



May 2010, Volume 7, No 2

# University of Florida/IFAS Indian River Research and Education Center *Environmental Focus*

A Newsletter for IRREC Advisory Committee Members, Faculty, Staff and Students

## From the Director



A new decade has commenced, and along with it has come a certain course by which IRREC faculty serve agricultural and natural resource industries with environmental stewardship. Within the last five years, we have seen the successful implementation of new research, extension and educational programs that address these interests. The center is indeed on a unified path with efforts to develop and solve environmental issues our stakeholders face.

IRREC's Professor Brian Boman is the statewide leader for the Best Management Practices program. Best Management Practices, or BMPs, have demonstrated growers' commitment to environmental stewardship. Findings made by research and methods disseminated by extension agents will further protect Florida's fragile ecosystem and sustain our valuable agricultural industries.

For many of our faculty members, their research, extension and educational programs have segued to environmental protection. Dr.

Chris Wilson's environmental toxicology research has focused upon the evaluation of pesticides residues found in water. Like Dr. Wilson's work, Dr. He's research program is for the evaluation of soil and water quality. Dr. Cave and Dr. Overholt work to protect Florida's native species from invasive plants and insects. Dr. Sandra Wilson's research program works with ornamental plants, and to promote non-invasive, safe alternatives. Dr. Ohs has positioned IRREC's aquaculture program to produce bait fish, and reduce the pressure of wild caught bait fish harvesting. Dr. Ritenour's post-harvest technology research is primarily with food quality and safety; however, his program works with growers to keep pesticide residues at safe levels, and as a result, protects the environment.

Our IRREC graduates, who have earned Bachelor of Science degrees in Environmental Management and Master of Science degrees in Environmental Sciences, have gained employment with regional agencies or private consultant firms. It is this educational focus



through which we are seeing the most growth in IRREC educational programs.

The IRREC serves as anchor for the Treasure Coast Research Park, expected to focus upon alternative fuels research and production, among other related disciplines. On Saturday, May 22, please attend the Research Park's premier event, the FPL XE3 Go-Kart Race, 5K Race/Walk and Exposition. A highly innovative, ambitious event, young middle school students will compete in a race with go-karts for which they have designed and constructed motors powered by alternative fuels.

The decade is new yet IRREC's service to industry needs is a long tradition for which we can all be proud.

*Dr. Pete Stoffella*

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# Grove Workers' Best Management Practices Training 2010



Dr. Brian Boman leads efforts to sling shot prizes in to audience

## W

hether Indian River region citrus workers attended the University of Florida Grove Worker Training session for the first--or the tenth time--the agriculturalists gained valuable new skills or were reminded of critical safety and production techniques. More than 550 grove and landscape workers attended the 7<sup>th</sup> annual event held Jan. 20 at the St. Lucie County Fairgrounds west of Fort Pierce.

Each of the program break-out sessions were offered in both English and Spanish languages, covering 12 safety and best management practice topics. Training program organizers and presenters' goals were to inform workers about safety procedures to protect lives and the environment, lower the number of industry submitted insurance claims, and increase employers' bottom lines.

Rousing Tractor and Landscape Mower Rodeos, and citrus greening and canker identification competitions were held mid-day. Participants learned how to spot deadly snakes and spiders, extinguish fires caused by a wide range of incendiaries, plant and nurture young trees, and many more topics related to the state's most enduring industry.

"The use of two languages used by the presenters is fantastic," said Mike Ziegler, owner of Agricultural Resource Management. "This is a good turnout for the people most important to receive the messages provided."



t-shirt recipient

Program leaders were from the University of Florida/IFAS Indian River and Citrus Research and Education Centers along with UF/IFAS Extension agents from St. Lucie, Okeechobee, Miami-Dade, and Indian River Counties. Event sponsors were Scotts Fertilizer Co. and Everglades Farm Equipment Co.

A full day of presentations and hands-on audience participative demonstrations included: fertilizer and pesticide best management practices; mixing and loading pesticides, tractor and equipment safety; use and care of personal protection equipment; worker protection standards, fire safety techniques; first aid and cardiopulmonary resuscitation (CPR), hazardous materials spill control and cleanup; integrated pest management, protection from venomous snakes, spiders and Africanized honey bees; citrus greening and canker identification; and personal hygiene and food safety.

The St. Lucie Fire Department presentation featured a variety of fire extinguishers for a wide array of fire sources. Participants had hands-on training in actually using fire extinguishers to put out fires.

"Our workers were able to learn about the different types of

fire extinguishers and which fires they can put out," said Wayne Bohannon, Graves Brothers Groves Inc. in Vero Beach. "Some fire extinguishers won't put out certain fires. It's a good thing to know if there is a fire."

Bohannon, a 22-year citrus industry veteran, said seven Graves Brothers employees were present during the event, four who had never attended the annual event before. He said the day was a refresher for him, and it was good to be reminded of production techniques he had forgotten. But for the newer grove workers, the training event was invaluable for their work.

Alvin King has worked in groves for 16 years. A current grove foreman, he learned new information about rattlesnakes during the presentation that covered venomous snakes, spiders and Africanized honey bees.

"I had always thought one rattle meant a snake was one year old, but one rattle can represent up to three years in a snake's life," said King. "I used to see more rattlesnakes in the groves but now only see one occasionally. They're bad for groves because they pose such a danger to employees—they can kill."

Ken Gioeli, St. Lucie Cooperative Extension Agent III, Natural Resources, said venomous snakes such as the eastern diamondback rattlesnake, dusky pygmy rattlesnake, coral snake and water moccasin can be found in many Florida regions. Equally threatening are poisonous spiders, black widows. Mammals such as raccoons, otters and bats may harbor viruses, such as rabies. Feral hogs, he said, which are so common to large ranches and groves, may use their tusks as weapons if they feel threatened.

"People working in Florida's citrus orchards, vegetable fields and any natural area may encounter dangerous critters," said Gioeli. "It is important for workers to be able to identify the critters that might potentially cause them harm."

Dan Culbert, Okeechobee Cooperative Extension Agent III, Environmental Horticulture, said the day's presentations will likely help reduce incidents of landscape employees' injuries, and the costs associated with those injuries.

"The landscape maintenance industry has a higher workman's compensation insurance rate because of the high number of reported injuries," said Culbert. "We need to try and keep liabilities as low as possible so the rate will be reduced. Landscape company owners could use insurance savings for other aspects of their business if the rates were reduced. The only way to reduce industry rates is for workers to perform their jobs with fewer injuries."

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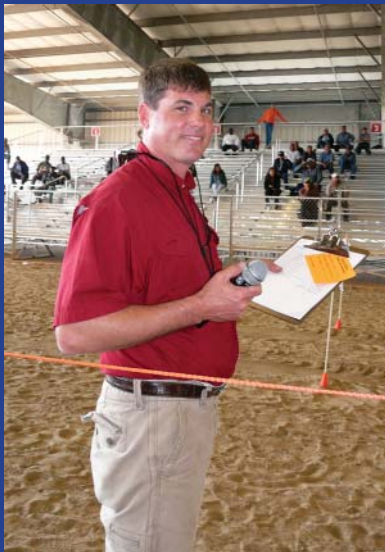


Heavy equipment displays

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A temporary citrus nursery was set up for disease identification and mower competitions



IRREC former staff member Ward Gunter served as Tractor Rodeo Judge

The Tractor Rodeo in progress



Culbert delivered safety presentations and fertilizer calibration best management practices for young tree plantings. Workers read fertilizer labels in front of their break-out groups; the entire group then encouraged the reader to carry out the work with a minimum amount of waste and the highest level of personal safety using chemicals, technology and equipment.

“Within three years every commercial landscaper must have a license to apply fertilizer and calibration for the chemicals is critical,” said Culbert. “We ran them through the paces using a grain fertilizer to see how close they were applying the correct rates to get a tree established and maintained within the landscape.”

Culbert explained most workers apply more fertilizer than what is necessary for healthy plants. He said use of correct amounts will save landscape companies thousands annually and protect the environment. Further, Culbert said it is now illegal to overuse fertilizers. The Florida Nursery Growers and Landscaper Association offers an industry certification standard for which workers must demonstrate competence in using proper fertilizer amounts.

Safety, timing and proper use of heavy equipment and disease identification were the objectives for three separate games held inside the main exhibition barn at the fairgrounds immediately following a barbecue luncheon. The Tractor Rodeo, Landscape Mower Rodeo and Canker and Greening Identification were the day’s highlights. Attendees cheered their co-workers on as the safest, most competent operators emerged. Tractor and mower competitors were timed. But if the machines touched one of the markers delineating the course, 30 seconds were added for each infraction.

“Tractor drivers need to be exceptional in their understanding in physics, depth perception and eye-hand coordination,” said Ziegler. “There are 100 things going on at once--really, the skills these people have are exceptional.”

Competitors represented grower organizations from Indian River, St. Lucie, Highlands, Okeechobee, and Martin counties. Judges stood by markers with digital timers and clipboards. For the competition, a 5075-M John Deer Tractor and 72-inch riding mower were provided by Everglades Farm Equipment of Fort Pierce. A small, temporary grove of young citrus trees with a variety of disease and nutritional disorders stood at the center of the two competition tracks. Competition participants had signed up prior to the event and were believed to be those who would perform best at each judged activity.

“The idea is for tractor drivers to handle the tractor and equipment safely. The best drivers don’t rush through the course, but rather take time to drive carefully and avoid penalties associated with hitting the course markers. It is a real challenge to back the trailer through the course without getting a penalty,” said Dr. Brian Boman.

Twenty-year-old Jose Maldonado, Jr. was the clear winner for the Tractor Rodeo. He placed first with a time of 1.29, having successfully completed the relay with no marked flag interference. Based in Fellsmere, in northwestern Indian River County, Maldonado is a heavy equipment operator for Quality Caretaking. He has been employed with the Quality for two years but has had ambitions to drive a John Deer tractor since he was very young.

Maldonado said the secret to his tractor success is ‘technique.’ He said he respects the heavy machine and his boss’s property and business investment. He considers his safety and the tractor’s safety and capabilities.

“To drive a John Deer tractor has been my dream since kindergarten. It catches my attention and looks exciting,” said Maldonado. “You can do so many things with a tractor and not everyone has the privilege of driving one.”

Competitors for the Citrus Canker and Greening Identification relay examined a small grove of about 30 young trees positioned in containers. A number of the trees bore the two diseases, others showed nutrition deficiencies. But a third set of trees was healthy, placed randomly among the unhealthy specimens.

Maria Liefkort, a worker with IMG Citrus Inc. in Vero Beach, placed first for the canker and greening identification competition.

“I work with the fruit every day,” said Liefkort. “I can tell just by looking at a tree leaf what it has.”

Kristina Wright, St. Lucie County Parks and Recreation Maintenance Technician III, placed first for the Landscape Mower Rodeo competition. She operates a mower as part of her work tasks.

“I just took my time and didn’t knock over any buckets—and I watched the other drivers mess up,” said Wright.

Each place winner received a \$50 Walmart gift card, and bag filled with items useful to those who work outdoors: a watertight box, knife and sunglasses.



Tractor rodeo

Dr. Boman and competition winners Maria Liefkort, Kristina Wright, Jose Maldonado and Judge Ward Gunter





**E**ight teams of St. Lucie County middle school students will compete in a go-kart race for which they designed engines powered by alternative fuels in the Florida Power and Light Company Extreme Energy Education (FPL XE3) Student Kart Alternative Fuel Races. The race will take place Friday and Saturday, May 21 and 22, 2010, at the Treasure Coast Research Park located in west St. Lucie County at 2199 South Rock Road. Admission is free and the public is invited to this uniquely energy science event scheduled to demonstrate the park's commitment to education and research.

"It's an honor and privilege for FPL to be the title sponsor of the upcoming FPL XE3 Event for St. Lucie County students," said Amy Brunjes, FPL's external affairs manager for St. Lucie County. "Partnering with the communities that we serve, especially when it pertains to education, is at the core of what we do. This event is a perfect opportunity to do just that."

This premier event will be hosted by the fledgling Treasure Coast Research Park, a demonstration of the park's commitment to the region's school district and to its youth, according to Ben DeVries, The Treasure Coast Research Park.

"This event will launch a long-term relationship with our education partners in the region," said DeVries. "For a research park to work, the school system is a key element in workforce development and, by the time the buildings are standing, the same students will be completing high school. Our work with them will support the ambitions of the park and of the region."

At this time, the go-karts are rolling into the technology classrooms. But the teams already have a start with their research to build a motor and with their alternative fuel selections. Participating team members attend Northport Middle School, where their instructor Mr. Jack Clark, is overseeing the team's efforts; Samuel Gaines Academy, Chadwick Bacon; Forest Grove Middle School, John Schultz; Dan McCarty Middle School, Mark Sawicki; St. Lucie West K-8 School, Dawn Skoglund; Southern Oaks Middle School, Brian Jones; Palm Pointe Middle School, Joanne Hillhorst; and Southport Middle School, Jayne Hartman. In addition, each team has been assigned a mentor for support.

Larry Jennings, FPL XE3 committee member and mentor for Northport Middle School, is suggesting his team may wish to consider solar battery-powered electrical motor. Jennings holds a degree in electrical engineering.

"The team will explore motor mounting and horse power; they will need higher horse power if they want the go-kart to move faster," said Jennings. "I'm going to allow them to do as much as they can without my input and if they come to me and ask for help with some of my ideas I'll help them. But most of the work will be their own."

Jennings said the project will provide the team with experience for a number of skills: art, journalism, science, engineering and sportsmanship. They're expected to involve art students who will design a logo and theme for their car. The students are required to keep a journal about their research, work and any how they worked through moments of stymie. The journaling will employ organization and journalism skills. Jennings' committee includes professionals whose expertise will be invaluable to the students' successful learning experience. A professional race technician who once participated in NASCAR will design the race, an Indian River State College Technical instructor will ensure the students' safety. One student mentor's

expertise is with wood products and woodshop machinery. Drivers will be protected by nonflammable suits and headgear. Spectator safety is also a critical element of the event plan. DeVries said the most important element for the event, the park, the students--and the future--is curiosity. Curiosity, he said, is the spark that has always and will always solve our problems.

"Our generation won't solve the energy crisis—but the younger generation—perhaps these students—definitely will," said DeVries.

Northport Middle School student Alex Steinberg said the team has been on the internet searching engine construction. Although he hasn't been successful finding motor blueprints online, he has a friend who races motorbikes and has sponsors who may be willing to assist his team as well.

"I like the idea that we get to build an engine and I want to hang out at a mechanic mechanics shop to learn about parts and how they are put together," said Steinberg. "I want a scholarship too. I want to attend an international college."

Steinberg's team mate, 14-year-old Alex Mejia, is looking at used French fry oil from local fast food restaurants as a go-kart alternative fuel. He also intends to seek help for mounting the engine on the kart from a family member who is an airplane engineer.

Curiosity, engine construction, the right alternative fuel, excitement and enthusiasm are driving students to work towards a race in which everyone will emerge a first place winner according to Northport Middle School Technology Instructor Jack Clark.

"Every year I try to come up with a great construction project and this is definitely the most exciting we have ever had," said Clark. "When the kids meet to work on the karts, rapid fire questions start emerging: they discuss fuels, search engines for engine blueprints, we're planning to destroy a motor so we can understand how one operates. This is one fantastic learning opportunity for the entire class."

"We're interested in renewable energy as well as alternative fuels as they are inexorably linked. Getting students engaged in the earliest education arch is an opportunity to give them hands-on experience to solve a need. And, one or two may chose this as a career—that's what we hope to achieve," said Levin.

As part of the program, the student teams will participate in Energy Tours to local research, production and business facilities. Tour sites will include energy and communications firms: Florida Power and Light, Scripps Treasure Coast Newspapers, St. Lucie County 911 Emergency Operations, and Nida-Core Corporation; visits to research and education facilities will include: The U.S. Department of Agriculture Horticultural Research Laboratory, Harbor Branch Oceanographic Institute and IRSC Kight Center and Adams Ranch. Program committee member and local business sponsor representative Marty Levin is a renewable energy specialist with Climatic Solar Corp. His involvement on the board is to support the program and promote knowledge of renewable energy platforms.

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This first event is in keeping with the Treasure Coast Research Park's mission to work with educational partners to ensure efforts are consistent with research and development activities of public and private educational institutions. The park's stated ultimate goal is to create higher paying job opportunities for the region's residents. Committee members are asking local business owners and franchise managers to please join their efforts to provide a higher quality education to local school children.

"I'd like to encourage local automotive businesses to please support these bright young students," said Jennings. "An auto parts store may sponsor a team and provide parts; any help for the students and support of local schools will be very much appreciated and honored."

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*IRREC Lecturer  
and Academic  
Program  
Marketing  
Coordinator  
Jane Bachelor*

*photo by Velma Spencer*

## FACULTY MEMBER JANE BACHELOR GRADUATE OF ST. LUCIE COUNTY CHAMBER OF COMMERCE LEADERSHIP ST. LUCIE 27

IRREC Lecturer and Marketing Coordinator Jane Bachelor has graduated from the St. Lucie County Chamber of Commerce Leadership St. Lucie Class 27. Leadership St. Lucie each year prepares a cohort of business professionals to network and to promote the community's economic and philanthropic development by utilizing their resources as leaders to promote and further the community's progressive comprehensive development. Requirements for program completion include a 2-year commitment and courses of study that increase graduates' knowledge of the county's specific aspects including education; area government, history, and economic development; health and human services, the environment, cultural awareness and quality of life topics.

"It is a great program with a long history and a competitive entry for acceptance," said Linda Cox, St. Lucie County Chamber of Commerce.

Bachelor serves as a lecturer and marketing coordinator at the UF Indian River Research and Education Center, and as Chair of the Treasure Coast Research and Development Authority, the governing organization which oversees development of the Treasure Coast Research Park. She said the training she received through the leadership course was invaluable in that it provided her with a network of colleagues to collaborate with in furthering the university's recruitment needs. Several of her chamber colleagues have served as guest speakers and served on evaluation panels before the marketing courses she instructs.

Additionally, Bachelor hosts seminars in which her colleagues deliver presentations about the state of the local economy, entrepreneurial topics such as finance, human resources and research.

"I was introduced to a variety of resources available to St. Lucie County businesses and residents that I was unaware of previously," said Bachelor. "I now understand the broad scope of their offerings and the wealth of information and services in our ever-growing county."

As a graduate of the 27<sup>th</sup> Leadership St. Lucie class, Bachelor joins previous St. Lucie County Chamber of Commerce Leadership graduates: Clerk of the St. Lucie County Court Joe Smith; Florida State Representative Adam Fetterman; Fort Pierce City Manager David Recor; Thom Epsy, State of Florida Unemployment Commissioner; members of Police Departments in both Port St. Lucie and Fort Pierce annually, including Police Chief Sean Baldwin; Fire Chief of the St. Lucie County Fire District Ron Parrish; civic and business leaders, many local attorneys and leaders of local charitable organization.



## AQUACULTURE GRADUATE STUDENT SUCCESS

IRREC graduate student Matthew A. Dimaggio, has been recognized with the University of Florida Alumni Aylesworth Scholarship Graduate Fellowship. Dimaggio is pursuing a doctoral degree, conducting aquaculture research under the direction of Dr. Cortney Ohs, assistant professor of fisheries and aquatic sciences.

“One or two graduate students representing all of the state’s universities garner this highly prestigious honor,” said Ohs. “I am exceedingly proud Matthew will represent our department where he assists in the development a baitfish aquaculture industry.”

The award will provide Dimaggio with a \$2,000 stipend each semester until he is presented with a Doctor of Philosophy in Fisheries and Aquatics. He expects to complete his doctoral work in four years, after which he intends to seek employment as a professor at a university, in addition to possible research ventures in the private sector.

“It’s nice to be recognized for the hard work and effort that goes into pursuing a graduate education,” said Dimaggio.

Ohs said the Aylesworth Scholarship is administered through Florida Sea Grant. Florida Sea Grant program’s stated objective is to ‘use academic research, education and extension to create a sustainable coastal economy and environment.’ Its administrators achieve programmatic goals through partnerships with the Florida Board of Education, the National Oceanic and Atmospheric Association and Florida’s citizens, industries, and governments. The UF/IFAS School of Forest Resources Program in Fisheries and Aquatic Sciences is a partner able to assist with the pursuit of very specific objectives.

The award is named after Ralph and Kitty Aylesworth, second generation members of Florida’s fishing industry; they are owners and operators of Aylesworth’s Fish and Bait Inc., a 65-year-old thriving bait fish business located in St. Petersburg. The Aylesworth’s established the award as part of the Aylesworth Foundation for the Advancement of Marine Sciences in 1984 to make a long-term investment in the industry they feel has greatly benefitted themselves and their family. With Dimaggio’s recognition, the total amount the Aylesworth Foundation has granted to students statewide is more than a half million dollars.

“It is our hope our scholarship recipients will be tomorrow’s natural resource decision makers--true scientists that will navigate their way into the business of fisheries managers,” said Robert Aylesworth, son of Ralph Aylesworth, current foundation administrator.

Dimaggio is assisting Dr. Ohs to conduct research which will aid producers in the development of a new aquaculture industry producing baitfish for recreational and commercial fisherman. Research projects include spawning methods and culture of stages from larvae to market size. Results of this research have been published in multiple journals and extension bulletins available through University of Florida/IFAS Electronic Data Information Source of UF/ Extension, a collection of information featuring more than 4,000 printed electronic publications.

“My interests turned to aquaculture because I was able to convert a recreational hobby into a career,” he said, “I like the freedom of research and working with academia.”

Dimaggio’s academic career is focused upon all aspects of marine bait fish biology, aquaculture production and an industry poised to improve the world’s availability of food. Past honors include The University of Florida Alumni Graduate Fellowship in 2008; he is a member of the Tri-Beta National Biological and the Gamma Sigma Delta Agricultural Honor Societies; a World Aquaculture Society Best Oral Presentation, 2<sup>nd</sup> Place, during the World Aquaculture meeting in 2009; a Sea Grant Association Award from the United States Aquaculture Society—Best Student Paper, during Aquaculture America 2009 meeting; three years UF/IFAS Travel Grants in 2008, 2009 and 2010; The UF James Davidson International Travel Grant in 2009; and, the UF Fisheries and Aquatic Sciences SURF Travel Grant in 2008.



*IRREC Aquaculture Team*

*photo by Velma Spencer*

# Summer Semester 2010



## Undergraduate Course Offerings:

- Florida Native Landscaping
- Selling Strategically
- Environmental Techniques
- Principles of Marketing
- The World of Water

For Graduate Course Offerings check the UF/IRREC website:

[www.irrec.ifas.ufl.edu](http://www.irrec.ifas.ufl.edu)

## Important Dates:

- Summer A.....May 10 to June 18
- Summer B.....June 28 to August 6
- Summer C.....May 10 to August 6
- Memorial Day Holiday.....May 31
- Summer Break.....June 21 to 25
- Independence Day Observed.....July 5

## UF/IRREC Degree and Certificate Program Offerings:

### Bachelor Degrees:

Environmental Management

### Master Degrees:

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

### Undergraduate Certificates:

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

### Graduate Certificates:

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

