insects Research Unit in Weslaco, Texas, who are conducting greenhouse and field tests to develop a control strategy involving application of the fungus onto cards with citrus-derived odors and colors. The cards attract the psyllids, leading to dispersal of the lethal fungus into the psyllid populations. This control method may be particularly suitable for ornamental and dooryard citrus.

University of Florida/IFAS Mid-Florida Research and Education Center entomologist Dr. Lance Osborne originally identified and isolated the fungus now formulated as PFR-97. Dr. Jason Meyer, previously a graduate student at UF and now a post-doctorate at Purdue University, was the first researcher to identify and report the fungus growing on infected grove psyllids.

"This could possibly lead to a more economical choice as well as a more environmentally friendly method towards beneficial's (insects) present in the grove," said Avery. "We're looking forward to results from widespread application."

For his prior work as a post-doctoral extension and research entomology associate to fight the Florida citrus industry's most formidable plant pathogen for the past several years, Dr. Pasco Avery was presented with the Florida Entomological Society's prestigious Achievement Award for Research during the organization's annual meeting held in Jupiter Beach in summer of 2010. Dr. Avery is presently a post-doctoral research entomology associate at the University of Florida/IFAS Indian River Research and Education Center (UF/IFAS IRREC) just west of Fort Pierce working on a different project.

"Dr. Avery received the award for outstanding efforts in research," said Dr. Wayne Hunter, research entomologist with the U.S. Department of Agriculture, U.S. Horticultural Research Laboratory, adjacent to the UF location in Fort Pierce. "Since being hired in 2007, Dr. Avery has [helped] develop an Integrated Pest Management program to reduce the negative impacts of the Asian citrus psyllid which spreads the pathogenic bacterium associated with citrus greening disease, the most damaging of all citrus diseases."

It is with a naturally occurring entomopathogenic fungus, and other management techniques, with which Avery has waged a concerted effort against the industry's most remarkable enemy. According to literature, citrus greening makes fruit unmarketable and kills trees over a period of time. It is carried and spread by the Asian citrus psyllid, a small flying insect.

Avery has either monitored or conducted field experiments on more than 23,000 acres of citrus trees, including organic groves throughout Florida's Indian River citrus region. According to officials with Florida Citrus Mutual, citrus industries in Florida and California are spending more than \$10 million annually to fund research for managing citrus greening disease, or Huanglongbing, what growers call HLB. In Florida, the bacterium has claimed thousands of citrus acres.

"My role basically was to educate and assist growers and eliminate paranoia surrounding citrus greening," said Avery. "My focus was to help growers help themselves by knowing what strategies worked best based on their individual experience with managing



Photo by Velma Spencer

Jane Bachelor was promoted to Senior Lecturer

Jane Bachelor has been named senior lecturer for the University of Florida/IFAS Indian River Research and Education Center near Fort Pierce. In addition, she was named UF College of Agricultural and Life Sciences Affiliate, a designation. Bachelor has served the UF site as a business lecturer since 2004.

"Ms. Bachelor has demonstrated leadership with our teaching program in spearheading new agribusiness course offerings for our students and her efforts and accomplishments have been recognized by her colleagues at the main campus in Gainesville," said Peter Stoffella, IRREC Director.

The new affiliate appointment qualifies her as a faculty member at both the UF Fort Pierce location, as well as with the faculty among UF's College of Agricultural and Life Sciences department in Gainesville. Ms. Bachelor's agribusiness courses have gained popularity among students who attend her courses throughout the state at up to five remote locations by videoconference and online formats. She also serves as chair for the Treasure Coast Research, Education and Development Authority.

Bachelor has more than 20 years experience in human resources, having held senior-level management positions with firms such as The New York Times, The New York Times Magazine Group and KPMG Consulting and Avon Products

"Ms. Bachelor has demonstrated leadership with our teaching program in spearheading new agribusiness course offerings for our students and her efforts and accomplishments have been recognized by her colleagues at the main campus in Gainesville," said Peter Stoffella, IRREC Director.

Corporate Headquarters. In 1972, Bachelor was named in "Who's Who Among Students in American Universities and Colleges." In 1976, she was honored as an "Outstanding Young Women of America," with a citation published in the organization's annual directory for that year.

A community servicewoman, Bachelor has volunteered for local nonprofit organizations such as the Dream Team of St. Lucie County, an organization that champions breast cancer awareness and prevention; Hospice of Martin and St. Lucie, Inc. as a board member and as president of the Friends of Hospice. Other volunteer work includes the Fort Pierce Jazz Society, the A.E. Backus Art Gallery, Business Women of St. Lucie County and the PGA Country Club Ladies' Association.

Bachelor earned a Master of Business Administration degree with honors from the University of Kentucky in 1981. She earned a Bachelor of Science degree in Business Administration in Education from the University of Oklahoma in 1973 where she graduated with honors and was named a Top Ten Freshman Woman.

Faculty Awards



Photo by Velma Spencer

Dr. Bill Overholt and team

Florida Entomological Society's Achievement Award for a team research program to control the invasive plant tropical soda apple. Recognized along with Dr. Overholt were from left to right: Ken Hibbard, Biological Scientist III, with FDACS-DPI; Joe DeMarco, with FDACS-DPI; Dr. Overholt; Rodrigo Diaz, IRREC post-doctoral fellow; and St. Lucie County Extension Natural Resource Agent Ken Gioeli



Dr. Pasco Avery

Florida Entomological Society's Achievement Award for research with UF and US Department of Agriculture scientists testing the fungus, *Isaria fumosorosea*, called PFR-97, against the Asian citrus psyllid

Scholarship Awards

GRADUATE STUDENTS

Kristin Campbell

Master Gardeners of St. Lucie County Scholarship Award for her work towards a Master of Science degree in Entomology and Nematology

Matthew Dimaggio

Seascape Scholarship Award for research as he pursues a Ph.D. in Fisheries and Aquatic Sciences

Adrienne Smith

Garden Club of Indian River County Scholarship Award to pursue Master of Science degree in Environmental Horticulture

Cecil Montemayor

Master Gardeners of St. Lucie County Scholarship Award for her work towards a Master of Science degree in Entomology and Nematology

UNDERGRADUATE STUDENTS

Regina Conley

Garden Club of Indian River County Scholarship Award towards pursuit of a Bachelor of Science degree in Environmental Management



IRREC Welcome Back Luncheon

The first annual "IRREC Welcome Back Luncheon," at which IRREC's returning, new and prospective students were greeted, was held Friday, September 3. In the center's south auditorium, Dr. Stoffella, members of the IRREC teaching faculty and staff, greeted 13 current and newly enrolled students, as well as those who expect to soon enroll. Fresh cut garden flowers in vases provided by the Environmental Horticultural Department graced the tables. Attendees enjoyed a catered luncheon, mingled, heard introductions and announcements, and afterwards, a gator-theme cake.

Dr. Stoffella introduced Associate Center Director Dr. Charles Powell and opened the event with a short history of the center's teaching program and legislature that led to its inception. The center's then-new teaching program was to serve agricultural and natural resource industries with educational offerings in addition to the center's traditional role of providing research and extension

programs. Since that time, Dr. Stoffella said, the program has segued to an increasing role of educational service for environmental sciences and agricultural sustainability.

"Our student body is diverse; students pursue bachelor's master's and doctoral degrees," said Dr. Stoffella. "The center provides students who are responsible for families and careers with the flexibility they need to complete degrees as part-time students. Graduate students benefit by unique opportunities as they undertake research with our research professors in state of the art laboratories."

Dr. Sandra Wilson introduced IRREC faculty members Dr. Ron Cave, Jane Bachelor, and Dr. Samira Daroub, representing the UF/IFAS Fort Lauderdale Research and Education Center.

Among the attendees were students currently enrolled in IRREC educational programs and courses, or those considering enrollment next semester or at some other time. Current students seeking Bachelor of Science degrees in Environmental Management in attendance were: Regina Conley, Kendra Thomason and Chris Waltz. Master of Science degree-seeking students in attendance were:



Dr. Stoffella speaks at luncheon

Dr. Sandra Wilson and Jackie White



IRREC SUCCESS



Cuifeng Hu

Natalie Horton, Niels Proctor and Adrienne Smith, each seeking a Master of Science in Environmental Horticulture.

Matthew DiMaggio is carrying out aquaculture research and pursuing a doctorate in Aquatic Sciences and Fisheries, under the direction of Dr. Cortney Ohs. Their research is with marine baitfish for the state's lucrative sport fishing industry.

Cuifeng Hu, who works in Dr. Mark Ritenour's Postharvest Laboratory, is enrolled in a Plant Pathology course. Before immigration to the U.S., Cuifeng taught courses in China at Fugian Agricultural University near Taiwan.

Kristin Wald and Diane Helseth are attending Dr. Wilson's course, Plant Propagation. Indian River State College employee Cynthia Bruin is attending the Soil Microbial Ecology course. Pam Ketchum



Diane Helseth



Adrienne Smith

intends to enroll as a degree-seeking student in spring 2011, and to pursue a Bachelor of Science degree in Environmental Management. Maria Serna began studies in entomology this semester with the course, Survey in Entomology. She intends to pursue a master's degree in the topic.

Graduate student Adrienne Smith introduced her role as President of the UF College of Agricultural and Life Sciences Statewide Student Organization. At present Adrienne is planning activities for students all across Florida to meet together and share similar educational goals.

"We want to initiate meetings for UF students statewide, get together and possibly take field trips," said Adrienne.

Coordinator of Academic Support Services Jackie White organized this first IRREC student event in an effort to introduce students to each other and to their professors. According to Jackie, attending students were enthusiastic about the event and look forward to the next luncheon. A second Annual Welcome Back Luncheon is planned for next year.



Cynthia Bruin and Pam Ketchum

Undergraduate Course Offerings:

- Principles of Agribusiness Management
- Environmental Nutrient Management
- Plant Propagation
- Soil Quality

For Graduate Course Offerings check the UF/IRREC website:

www.irrec.ifas.ufl.edu



Important Dates:

- Classes Begin.....August 23
- Final ExamsDec. 11, 13-17
- Labor Day.....Sept. 6
- Homecoming.....Oct. 15-16
- Veterans Day.....Nov. 11
- Thanksgiving Break.....Nov. 25-27
- Classes End.....Dec. 8

UF/IRREC Degree and Certificate Program Offerings:

Bachelor Degrees:

Environmental Management

Master Degrees:

- Ecological Restoration
- Environmental Sciences
- Environmental Horticulture
- Entomology and Nematology
- Agricultural Education and Communication

Certificates:

Undergraduate

- Geomatics
- Urban Pest Management
- Landscape Pest Management
- Pest Control Management

Graduate

- Ecological Restoration
- Non Profit Management
- Sustainable Land Resource and Nutrient Management
- Soil Ecology Services
- Wetland and Water Resource Management

The Indian River Research and Education Center News is published quarterly. To submit material or story ideas, please forward information to newsletter editor, Robin Koestoyo, (772) 468-3922, Ext. 103, koestoyo@ufl.edu