CLEMSON
COOPERATIVE EXTENSION

from the Director's Desk

This has been an exciting time to be the Director of the Clemson University Cooperative Extension Service. With the strategic planning process well on its way in development, there will nothing more important than making sure we, as a team, get the strategic planning process correct. Over the past months, I have had the pleasure of meeting many dedicated county and state faculty members who have a passion for their work. As I visited with them it was evident that they want the Clemson University Extension Service to grow and meet the growing demands on our educational opportunities. I must ask for your continued support from all Clemson University Cooperative Extension faculty and staff to make sure that we continue our progress- "together we can."

We had an outstanding Football weekend as we hosted South Carolina State in the Celebrate Agriculture Day at Clemson University. The weekend started with the induction of seven deserving members into the A. Frank Lever County Extension Hall of Fame. On Saturday the Tiger Tailgate Show was dedicated to "Celebrate Agriculture " Hugh Weathers and Dr. George Askew discussed the successes of our Extension Service. Thirteen members of the Lever family were the guests of the Extension Service in the PSA Box. Then during the second quarter – family members of the seven inductees were on the field as their loved ones names were called out as being placed into the Hall of Fame. Dr. Askew presented the game ball to Commissioner Weathers' office. The stadium was buzzing about all the accomplishments of the Cooperative Extension Service over the past 100 years.

Calendar

Health Rocks! Training,
Greeleyville, SC– September 29

Basics of Pressure & Water Bath Canning,
W. Columbia – Sept. 30

Rain Garden Workshop,
Sandhill REC – Oct. 2

Carolina Cover Crops Workshop,
Greenville – Oct. 3

Edisto Forage Bull Test,
Blackville – Oct. 11

For a complete list of events see:
http://www.clemson.edu/extension/calendar.html

CLEMSON
COOPERATIVE EXTENSION

A. Frank Lever County Extension Agent Hall of Fame Inaugural class

Nominated by John William Riser

Robert W. "Bob" Bailey was known statewide for his early morning farm reports on WIS radio and television that began in the 1940s. The Richland County agent also wrote weekly columns in The State newspaper for farmers and gardeners during nearly four decades of service, from 1937 to 1976. Following his Clemson retirement, Bailey, renowned as a "keeper of the land," served as a commissioner, consultant and area director for the South Carolina Land Resources Commission from 1980 to 1998.

Nominated by Lee Keese

J. E. "Jake" Barker, the first area livestock agent in South Carolina, served Anderson, Pickens, Oconee and Greenville counties in a career spanning 1959 to 1988. From his base in Anderson, Barker was instrumental in building the livestock industry in the Piedmont. He led educational programs in South Carolina and beyond, conducting 23 out-of-state "beef study tours" for local producers to learn first-hand from producers, feedlots and processors in large beef-producing regions. He was praised for keeping growers up-to-date on the latest methods for profitability in beef and forage production and for significantly increasing the membership and reach of the Anderson County Cattlemen's Association.

Nominated by Boyd H. Parr

Albert F. Busby helped build the Newberry County dairy industry, which remains the state's largest center of dairy production. Beginning his Extension career in Lancaster County in 1950, Busby also worked in Chester County before becoming Newberry's third county agent in 1958, a position he held until 1972. He served as an area dairy agent in Newberry, Saluda, Chester and Edgefield counties from 1979 to 1985. Busby was a driving force behind the creation of the Newberry-Laurens Dairy Herd Improvement Association, which helped provide scientific data on each cow in a

dairy herd to improve producers' ability to manage their herds. He helped organize the Newberry Jersey Breeders Association, an effort that resulted in Newberry being promoted as the "Jersey Capitol of America." Busby also built a soil fertility program that encouraged farmers to sample every field on their farms, leading Newberry during his tenure to become one of the state's leading counties in dairy, poultry, soybean and forage production.

Nominated by Curtis D. White, Sr.

William C. Clinkscales worked as a county agent in both Marlboro and Berkeley counties and an agricultural education teacher in Hampton County before becoming State Leader for the Savannah Valley, District Extension Director and ultimately assistant director of state operations for Clemson Extension. But it was his work with farmers and young people as much as his administrative success that stood out. "His most rewarding experiences were seeing the growers' progress after testing the newest techniques," noted the nomination. Also, "He was a master at bringing people together and helping them see the greater good in a total effort. He paved the way for many African American students in the Extension Service and the field of agriculture."

Nominated by Gerry D. Dukes

Jesse Howard "J. H." Hopkins joined the Anderson County Extension Service in 1941, helping lead a transformation in local agriculture from row-crop farming to livestock, grain, pasture and lespedeza farming. With Hopkins' leadership, Anderson became one of the top grain and beef producing counties in the state. Once one of the state's smallest dairy producers, Anderson County became the second largest during his tenure. His work with youth led to the establishment of the Anderson 4-H Calf Club and the First National Bank Foundation, which loaned money to 4-H and FFA students to buy calves for heifer projects. His work in education included serving on the Anderson County School District 4 board of trustees from 1945 to 1972, including its chairmanship from 1960 to 1972.

Nominated by Gerry D. Dukes

Barrett Lawrimore's career in Charleston County Extension spanned more than three decades, during which he worked closely with the area's tomato farmers and helped create the S.C. Tomato Association to increase sales and improve marketability across the region. In 1981, Larimore brought the first Master Gardener program to South Carolina and the Southeast. Taking the idea beyond a simple "train-the-trainer" class, Lawrimore made Master Gardeners an integral part of the county Extension staff -- a model that is now used throughout the state. He also developed a nationally recognized model for urban 4-H planning, developing school enrichment programs that are used across the county.

Nominated by Karissa Ulmer

Dora Dee "Mother" Walker worked as a county agent before the Smith-Lever Act made the Cooperative Extension Service a national program. Starting in 1911 in Barnwell County, Walker was appointed by the U.S. Department of Agriculture to work with both youth and adults in the County Tomato Club. When Extension was created three years later, she became the state's first "home demonstration agent," a post in which she served until she retired in 1946. Mother Walker's 35-year career saw her travel the state to teach new methods of canning, drying and other phases of food conservation and led to the creation of the first Home Demonstration Club for women in the Bethel Community of Sumter County.

Celebrate Agriculture

Clemson vs. SC State

Celebrate Agriculture was the theme for the Clemson vs South Carolina State football game on September 6 and Clemson Extension was there to help celebrate.

The Extension trailer was setup in front of Littlejohn Coliseum and attracted hundreds of visitors. Millie Davenport (Extension Horticulture Agent) organized the activities, which were geared toward youth, but enjoyed by the whole family. Kids of all ages enjoyed the coloring sheets and seed giveaways.

Millie Davenport (Horticulture Agent), Jennifer Tsuruda (State Bee Specialist), Stephanie O'Brien (Horticulture Agent), Danny Howard (Regional Lead Agent), and Donna Bowen (staffed the Extension trailer. Demonstrations focused on using seed donated by SC Crop Improvement Association to educate visitors on how these crops are used in our daily lives.

Jennifer Tsuruda and Millie Davenport fill seed packets with Clemson seeds, including heirloom corn, soybeans, oats, and wheat

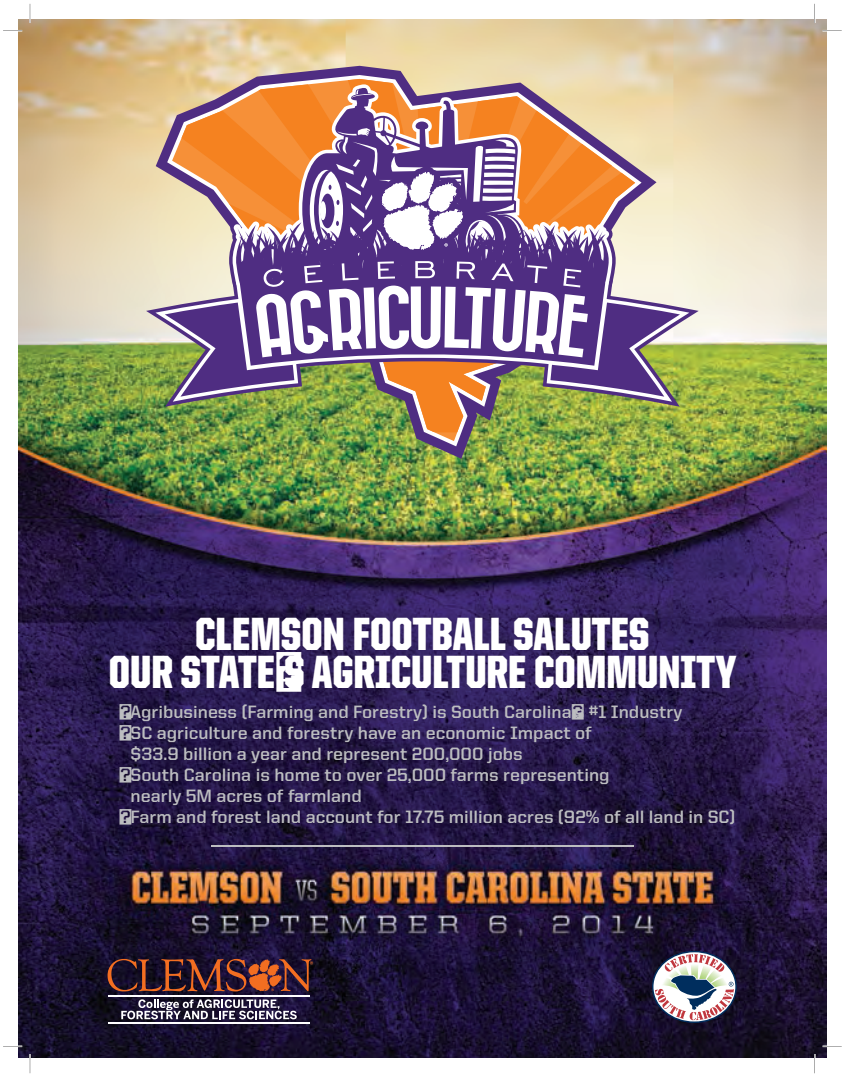
These tiger fans had a great time coloring agricultural coloring sheets and decorating their seed packets.

Dr. George Askew (Vice President of Public Service and Agriculture) dropped in on the Tiger Tailgate Show to talk about SC Agriculture and how Clemson and PSA's role in the industry.

Millie Davenport chats with a family about heirloom corn and how it is best used for grits or cornmeal.

Lever Hall of Fame on field presentation

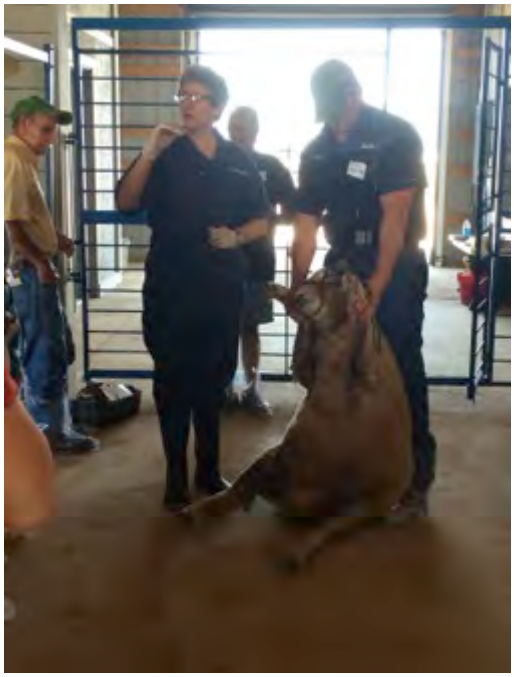
Game ball presented to Commissioner Weathers during the Celebrate Agriculture Event



A Word from Field Operations: Brian Callahan

On Saturday, August 23, 2014, agriculture producers from across the state gathered in Pendleton, SC, for the Annual Clemson Experiment Station Field Day. Dr. Matthew Burns, field day coordinator said, "This is the 100th year anniversary of the Cooperative Extension Service, and we host this field day to disseminate the knowledge gained through research at Clemson. Today is a true demonstration of "Extension" as Smith and Lever intended it."

Six breakout sessions were designed to encompass a broad range of material for the approximately 250 SC producers in attendance. In addition to agronomic crops, beef cattle, and small ruminants, new breakout sessions were invited this year to include apiculture, equine, and youth/4-H activities. Dr. Jennifer Tsuruda (Extension Apiculturist) provided producers with the opportunity to inspect a living bee colony. Beef Cattle producers were able to see some cutting edge, chute-side data collection technology being developed at Clemson. Small ruminant and equine producers focused on animal health and evaluation. Agronomic producers were able to visit variety trial plots and discuss crop pests applicable to South Carolina crops. Youth activities included 4-H livestock projects and shooting sports demonstrations. Dr. Steve Cole was able to demonstrate the new pesticide license cards and credit hour tracking system.



Dr. Patty Scharko and Lee Van Vlake provide instruction at a sheep workshop

Like so many of our field days, the aforementioned one in Pendleton placed multiple producers, Extension agents & specialists, demonstrations & seminars, and new technologies all in one setting, providing a wonderful learning and networking opportunity to attendees. Our RECs have numerous field days that are very much worth the trip – so if you haven't ever taken the time to go to one, I encourage you to give it consideration.

Horticulture Team Highlight: Dr. Powell Smith

Dr. Powell Smith knows vegetables. Dr. Smith is the Horticulture Program Team Leader for the Cooperative Extension Horticulture Team. He serves as the County Coordinator for Lexington County, is one of the county agents there, and has duties statewide in vegetable and small fruit production and pest management. Dr. Smith is an Extension Associate with a 100% Extension appointment.

Teaching IPM to vegetable farmers in Cambodia

After graduating from the University of Georgia with a Masters in Plant Protection and Pest Management in the department of Plant Pathology, Dr. Smith worked in industry on vegetable farms, with floricultural producers, and pesticide dealers before coming to Clemson Extension Service in 1988 to serve as an area agent in horticulture in the Georgetown/ Horry/Marion Counties area. He came to Lexington in 1994 and returned to Clemson on study leave in 1998 to get his PhD in Entomology studying about the diamondback moth on collards under Dr. Merle Shepard. After spending three years as an Associate Professor of Entomology at the Edisto Research and Education Center in Blackville, he returned to Lexington as an Extension Associate/area agent with statewide responsibilities.

Dr. Smith has worked closely with the Southern Region Small Fruit Consortium and other regional Extension working groups to ensure that the agents for Clemson Cooperative Extension Service receive timely, accurate training in subject matter areas in which Clemson University may lack expertise. Using his contacts from both before and after beginning to work for Clemson, Dr. Smith has maintained an applied research and demonstration program showing agents and growers alike new, effective vegetable production and pest management techniques with fewer environmental impacts.

Much of Dr. Smith's work has been with the leafy brassica greens industry statewide and in Lexington County, the largest production area. He has held numerous field days and production meetings to show research results about new scouting methods, IPM and biological control, improved fertilization practices, weather-based disease management, and varieties resistant to several significant diseases affecting the crops. He has been able to engage USDA scientists from the South Atlantic Vegetable Laboratory in Charleston, SC to assist South Carolina growers with vegetable production

Cultivating plots at Edisto REC

issues such as collard variety improvement and seeking cultivars of mustard and turnip resistant to a new problem in leafy brassica production, bacterial leaf blight. Dr. Smith has striven to be sure that his efforts reach both large and small farmers with a very successful program of Collard Production Improvement and IPM conducted with county agents in Marlboro, Orangeburg, and Hampton Counties to reach many of the smaller farmers located in those counties.

Dr. Smith gained experience working with strawberries before coming to Clemson and has continued this work with his Extension clientele in South Carolina. He serves on the steering committee of the Southern Regional Small Fruit Consortium and uses his position to keep Clemson agents and South Carolina small fruit growers in the know about this important group of crops. Strawberries have become the second most important fruit crop in SC, and most are grown on small, family farms in 2 – 5 acre plots that provide an early-season, dependable income that allows these small farms to thrive and move into more diverse crop production later in the season.

Rowcover Work

Dr. Smith plans to continue his research and demonstration efforts while seeking more time and opportunities to interact and mentor the younger agents on the Horticulture Team. Dr. Smith realizes the importance of helping his young agents become more proficient in their skills and more confident in their approach in educating and advising their clientele. This is a challenging task for the horticulture team due to the extremely diverse nature of the subject matter ranging from working with large and small commercial food and green industry producers, Master Gardener groups, and the important area of consumer horticulture.

Newberry County Spotlight

Jay Crouch
Area Extension Agent – Agronomic Crops
Regional Lead Agent, County Coordinator
alfredc@clemson.edu

Alana West
Extension Agent - 4-H and Youth Development
awillin@clemson.edu

Tina Horn
Extension Associate – Dairy (statewide)
thorn@clemson.edu

Nancy Pitts
Administrative Assistant
npitts@clemson.edu

Agronomic Crops: Jay Crouch

Newberry Silage

Jay Crouch is the agronomic crops agent covering Newberry, Saluda, Laurens, Fairfield, and Edgefield Counties. The major field crops grown in this area include corn (both grain and silage), soybeans, cotton, sorghum (both grain and forage), and small grains. One –on-one grower and field visits are the foundation of his programming efforts. He works with growers and all aspects of crop production including fertility, variety selection, pest management, and harvest/post-harvest management. One of the major areas of concentration in his program are variety evaluations of corn and sorghum for silage production for dairy producers.

Administrative Assistant: Nancy Pitts

Nancy Pitts (pictured right)

Nancy Pitts has 18 years of experience with Clemson Extension Service. She greets the citizens and clientele with a smile and any assistance that she can provide. If she cannot help them, she tries to refer their needs to the person with the expertise needed. Nancy promotes the Clemson Extension Service through involvement with the Chamber of Commerce membership and the Newberry Business Alliance. She helps the agents with numerous trainings and meetings as needed. Nancy processes the soil, plant, forage, and animal waste samples for the local farmers and homeowners. She also works with County Administration and Finance Director as needed.

Dairy: Tina Horn

Mid Atlantic Secure Milk Supply

A Foot and Mouth Disease (FMD) outbreak in the United States could prove devastating to the dairy industry. Milk is a highly perishable product and therefore must be moved to markets quickly. A case of FMD anywhere in the country could stop the movement of milk for days and if the outbreak is on the east coast it could be weeks before milk can be moved under our present regulations. Clemson Extension has partnered with the State Veterinarians and DHEC in conjunction with 9 other Mid-Atlantic states through a Federal Grant to develop, pilot test, and implement a system that will allow the movement of milk from pre-certified herds in the event of a FMD outbreak. South Carolina and a number of its forward thinking producers have had a huge impact on the progress of the program. With the tight margins in the dairy industry the inability to ship milk for even a week would cause a financial hardship for most farms and could force a number of farms out of business. The Secure Milk Supply Initiative could possibly save the dairy industry in the Southeast if FMD makes its way to the US.

Milk Quality Program

Bilingual Milker Training

Labor management and worker training have been identified as areas of concern among many dairymen and represent an opportunity for improved performance, workforce stability and retention. Language barriers and inconsistent levels of experience make continuous training essentials; however communicating with Spanish speaking employees can be a challenge for English speaking dairymen. With this in mind, Clemson Extension developed programs that would increase the efficiency of the dairy labor force through bilingual milker training. Ten herds with 35 total employees participated in the on-farm training sessions. Six of the farms have reported a decrease in somatic cell counts with four farms now receiving a quality milk premiums resulting in an increase of over $90,000 per year on those farms.

Southeast Quality Milk Initiative

South Carolina is taking part in the Southeast Quality Milk Initiative, a program aimed at enhancing milk quality throughout the southeast through regional efforts and programming. Milk quality surverys were distributed to dairymen and the responses will help to prioritize educational

programs. Surveys are currently being evaluated and educational programs will begin to be developed in late fall.

Farm Bill-Margin Protection Program for Dairy

Clemson Extension will be partnering with FSA to educate producers about the new Farm Bill Margin Protection Program for Dairy. Regional meetings will be held to teach producers about the program and the rules as well as how to make use of an online decision tool that will assist dairy in determining the best available coverage for their individual farm. These meetings will be held starting in late September.

4-H and Youth Development: Alana West

Volunteers working on raised bed gardens

Newberry County 4-H is in year three of its growth spurt since 4-H Agent Alana West was transferred back home. What was once a program consisting of natural resources and shooting sports only now offers both in school and after school programs, projects and clubs, as well as camps and workshops. Youth in the largely agricultural county now have opportunities to participate in livestock projects and events, healthy lifestyles programs, cooking clubs, robotics challenges, and community service, in addition to the shooting sports programs.

Money from KRAFT Foods, the largest employer in Newberry County, has helped establish healthy lifestyles and nutrition programs in school classes and afterschool settings. Youth not only get a lesson on a topic such as Sugary Drinks or Screen Time, but also receive a healthy snack, a recipe, and participate in a physical activity.

With a thriving Archery in the Schools Program making its way into nearly all schools in the district, the newest 4-H Club in the lineup is Archery. Prior to the first meeting there were over 50 youth on the roll, all eager to extend their knowledge and skill with a bow and arrow.

For the second straight year, Newberry will be sending a team to the SC 4-H Healthy Lifestyles Challenge at the SC State

Eli Epting placing one of 2 Newberry 4-H Robotics Teams' robots on the starting line at the first annual SC 4-H Engineering Event in Columbia in 2013

Justin Hawkins, a member of the 4-H Shotgun Club, competing at a SC 4-H Shooting Sports

Fair. One team in 2013 turned into two teams in 2014, and the goal is to grow the program again in 2015. Participating youth compete in a competition that encourages cooking, nutrition, public speaking, and teamwork.

In addition to these opportunities, youth, parents, and volunteers from around the county try to give back to the community. This summer a 'raised bed garden' was created out of pallets and used tires for the elderly residents of Springfield Place, a local retirement community. The raised beds allow tenants to gather produce without having to kneel or bend over. The residents have taken ownership by watering and harvesting the garden, and even hosting tomato sandwich parties on the community patio.

The upcoming 2014-15 4-H year is looking to be a promising one. For more information please visit Newberry County 4-H on the web at: www.clemson.edu/extension/county/newberry/programs/4h/index.html or Like us on Facebook at www.facebook.com/NewberryCounty4H.

South Carolina 4-H Horse Program

The South Carolina 4-H Horse Program members are "learning by doing". Dr. Kristine Vernon, coordinator of the state-level Horse Project in SC, believes wholeheartedly in the 4-H motto "To Make the Best Better." Since assuming her role for the SC 4-H Horse Project in 2009, she has worked to improve the quality of curriculum, programs, leadership training for youth and adults, and the rigor and quality of the educational contests associated with the project.

Dr. Tom Dobbins and Dr. Kristine Vernon with three SC 4-H Horse Project members at the 2014 SC 4-H Congress Awards Ceremony.

The primary goal for Dr. Vernon was to launch the SC 4-H Horse Program onto a national stage. She already had exceptional youth, volunteers and agents, but it was time to improve on the preparedness and participation for regional and national events. She set out to meet this goal through the implementation of a number of programmatic shifts, rule and eligibility changes and new programming and educational opportunities. Though some of these changes caused transient "growing pains", they are now paying off!

The SC 4-H Horse Project is comprised of a variety of layers from club, county, state, regional and national levels. Dr. Vernon is responsible for implementing the state programs and coordinates the delegates selected for regional and national competitions. The SC 4-H Horse Program has a wide variety of projects. The horseless projects revolve around horse science, management and horsemanship, and do not require a horse for participation. Additionally, there are several horse projects that rely on a project animal, including the State 4-H Horse Show, record book contest, and the 4-H Horsemanship Camp. Additional project options include the state 4-H Horse Ambassador program, among other leadership opportunities. Approximately 575 state-level projects were completed in the 2013-2014 project year, including cloverbud, junior and senior-level youth. Additionally, South Carolina 4-H had 76 horse projects represented at the Southern Regional 4-H Horse Championships held July 29 – August 2, 2014 in Raleigh, NC.

The Southern Regional 4-H Horse Championship is the only organized regional 4-H Horse Project event in the country. It is represented by the 13 states in the southeastern region including:

Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. The event includes six educational contests and a seven-discipline horse show. This year, there were 228 individual projects within the educational contests and 367 horse/rider combinations that exhibited in the horse show. South Carolina delegates had an extremely successful event throughout the week, fielding two teams each in the horse judging, hippology and horse bowl contests and one team or individual in each of the speech events. We also had 49 horse/rider combinations competing in five of the divisions in the show.

South Carolina Hippology Team Members: One of the teams earned Grand Champion Overall.

seven-discipline horse show. This year, there were 228 individual projects within the educational contests and 367 horse/rider combinations that exhibited in the horse show. South Carolina delegates had an extremely successful event throughout the week, fielding two teams each in the horse judging, hippology and horse bowl contests and one team or individual in each of the speech events. We also had 49 horse/rider combinations competing in five of the divisions in the show.

The 2014 Southern Regional 4-H Horse Championship marked the most impressive finish for SC 4-H. The SC Hippology team was named the overall Champion Team, winning two of the four phases, and finishing in the top five in the other two phases. This event is the most diversified and well-rounded competition in the 4-H Horse Project, requiring youth to take written and slide ID exams, Stations IDs of hands-on and diagrammed stations, horse judging and oral team problems. To win this event, the SC team had to defeat 15 other teams, including those from NC and VA who have both held national championships in this event in recent history. This SC Champion team will advance to

the Eastern National 4-H Horse Roundup in Louisville, KY in November to try to continue their winning streak on the national stage.

The SC Horse Bowl team was narrowly defeated by one point in the final championship round, to end their competition as Reserve Champion Horse Bowl team. The Horse Judging teams each won ribbons in individual phases. The SC 4-H Horse Delegation also had one team presentation and an individual presentation and public speaking participant. The team presentation was named Champion team, with their animated and educational discussion on horse show preparedness. The public speaking presenter won 3rd high individual and the individual presentation youth was named top ten. All three of these public speaking teams will advance to national competition at the Eastern National 4-H Horse Roundup to represent SC in their respective divisions.

Champion Team Presentation Members

In addition to these educational contest victories, the SC delegation fared very well in the horse show competition. There were 367 horse/rider combinations that competed in the classes, with some classes having 150 entries! Youth from the SC delegates won one class, were reserve champion (2nd) in three classes, 3rd in one class and had 17 additional top ten wins. All of the SC participants were eligible to compete at this year's contest based on their successes at the SC State 4-H Horse Show held in June at the T. Ed Garrison Arena. There is no national-level 4-H Horse Show available, so the Southern Regional Championship marks the highest level of 4-H Horse Project show competition.

The 4-H Horse Project looks forward to the start of another successful 4-H year beginning on September 1st. The calendar of events for this project can be found at: http://www.clemson.edu/extension/4h/kids_families/projects/agriculture_and_animals/horses/2014_2015_4h_calendar.pdf. The first event of the year includes the Eastern National 4-H Horse Roundup, where the Hippology, Team Presentation, Individual Presentation and Public Speaking youth will compete against more than 25 other states for scholarships and prizes. Look for exciting program updates on our website.

Annie's Project 2014

22 Women in Agriculture came from all over the state to participate in Annie's Project, a 3.5 day retreat style risk-management training course designed to help South Carolina women turn their passion for farming into financial gain. This year's program was held June 5-8 at the Clemson Institute for Economic and Community Development in Columbia. For first-time participants, the course covers risk management training in business planning, financial analysis, legal matters, estate planning, marketing, social media promotion and networking.

This was South Carolina's 3rd program year and is provided through Clemson Extension Service along with partners, AgSouth, ArborOne, and the Farm Bureau Federation.

Annie's Project, a national program has successfully reached more than 8,000 farmers and ranchers in 30 states. To date, South Carolina has over 50 graduates. This program provides education and a support network to enhance business skills of women in agriculture.

Through a variety of creative methods, Annie's Project addresses the specific needs women often face when managing a farm or farm-related operation, but also grows independent, profitable, female-led agribusinesses in our state.

These women enjoy a peer-to-peer learning environment with networking opportunities that helps to make Annie's Project a unique and welcoming experience.

Some of the comments, listed on the end of the program evaluation…

"This was a life changing experience"

"Totally exceeded expectations"

"Best thing I have ever attended"

Celebrating 100 Years of Extension!

In honor of South Carolina Cooperative Extension's 100 years, the Clemson Extension Service will be presenting a collection of symposiums and presentations celebrating the history, experiences, and achievements of the Cooperative Extension Service. Please join us over this semester for this exciting Celebration!

September 22	**Phil Perry**
September 29	**Morris Warner**
October 6	**Jolie Brown** "Williamsburg County"
October 13	**Family of J.C Morgan** "A Family Tradition"
October 20	**Connie Lake**
October 27	**TBA**
November 3	**Dr. Tom Dobbins** "Future of Extension"

Presentations will take place from 5:00pm – 6:00pm in the P&A Auditorium, Room 174 at Clemson University

The "Clemson Model" of Extension became the basis for the Smith-Lever Act, authored by Georgia senator Michael Hoke Smith and South Carolina Representative and Clemson life trustee Asbury Francis Lever

Extension Integrates Regulation into Education:

"Jr. Invasive Inspectors" was developed by Clemson DPI as an educational and participatory citizen science program for middle school aged youth. The goal is to raise awareness of the threat that invasive species pose to SC forests and enlist the help of youth to report invasive species. Youth groups are provided with invasive species curriculum and identification cards along with survey backpacks that contains all the tools necessary to design and conduct surveys for targeted invasive species pests.

In July, the Clemson DPI Organic Certification program provided three train-the-trainer workshops for Area Extension Agents. The agenda focused on the National Organic Program regulations and navigating the application forms and documents. These trainings will enable Extension agents to provide technical service to current and transitioning organic growers, livestock producers, and processors. Extension agents are then encouraged to host their own organic workshops for farmers and producers in their respective territories.

The EPA funded School IPM program is a project that helps school districts receive training so employees can make informed decisions about pesticide use in and around school buildings. These trainings accomplish several goals including using alternative pest control methods that reduce pesticide use, which in turn creates a safer environment for children, school employees and others. This approach also helps save school districts money by reducing the amounts of pesticides needed to control insect pests. The Clemson Extension program is paramount in helping Clemson Regulatory Services identify school district administrators and others who can help expand this program. Three trainings for Extension agents are schedule for October 2014. Plans are to identify agents who see a need for this program in their counties and help Clemson DPR expand into school districts. Both Drs. Cole & Callahan agree that this collaboration enhances the overall efforts of Clemson PSA in providing research based information & recommendations to all of SC.

"Successful regulation is dependent upon good information and no one can help us more than Extension in making sure that people understand the rules & how to avoid problems "

Dr. Steve Cole - Director, Regulatory & Public Service Programs - Clemson University PSA

"This is an exciting opportunity for Extension as it applies to all 8 Program Teams."

Dr. Brian Callahan - Assistant Director, Extension Field Operations

Spotlight on Edisto REC

History of Edisto Research and Education Center

Late 1950's sign

The Edisto Research and Education Center was established in the late 1930's as a W.P.A. project to enhance agricultural activities in the Lower Savannah River Valley to help the area recover from the Great Depression. Clemson University, then Clemson College, bought several parcels of land from local growers and buildings were constructed with local labor and materials when at all possible. Today the Edisto REC consists of approximately 2,400 contiguous acres of land. The original emphasis of the station was on vegetables, especially pest management and development of new varieties. Over the years major projects in cotton pest led by Dr. Sullivan and Dr. Turnipseed as well as disease/nematode management under Dr. Blackmon and Dr. Mueller have helped growers produce high yielding, high quality crops in an environmentally safe and economically efficient manner. In the early 1960's Dr. Musen helped introduce soybean for grain as a viable crop for this area and helped introduce the use of in-row subsoiling for better root development. Researchers worked with soybean breeders on Campus including Dr. Shipe to help release lines developed specifically for this area including Perrin, Hagood, Dillon, Motte, and Musen.

Early field day in Barn

Although many aspects of crop production are still studied, today the emphasis at the Edisto R.E.C. is precision agriculture, especially water use. Dr. Payero and Dr. Khalilian are developing automated center pivot irrigation systems for row crops and Dr. Miller is developing automated drip irrigation systems for vegetables, watermelons and cantaloupes. Among the many projects Dr. Kirk works on are efforts to develop better yield monitors for growers to use in peanuts and hay fields. Dr. Maja was recently hired as a sensor engineer to help everyone to develop and use the sensors needed for precision agriculture projects. Dr. Greene continues the work on insect management on row crops that now includes the use of transgenic varieties to help reduce reliance on insecticides. Dr. Marshall works as a weed scientist and is addressing one of the most difficult projects of recent years which is developing management systems for herbicide- resistant

weeds. David Gunter continues the long tradition of helping growers and County agents with issues on corn, grain sorghum, and soybean production. In recent years Dr. Chapin has helped growers develop appropriate agronomic practices, pest and disease control measures as well as variety selection for the rapidly expanding peanut crop in South Carolina. Beef Cattle and forages are an area that the Edisto REC has excelled in. The Edisto Forage Bull Test led by Scott Sell will have its 33rd annual sale this October. This nationally recognized program continues to provide high quality bulls to local cattlemen. The overall beef cattle program is now emphasizing precision agriculture and helping growers utilize these new technologies to become more cost efficient.

Late 1950's field day

Despite almost 75 years of changes in agricultural production the Edisto R.E.C. continues to work directly with growers and agricultural industries to make them more efficient and profitable. The faculty and staff now work with growers through web pages and electronic publications as well as other forms of electronic communication. However we continue to do crop oriented field days and meetings for growers as well as farm visits and phone calls.

Dr. Gilbert Miller

Edisto REC Watermelon Field Day

The Edisto Research and Education Center's annual Watermelon Field Day, held in early July, is recognized by growers and industry as one of the premier watermelon events in the Southeast. Well attended by 200 plus growers and industry representatives, the field day provides field tours of current research projects, production practices updates, and potential management tools growers might use to enhance their on-farm profits.

Automated sensor based drip irrigation has been highlighted during several of the Watermelon Field Days. The sensors record the water content in the root zone of the plant and trigger a short irrigation cycle when pre-determined water deficient is reached. The irrigation cycle only replenishes the water deficient, and leaching of water and nutrients below the root zone is reduced. Tremendous savings in water, fuel costs and nutrient savings have been realized on farms

with sensor based irrigation. Although the infrastructure for this new technology has not been established in the Southeast, continued research and on-farm demonstrations will eventually lead to its establishment.

The inter-planting of cotton and watermelon was showcased during the 2014 Watermelon Field Day. Cotton is planted between the rows of watermelon. Some alterations in normal management practices are necessary which were explained at the field day. The watermelon crop is managed initially, harvested and then terminated, allowing the cotton crop to continue to maturity. Although both crops had tremendously reduced yields due to the excessive rain in 2013, 2012 was excellent and the 2014 crops look to be even better with a tremendous watermelon crop harvested and a cotton crop looking to be well above average.

Taking root cores to determine the plant root zone for sensor based irrigation

Growers want to see how a particular variety will perform as do the seed industry representatives. At the 2014 Watermelon Field Day all were able to view, test, and taste 89 different varieties of watermelon, cantaloupe and specialty melons. In addition to the above mentioned educational opportunities, the field day also provided current information on: High Tunnel Production; Effective Disease Management; Biodegradable Mulch; Weather Update; Adding Microbes to the Soil; and Grafting Watermelons.

The 2015 EREC Watermelon Field Day will be held July 9, 2015.

Cotton and Watermelon inter-planted demonstration

89 different watermelon, cantaloupe and specialty melons planted for all to view, test and taste.

Peanut Research and Outreach at Edisto REC

J.W Chapin and J.S Thomas

Reduced fungicide on resistant variety vs. full fungicide on standard variety

The scale of peanut production in South Carolina changed significantly in 2003 with the elimination of a long-standing poundage quota production system in the new Farm Bill legislation. With the new ability to compete based on production efficiency, SC peanut acreage steadily increased tenfold from 10,000 ac in 2002, to over 100,000 ac by 2012. Associated industry infrastructure and jobs grew accordingly. Prior to 2003 there was one small buying point in the state vs. eleven currently, including the largest peanut buying point east of the Mississippi. A shelling plant and a facility for direct production of value-added consumer products are also under construction.

The Edisto REC has been the focal point of the peanut Research and Extension programs that have kept SC growers competitive for peanut acres. Thanks to outstanding direct grower support through the leadership of the SC Peanut Board and National Peanut Board, we have been given the resources to solve constantly evolving production problems.

Examples of significant research and outreach contributions at Edisto REC include: discovery of important levels of disease resistance in an experimental cultivar which advanced the widespread adoption of Bailey variety; discovery and implementation of reduced cost fungicide programs; discovery of the association of burrower bugs with tillage systems and aflatoxin contamination leading to management guidelines used throughout the Southeast; development and implementation of an annually updated comprehensive production plan for growers; and instant access problem solving whereby any grower anywhere in the state can get an immediate answer to peanut production questions.

Dr. Jeremy Greene- Cotton/Soybean Insect Research

Dr. Greene and his graduate students conduct original research on insects important in cotton and soybeans, and he distributes information to clientele using various methods, such as scientific papers, regular newsletters, presentations, meetings, mobile apps, trainings, insect scouting schools and workshops, seminars, television, radio, and article interviews, etc. His award-winning weekly cotton/soybean insect newsletter is archived at:

http://www.clemson.edu/extension/rowcrops/cotton/pest_management/newsletters/index.html. Mobile apps for sprayer calibration and mix calculations that Dr. Greene developed and released recently are available for free download.

Mix My Sprayer Mobile App. Version 1 (2014)

Created to aid with quick, accurate calculations of product mixes to be applied with spraying equipment.
Funded by Clemson University Cooperative Extension Service.
Designed by Greene and the Mobile Innovation Team, Clemson University.
Available for free download in iOS and Android platforms.

Calibrate My Sprayer Mobile App. Version 1 (2013)

Created to aid in the proper calibration of spraying equipment.
Funded by Clemson University Cooperative Extension Service.
Designed by Greene and the Mobile Innovation Team, Clemson University.
Available for free download in iOS and Android platforms.

Dr. Greene directs two field technicians, and hires approximately 5-10 temporary student workers each year to support his programmatic efforts in SC. Other than one core field technician, Dr. Greene funds all personnel with external funding.

The invasive kudzu bug, *Megacopta cribraria*, recently became a significant insect problem in soybeans and serves as an example of the type of problem that Dr. Greene and his students address with his applied Research and Extension program. His former graduate student, Dr. Nick Seiter, co-advised with Dr. Francis Reay-Jones, studied the species and helped develop the management recommendations in place now for that species in a crop that has become very important and profitable for our South Carolina producers.

Clemson "Bug Crew"

Edisto Forage Bull Test

Scott Sell, Edisto Bull Test Coordinator

For over 32 years the Edisto Forage Bull Test has been recognized as one of the top Bull Tests in the country. It is the only all forage test East of the Mississippi and one of few in the country. It is a grueling 168 day test that separates the bulls producers want from those that are unsuitable for modern production goals. The goal of the Edisto Forage Bull Test is to provide local cattlemen with high performing, cost effective bulls that will improve the quality and productivity of their herd. With the rising interest in grass fed cattle, a forage bull test is the only sure way for growers to know the bull they buy will fulfill their needs.

During the test period the bulls ration consists entirely of forages and no concentrate or feed supplementation. The EFBT utilizes the Southeast's advantage in the cattle business, which is the ability to grow high quality, lush forages year-round. The Edisto Forage Bull Test was designed to performance test bulls in an environment in which bull buyers expect their progeny to perform. Over the last 32 years, close to 2500 bulls have been tested in the program. In 2013, Clemson partnered with DV Auctions to bring the bull test sale into the cyber realm and put the auction on the web, live! Over 300 registered users watched the sale from all over the US, Canada, and South America. This led to several lots being sold over the internet, and several lots receiving more competitive bids as well.

Scott Sell, Dan Ulmer, Gillian Tuttle, Harry McAlhany

During the summer of 2014, the pens and working areas of the facility were completely renovated with all new pens, panels, and alleyways. During this same time, new scales, Electronic ID readers and antennas, a data collection station, and weather station were added to the facility as well. These improvements complement the new sale facility built in the early 2000s, and make the EFBT one the newest, most high tech, University cattle research facilities in North America.

In 2013 and 2014 a select group of Clemson EREC bred heifers were added to the sale on the bull test sale day. Plans are in the future as the cattle market stabilizes from its current all time, to continue to grow the bred heifer sale and take consignments from producers across the state, giving commercial cow/calf producers a new outlet to market their genetics in front of a large audience.

More information on the test is available at: http://www.clemson.edu/extension/livestock/beef/bulltests-efbt/

Chemical and Cultural Management of Weeds

Weed Science Program Team

Dr. Mike Marshall's Extension and research program at Edisto Research and Education Center focuses on chemical and cultural management of weeds in agronomic and forage crops in South Carolina. Currently, herbicide resistant weeds including Palmer amaranth or pigweed have become a major issue for South Carolina farmers. For example, before herbicide resistance, a farmer typically only spent around $20 per acre for weed control, but after resistance they are spending $100 and more per acre for weed control. These added costs and diminished harvests affect farm profitability and if pigweed is left uncontrolled, yield losses in cotton and soybean could be as much as $1,400 per acre. This potentially could translate in to $427 million in lost revenue for South Carolina.

In addition to chemical solutions, Dr. Marshall is investigating the use of cover crops to suppress or smother herbicide resistant weeds like Palmer amaranth. Results have shown that weed populations are dramatically reduced in a fields having a year-long biomass covering the soil and saves growers around $75 per acre in herbicide costs. In fact, cover crops have the added benefit of water capture, nutrient recycling, field trainability, and improvement of soil health and structure.

Precision Agriculture Engineering: Dr. Kendall Kirk

Precision agriculture technologies started becoming prevalent in the retail market in the early- to mid-1990s. Since then, most developments and products have been targeted at corn, grain, and cotton crops. While some technologies relevant to these crops are applicable and relevant to other crops grown in South Carolina and elsewhere in the U.S., there are many opportunities and needs for development and testing of technologies specific to other crops and other areas of agriculture, such as animal production. Dr. Kirk joined Edisto REC in May of 2014 and is working on several projects in development of applied technologies for precision agriculture. His peanut machinery research program is among the most advanced in the country, thanks to the partnerships forged with Amadas Industries and John Deere, and thanks to the support and hard work by other Edisto REC team members over the last several years: James Thomas, Scott Monfort, Hollens Free, Andrew Warner, and Jacob Fravel.

2013 Testing of the Variable Depth Digger developed by Dr. Kirk and his team

Dr. Kirk and his team are among the inventors on two provisional patents for peanut harvesting machinery technologies, both of which are jointly owned by Clemson University and Amadas Industries. One of these technologies is a Variable Depth Peanut Digger, which has the ability to automatically control peanut digger blade depth during harvest, saving $20 or more in yield losses per acre. The other technology is an Impact Plate Peanut Yield Monitor. Yield monitors have become mainstream for corn, cotton, and grains, but there is no commercially available product for peanut production. Availability of a peanut yield monitor will allow growers to assess and develop their crop management strategies, reducing losses and increasing profitability.Dr. Kirk is also working on projects in remote sensing projects for cattle production, image analysis for crop health and maturity determination, development of a hay yield monitoring system, and sensing and controls for grain bin management.

2013 Testing of the Peanut Yield Monitor

Feed Grain Specialist: David Gunter

David Gunter is the Extension State Feed Grain Specialist working with corn, soybeans, grain sorghum and small grains such as wheat, oats, and barley. His responsibilities include developing and implementing Extension educational programs on producing and managing feed grains in SC. David works closely with the agronomic row crop agents across the state and is an active member of the agronomic row crop team. He also works with other Extension Specialists, researchers, and agribusiness groups to provide sound research based recommendations to assist SC growers in producing high quality and profitable crops.

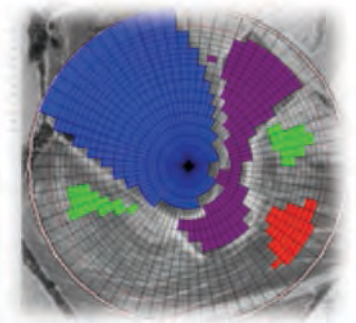
One of his primary activities is evaluation of varieties under grower conditions. In order to choose the variety that gives them the best shot at maximum yields, growers in South Carolina need access to all the variety and other agronomic data for the crops they are growing. This data is gathered across the state at the research stations and from on-farm trials conducted by research staff and County Agents. The Official Variety Trials are conducted each year and results are released as quickly as the data is compiled. Growers can compare the performance of commercial and public varieties under conditions similar to their farms and choose the variety predicted to yield best under their local conditions. Growers can visit the test sites and see the varieties in the field. Other agronomic trials are conducted at various locations and this data will be released through field days, local and state production meetings, as well as simply asked for by a phone call, text, or email. David also is available to trouble shoot problems across the state working directly with agents and growers to solve difficult or rare problems. To many growers he is the face of Extension for our agronomic row crops.

Statewide Irrigation Water Management Program

Dr. Jose Payero is located at the Edisto REC and leads the statewide Irrigation Water Management Program since joining Clemson in 2012. The mission of this program is to develop and adapt advanced irrigation technologies and to educate farmers on how to improve irrigation water management to increase farm profitability and environmental sustainability in South Carolina. The major focus of the program is on Extension (70%) and Research (30%) on irrigation of row crops. Dr. Payero collaborates with other researchers in South Carolina, other states, and overseas to achieve the mission of the program. He works closely with a variety of stakeholders, including funding agencies, individual farmers, county Extension agents, farmer's organizations, private companies, federal and state agencies, etc. He is currently conducting a variety of inter-related Extension and Research projects focused on irrigation water management, and water conservation. His current work includes developing new tools and information to help farmers make short-term irrigation scheduling decisions and long-term irrigation planning and irrigation investment decisions. This work involves investigating and measuring the daily water requirements of local crops as impacted by changing crop development and weather conditions, developing online irrigation decision support systems based on real-time weather data, testing and promoting the use of sensors to support irrigation decision-making among farmers, demonstrating the use of advance irrigation systems and technologies (such as subsurface drip irrigation and variable rate irrigation systems), and developing better irrigation automation options, among others. He also works on providing water conservation and management options to help farmers adapt to drought and represents the state in multi-state efforts to help farmers adapt to the potential negative impacts of climate change and climate variability in agricultural production in the Southeast USA. This work has recently been selected to receive the "*NIFA Partnership Award for Multistate Efforts*."

Training farmers about the use of soil moisture sensors during field day.

New facility to measure crop water use at Edisto REC.



Variable rate irrigation technology to address soil variability

Ahmad Khalilian – Resource Conservation Program

Crops in the southeastern United States are generally produced in fields known to have a high degree of variability in soil type and other major factors that affect crop production. Therefore, since 1996, Dr. Khalilian's multidisciplinary research and Extension team has focused on developing technologies for site-specific management of soil, pests, nutrients, and water to enhance farm profits and environmental sustainability. Current efforts are concentrated on disseminating these proven techniques to growers and developing new technologies. For example, technologies for site-specific management of nutrients will be demonstrated in growers' fields during the next three years. This technology has the potential to reduce nitrogen requirements by 47% ($33/acre) in cotton production, with no negative effect on crop yields. Currently, the team is working with eight producers in geographically diverse locations in South Carolina, demonstrating the benefits of Clemson Interseeding technologies in suppressing pests (insects, nematodes, and weeds) and reducing fuel consumption. In 2013, interseeded soybeans in growers' fields yielded 28% more than conventional double-cropped soybeans.

In addition, the fundamentals of site-specific resource management technologies have been incorporated into formal courses at Clemson and are used for training students at the Edisto REC.

Variable-rate nitrogen applicator

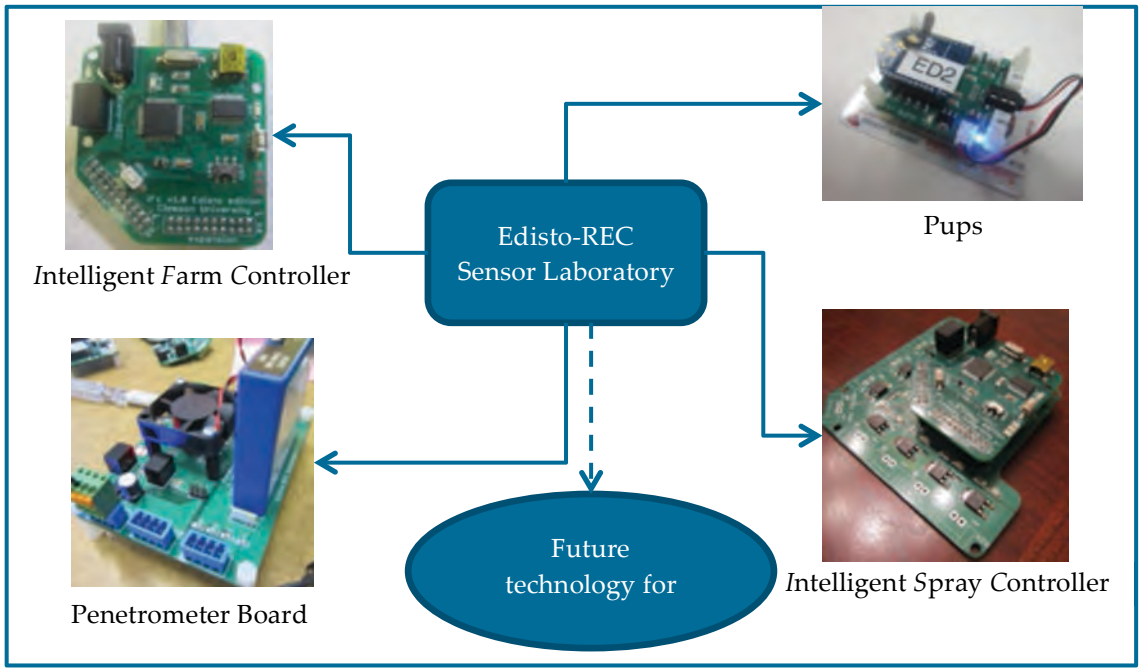
Interseeded cotton after wheat harvest

Hands on training: Clemson students

Dr. Joe Mari Maja- Sensor Engineer

Dr. Joe Mari Maja is our new Sensor Engineer whose main responsibility is to work with Edisto-REC researchers and SC growers (peanuts, cotton, soybeans and other root crops) in developing new technology to address current problems and future potential problems. He also developed different technologies to optimize farm operations. Below are some of the technologies that are currently on the testing phase:

- Intelligent Farm Controller (iFc) – Small size controller that runs its own small operating system and can be configured using terminal program. This will be use as the main coordinator for the Intelligent Pivot System but can also be used for other automation project.
- Pups – a small board (smaller than SC driver's license) that transmits data from three different sensors into another controller e.g. iFc or to a computer. This will be used as a part of the intelligent pivot system project.
- Intelligent Spray Controller (iSc) – Spray controller powered by iFc that can control individual nozzles using pulse width modulation at 10 Hz.
- Penetrometer Board – small-sized board that incorporates GPS, Load Cell, Potentiometer and a trigger into one platform and stream all gathered information through either wired, e.g., USB or wireless (future) through Bluetooth or Zigbee



He has also worked on using an Unmanned Aerial Vehicle (UAV) in collecting data on plant health using hyperspectral sensors. Should you need or want to develop technology for peanuts, please don't hesitate to contact Edisto-REC Sensor Lab ext. 236.

South Carolina Farm Bureau News

New Round of SCFB Young Farmer Competitive Events

This year we changed the timing of two of our major contests to allow the winners more time to build their leadership resumes before competing in the national contests. Historically, we named our winners at the SCFB annual meeting in December and had to meet an immediate turnaround for the national application deadline.

Beginning with the 2015-16 competitions, winners will have about 10 months to prepare for the national competition. That being said, the deadline for the 2015-16 Achievement Award and Excellence in Ag Award is this **October 1**. The winners of those contests will be announced at our Young Farmer Conference in Charleston in January, 2015. That will give them until December 2015 to apply for the national awards programs to be conducted in Jan 2016.

More information about the awards and prizes can be found on our website:

http://www.scfb.org/programs/young-farmer-rancher-program/young-farmer-rancher-contests

Often times the actual application is the biggest hurdle in getting people to apply – its long and appears daunting. Statistically though, with so few applicants, chances are VERY good that the person who applies for the Achievement Award will win a new GM pickup truck and a new Polaris ATV if they apply for and win the Excellence in Ag Award.

Our annual Discussion Meet will remain scheduled annually during our annual meeting at Myrtle Beach. We'd appreciate any publicity you can generate for this, as well. Those applications are also due by Oct 1.