How will the College of Agricultural and Environmental Sciences help feed 9,000,000,000 people by 2050?

CAES alumna Abby Love addresses food security issues in Tanzania through her work with 2Seeds Network.
In this issue, we examine how the College of Agricultural and Environmental Sciences tackles the looming problem of global food security.

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- **EDITOR’S NOTE**
  - As of press time, Juli Fields has accepted a new position at the State Botanical Garden of Georgia. We will miss her guidance and wish her all the best in her future endeavors.

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FROM THE DEAN

When Ambassador Kenneth Quinn, president of The World Food Prize Foundation, delivered the 2014 D.W. Brooks Lecture last fall, he reminded us of two important facts:

As the global population continues to rise, based on current trends, it is doubtful we will be able to feed 9 billion people by 2050. Education and technology are the great equalizers to close systemic gaps and change that calamitous trajectory.

Agricultural colleges around the world are already working diligently to discover ways to provide food where it is needed most. It’s a very complex problem that will require the best work from all of us, alone, along with favorable policies to implement those solutions.

Through the years, we’ve seen our college’s researchers and Extension experts take a fledgling Georgia blueberry crop from diminutive to substantial, making Georgia the nation’s top producer in 2014 of this high quality, nutritious fruit. It took sound science in plant breeding, pathology and entomology, supported by government and partner funds and innovative field education, to grow this new crop to a solid revenue and job stream for Georgia.

Our plant breeders and genomics researchers also announced the first genetic sequencing of the peanut—a valuable crop in Georgia and a vital protein source for farmers in developing nations around the world. This discovery will help in our quest to provide necessary nutrition and farm income where it’s needed most.

These are two small steps on the path to worldwide food security, but the potential contributions to the body of science are great.

As Ambassador Quinn put it: “We have the greatest assemblage of agricultural scientific capability ever put together by human beings in the American university land-grant system. This is one of the glories of America, and that voice needs to be heard more than it seemingly is. Yours is the most powerful voice. When scientists speak together, it is very powerful.”

In our college, we have amassed some of the brightest minds in the world to fuel innovation in our labs and in the field to find the keys to successfully feeding the hungry wherever they are. With their hard work and your continued support, I expect to continue to see great innovations from our college take root around the world.

J. Scott Angle
Dean and Director
College of Agricultural and Environmental Sciences
The UGA Teaching Dairy received six well-pedigreed, 9-month-old Jersey heifers Dec. 4, 2014, a donation by College of Agricultural and Environmental Sciences alumnus C.A. Russell (BSA – Dairy Science, ’85), who owns the 2,300-head Yosemite Dairy in Hilmar, California. The cows represent some of the best Jersey cattle genetics in North America, said Jillian Fain Bohlen, an assistant professor in the college’s Department of Animal and Dairy Science. This gift represents the first Jersey cattle on campus in more than four decades.

A student-led team, called the Jersey Active Management by Students (JAMS) Team, set up by Bohlen, will make all the breeding, care and sales decisions regarding the six heifers and their offspring. Any proceeds that come from the heifers’ offspring will go back into the dairy, helping to support a program that is a keystone to the college’s philosophy of hands-on learning.

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To view a video of the new Jerseys, visit bit.do/ jerseycows.

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**Tiny, Fluffy, Deadly**

Saving Georgia’s hemlocks from the hemlock woolly adelgid

F or the past decade, a tiny, fluffy, deadly, invasive pest—the hemlock woolly adelgid—has been attacking North Georgia’s hemlocks. To date, the insect has killed millions of hemlocks on the mountainousides and stream valleys of the Appalachians, and time is running out to save some of Georgia’s largest, oldest trees.

The hemlock woolly adelgid has infested half of the area where hemlocks grow in the eastern U.S. Once infested, a centuries-old hemlock may die within three or four years, said Will Hudson, an entomologist with the College of Agricultural and Environmental Sciences and UGA Extension.

Enter the Legacy Tree Project, a public-private partnership between researchers of CAES and UGA’s Warnell School of Forestry and Natural Resources, crop protection company Valent Professional Products, private forest health company AdelRid and selected municipalities in North Georgia. The project conserves hemlocks by providing free insecticide treatments for hemlocks on municipal property.

“Saving these particularly large trees was of interest to the college,” said Hudson. “We were interested in how to slow the (initial hemlock woolly adelgid) front down and preserve more trees in the hopes that, once natural enemies are there, there would be some equilibrium between the trees and the hemlock woolly adelgid.”

“Based on UGA research trials, the product used in the project that’s supplied by Valent is very effective against the hemlock woolly adelgid. Infested hemlocks respond rapidly to treatment, and one application protects hemlocks for several years, buying time for other strategies to take hold,” said Jann Gonzalez, arborist and owner of AdelRid.

Valent launched the Legacy Tree Project in 2010 in 13 Midwestern municipalities with the goal of saving ash trees from invasive emerald ash borers. In 2013 the project was expanded to the Chattahoochee National Forest, and has treated and saved hundreds of North Georgia hemlocks.

As part of a long-term solution, college entomologists, the Warnell School and U.S. Forest Service started breeding and releasing four predatory beetle species to control the hemlock woolly adelgid population.

While hemlocks make up a small percentage of the state’s forest canopy, hemlock watersheds provide high quality surface water and shade streams that sustain Georgia’s trout populations and support the tourist economy.

“CAES and the School of Forestry have an obvious interest in minimizing the impact of this invasive species—they’re going to spread into and have an impact on Georgia’s woods,” Hudson said.

• Merritt Melancon, Andrea Gonzalez, and Kathryn Schliro

Franklin West, an assistant professor in the College of Agricultural and Environmental Sciences’ Department of Animal and Dairy Science, is spearheading a crowdfunding project to save tigers on the brink of extinction.

The project involves using novel stem cell technology, pioneered by West and Steven Stice, director of the college’s Regenerative Bioscience Center (RBC) and animal and dairy science professor, to generate stem cells from skin cells. Stem cells are turned into sperm for artificial insemination in zoo breeding programs. Cells, now frozen in incubation at the RBC, were originally collected from Zoo Atlanta’s Sumatran tiger, Jalal, who is now deceased. This “frozen zoo” of cells will allow for conservation through cell banking, rescuing valuable genetics and essentially increasing captive gene pools.

With scarce federal aid, the project has come to a standstill. Through UGA’s Georgia Funder website, members of the public can donate to the project in an effort to preserve these cells and save the Sumatran tiger population.

• Charlene Betourney

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**On the Brink**

Crowdfunding to help save the Sumatran tiger

Cells taken from Zoo Atlanta’s Sumatran tiger, Jalal, now deceased, are being stored at the college’s Regenerative Bioscience Center to generate stem cells from the skin cells of this endangered animal.

Former UGA head football coach and athletic director Vince Dooley, a horticultural enthusiast and author, was the guest speaker at a sold-out crowd of 200 guests, including Jim and Barbara Andrews (pictured at right) whose generosity made the new visitor and education center possible.

• Kathryn Schliro

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**GARDENS DEBUT NEW VISITOR AND EDUCATION CENTER**

Friends of the Coastal Gardens and their supporters celebrated the opening of the Andrews Visitor and Education Center at the Coastal Georgia Botanical Gardens at the Historic Bamboo Farm on Saturday, Feb. 7. The College of Agricultural and Environmental Sciences administers the gardens.

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**朋友们的自豪**
A captain of the UGA Equestrian Team, Madison Berger plans to build on her love of horses and her CAES degree by going to veterinary school.

Riding High

For graduating senior Madison Berger, it’s been about horses. A lifelong equestrian, horses drew Berger from the sunny Ft. Lauderdale, Florida, area to the University of Georgia in Athens, where she’s now a captain of the university’s equestrian team.

For Berger, it started with horses and a desire to go out of state for college. She contacted the university’s equestrian team her senior year of high school, tried out, walked on and has remained on the varsity team for all four of her years at UGA. Last year, the team took first place at the National Collegiate Equestrian Association Championship.

Horses originally drove Berger’s desire to pursue a bachelor’s degree in animal science. Once at UGA, the College of Agricultural and Environmental Sciences introduced cows, pigs and more livestock into Berger’s studies. This May, she will graduate, an animal science bachelor’s degree in animal science. Once at UGA, the team is research-focused and spends time at various locations, including the UGA College of Veterinary Medicine. Berger plans to continue her education by going to veterinary school. “I’d never been around cows or pigs, never seen other livestock; I didn’t know what goes into agriculture as a whole. I was a sponge, open to all these new things,” she said. “I loved how hands-on the classes are (at CAES).”

These hands-on experiences, as well as the knowledge she picked up, led her to decide to major in dairy science as well as animal science. “I recently got into research work with cattle,” Berger said. “My mother laughs at me because I’m just as excited to work with cows as I am horses.”

“Madison is truly an exceptional student and delightful person to have in class,” said William Graves, animal and dairy science department. “Her quest for knowledge and ideas, ability to embrace any challenge and dedication to her studies makes her the best.”

Berger is part of the Block and Bridle Club and a recipient of the college’s Outstanding Junior Award. She’s interned at South East Equine Veterinary Associates in Pompano Beach, Florida; at Dolphins Plus, a dolphin research facility funded through an interaction program with the public, in Key Largo, Florida; and at the UGA College of Veterinary Medicine.

Berger plans to continue her education by going to veterinary school. “As I interviewed for veterinary school this year, I was amazed at how much more hands-on experience I had than some of the other students,” she said. “I wouldn’t be as prepared as I am today without the animal and dairy science department.”

• Kathryn Schilio

Meat & Greet

The Meat Science and Technology Center helps students and professionals beef up on meat animal processing

Uncaged away on the university’s East Campus in Athens is the college’s Meat Science and Technology Center, a fully functional, U.S. Department of Agriculture-inspected meat animal processing facility that focuses on beef and pork products.

Since 1998, the center has held weekly sales of meat products of animals used in classes, research and outreach. Students gain hands-on experience working under center coordinator Ryan Crowe and research technician Gina McKinney, or by conducting research for Associate Professor Alex Stelzleni or Professor T. Dean Pringle, both of the Department of Animal and Dairy Science. This work can lead to jobs in research and development, value-added processing, quality assurance and inspection, and industry-related jobs in sales, marketing and packaging.

Seventy courses are taught annually, providing learning opportunities in the meat animal production system. Students focus on basic meat science, muscle biology, food safety and value-added products. The center also hosts Georgia PFAVs annual Meat Evaluation Career Development Event for high school students.

The center is in the middle of a three-year study on forage-finished beef in conjunction with UGA Extension beef specialist Lawton Stewart and forage specialist Dennis Hancock. The team is researching which summer forages produce the highest quality product. Other center research has included food safety in needle-tenderized beef, enhanced lean beef and pork, regulation of intramuscular fat in beef and improved texture and safety in enhanced pork chops.

As part of outreach programming, Beef and Pork 101 workshops give professionals and public groups an overview of meat science, including production processes, meat evaluation, products and sales, through farm tours and lectures. Stelzleni also gives talks at county cattlemen association meetings and events, and the center is involved nationally and internationally by conducting programs with the National Cattlemen’s Beef Association, U.S. Meat Export Federation and Certified Angus Beef, among others.

The center is located at the Edgar L. Rhodes Center for Animal and Dairy Science, 425 River Road, Athens, Georgia.

First-year student Brandon Homan listens intently as Meat Science and Technology Center coordinator Ryan Crowe teaches the finer points of meat cutting. Insect Chain mail protects the workers from injury.

• Josh Paine

ANNUAL NUMBERS

240
HOGS PROCESSED

120
CATTLE PROCESSED

30
SHEEP PROCESSED

PHOTOS BY KATIE WALKER
ARKIN’S INFLUENCE ON GRIFFIN CAMPUS MARKED BY CHANGE

IN THE 27 YEARS that assistant dean Gerald Arkin spent on the college’s Griffin Campus, much has changed. The campus transitioned from the Georgia Experiment Station to a full-blown UGA campus, faculty moved from conducting traditional row crop research to focusing on urban agriculture and undergraduate degree offerings were established. The campus also saw physical changes—the renovation of the Flint Building, the expansion of the Melton Food Science Building, which houses the college’s Center for Food Safety, the relocation of the Naomi Chapman Science Building, which houses the college’s Center of Flynt Building, the expansion of the Melton Food Science Building, which houses the college’s Center for Urban Agriculture and Undergraduate Degree Offerings, and the establishment of the Student Learning Center, all during Arkin’s tenure. Ground was also broken on the new Food Product Innovation and Commercialization Center.

Arkin, who earned his master’s degree in agricultural engineering from CAES, officially retired on Sept. 31, 2014. His successor, Gerald Arkin, cited work experience, internships, and graduate education in the college’s network as the reason CAES appeals to area students. The college offers opportunities for every student on campus to have a student-worker position in the laboratory, fields, or office, and most students take advantage of the college’s connections to gain experience through industry internships. The Deans’ Promise program and Office for Global Programs helps Tifton students to study abroad. “The Deans’ Promise is an incredible tool because, as our economy moves towards being more global, which it has for decades now, employers want to see that reflected in students’ education,” Peake said. Enrolling at UGA Tifton means access to “a network of the brightest researchers and faculty members in the state and, in many cases, the world,” Peake said. “That’s a powerful thing for a student who is graduating and looking for a job; students know it and employers know it. They are plugged into the UGA network, and we are available for them after they graduate.”

With all the appeal of attending UGA Tifton, Peake is keeping an eye on market saturation as he addresses the campus’ growth. “We want to grow every semester. We have a plan in place for the next five years of growth.”

JASON PEAKE

Class Act

ALEC Associate Professor Maria Navarro wins UGA Russell Award

Associate Professor Maria Navarro, in the Department of Agricultural Leadership, Education, and Communication, was one of three UGA professors to win the 2014 Richard B. Russell Award for Excellence in Undergraduate Teaching, the university’s highest early career teaching honor. Three Russell Awards are granted annually to faculty members who have been in a UGA undergraduate teaching position for less than 10 years.

Originally from Spain, Navarro earned the equivalent of a master’s degree in agricultural engineering there, while also playing professional volleyball for the city of Liedea, Spain. She received her doctoral degree from Texas A&M in 2004 and joined the College of Agricultural and Environmental Sciences in 2005.

Navarro’s work in teaching, Extension and research focuses on food security and social issues. She teaches the Reflections on Fighting Hunger, International Agricultural Development and Diffusion of Innovations courses, as well as courses in the college’s study abroad programs. She addresses poverty and the development of cultural understanding in her work with Extension. Her research involves teaching and learning in higher education, including increasing social consciousness in curricula as well as higher order and interdisciplinary learning.

“The through teaching, Extension and research, I believe I can contribute to food security and social justice,” Navarro said. Navarro is also the co-advisor of the Athens-based chapter of Sigma Alpha and advisor to MEDLIFE at UGA.

In addition to receiving the Russell Award, Navarro has been honored with:

- U.S. Department of Agriculture’s New Teacher Award in 2012
- The college’s D.W. Brooks Diversity Award in 2008 and Early Career Teaching Award in 2011
- UGA Honors Program’s J. Hatton Howard III Award in 2011
- UGA President’s Fulfilling the Dream Award in 2007

The university’s Russell Award winners (from left) Anthony Madonna, Navarro and John Schramski were recognized at the UGA vs. Tennessee game on Sept. 27, 2014.

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Growing a Commodity

As the nation’s No. 1 producer of blueberries, Georgia farmers grow 96 million pounds in 2014. CAES played a major role in this achievement—UGA has released and patented 14-plus cultivars since 2001, and CAES supports growers with its Blueberry Team. • Merritt Melancon

1926 UGA's Blueberry program begins when 12 Blackberry selections are planted at the Coastal Plain Experiment Station in Tifton (UGA Tifton Campus).

1939 UGA and the USDA start a collaborative breeding program. The first report on Blueberries in the USDA Census of Agriculture notes 40 farms, 20 acres each, and 11,752 quarts produced.

1945 Thomas Brightwell, UGA plant breeder and horticulturist at the Coastal Plain Experiment Station, establishes a 25-acre research farm in Alapaha, 20 miles east of Tifton. "Cultivated" and "Coastal" rabbiteye varieties are released. Breeding focuses on disease-resistant varieties for the next 40 years.

1955 UGA breeders proudly release the first cultivar with good commercial quality: 'Tiftblue.' It is the oldest blueberry cultivar still being planted in Georgia.

1970 The Georgia Blueberry Association is founded in Tifton (UGA Tifton Campus).

1980s to early 2000s UGA Extension strives to support the Georgia Blueberry industry by improving the gardening group of blueberry growers.

1983 The Blueberry variety 'Brightwell' is released. Serious black mold on the fruit was a problem, and 'Brightwell' proved to be disease-resistant and attractive to consumers.

1983 Georgia's Blueberry farm gate value reaches $2 million.

1993 USDA Extension agent Renee Holland, horticultural specialist at UGA Extension in Athens, promotes the use of black mold-fighting fungicides.

1993 USDA horticulturists Dr. Todd Wiese and Scott NeSmith begin to develop new varieties and best cultural practices for Georgia’s blueberry crops. Plant pathologist Harold Scherm and PhD student John Ed Smith join the team.

1995 UGA blueberry farm gate value reaches $312.8 million, and UGA Extension expands its blueberry team to include agent Bob Boland, entomologist Ash Sial, horticulturist Max Hendrix to support the Blueberry Program at UGA Extension.

2008 The Georgia Blueberry Commission is formed.

2011 Georgia farmers produce 50 million pounds of berries (South Carolina Blueberry Growers Association).

2013 The Blueberry farm gate value reaches $312.8 million, and UGA Extension expands its blueberry team to include agent Bob Boland, entomologist Ash Sial, horticulturist Max Hendrix and invasive insect expert Joe LaForest.

2014 Blueberry varieties released: 'Georgia's Most Valuable Fruit Crop' (Farm Gate Value Report).

2015 Blueberry farm gate value reaches $312.8 million, and UGA Extension expands its blueberry team to include agent Bob Boland, entomologist Ash Sial, horticulturist Max Hendrix, and invasive insect expert Joe LaForest.
Meet the new associate dean for UGA Extension

Laura Perry Johnson took the reins as the College of Agricultural and Environmental Sciences associate dean for Extension on Jan. 1—the 14th leader of the organization. She recently sat down with Southscapes reporter Josh Paine for a Q&A about her perspective on Extension and favorite soft drink.

You grew up on a farm. What drew you into the academic world and, more specifically, to Extension? I always wanted to do something in agriculture, but the early 1980s were about as bad years for farming that there have ever been. My dad made me apply to the College of Education because he thought teaching would be a safe job. When I came to orientation, I changed my major to animal science and never looked back. After I finished my doctorate, the 4-H Livestock Program job came open, and I thought I would do it for a little while. I really wanted to be in teaching and research but ended up loving Extension. I truly enjoy helping people and get to do something different every single day. To me, it’s the perfect job. Even during the worst of times, I have never doubted why I work for Extension.

What are your top priorities for Extension? I think we’ve reached a period of stabilization, so now it’s about rebuilding, maximizing and growing. We, at all costs, try—and have been fortunate—to maintain the infrastructure of having local, county offices, but that requires a lot of support. Our current request to the legislature asks for an increase in our agent faculty. The other priority is internal communication to help people better understand one another’s responsibilities and see the big picture all together. In some leadership books they call that “getting on the balcony.” If you can’t see the big picture, it’s hard to understand how you fit in. And part of that is creating a culture of people wanting to understand how they fit in, which, in turn, usually leads to appreciation.

The centennial celebration of the Smith-Lever Act and Extension just concluded. What do you think about Extension heading into its second century? Extension today is so much broader than when it began, and today we’re still doing the same things, but in a different context. Over and over again, we’re using the same principles. For example, the idea the original Boys Corn Club was based on—teaching youth who will, in turn, teach their parents—that was agriculture back then or financial literacy and nutrition today. When it comes right down to it, we’re still making people’s lives better, and it’s our job to make sure we’re continuously staying relevant to today’s issues.

Quick facts about Laura Perry Johnson

Her hometown is Moultrie, Georgia
She formerly served as Southwest District director for Extension
Her tenure with C AES exceeds 25 years
She holds three degrees from UGA: BSA – Animal and Dairy Science, ’87; MS – Animal and Dairy Science, ’88; Ph.D. – Animal and Dairy Science, ’93
Her favorite soft drink is Tab soda—so much so that her office includes a collection of Tab-related gifts

Think Locally

New FACS leadership targets evolving needs in UGA Extension programming

The role of UGA Extension family and consumer sciences (FACS) agents has evolved to help Georgia families and communities be healthier, more financially stable and better at building strong relationships.

“Our counties are requesting assistance with wellness programs and asking Extension agents to support programs that improve their residents’ quality of life,” said Deborah Murray, FACS associate dean for Extension and outreach.

In Georgia, 46 Extension agents are assigned to accomplish this task. Some of the most popular programs FACS agents deliver are fitness and nutrition programs, like Walk Georgia and the Zero Weight Gain Challenge, and food safety training, like ServSafe® for food service employees. FACS agents also work with Georgia youth through 4-H in consumer judging, health projects, Relationship Smarts programs and financial management.

To better meet this need for programming, the Georgia Extension leadership team recently added FACS program development coordinators (PDCs) to work with campus faculty, agents and communities to plan programs that address local needs.

“By helping agents get access to resources not only in the College of Agricultural and Environmental Sciences and the College of Family and Consumer Sciences, but in other colleges at UGA as well,” Murray said. “They also work with the colleges to leverage grant dollars and other external dollars needed for county programming.”

The new FACS PDCs are Denise Everson in the Northeast District; Kisha Faust in the Northwest District; Janet Hollingsworth, Southeast District, and Andrea Scarrow, Southwest District. These new coordinators were all working as Extension agents when they were selected for their PDC positions—Everson in Clarke and Oconee counties, Faust in Fulton County, Hollingsworth in Appling and Wayne counties and Scarrow in Colquitt County.

“Having these four highly qualified professionals working across the state is exciting. They bring a lot of passion for Extension to their work, and we are already experiencing the synergy that results from a highly effective team,” Murray said. “I cannot say enough about the Extension administrative team and the leadership of both deans in CAES and FACS and the University of Georgia for their commitment in serving Georgia.”

• Sharon Doody

Ms. Regena’s Little Red School House is a new classroom building that pays homage to center founder Regena Whitaker.
The metro Atlanta area is no stranger to UGA Extension. Programs like Pizza Farm and Fortson Farm bring agricultural education to the youngest in the state’s metro population, while Extension’s presence at events like Taste of Atlanta allows agents to share information on programs and advice on topics of concern to urban dwellers.

PIZZA FARM
Started in 2013, Pizza Farm was developed by Extension “to expose urban youth to agriculture and to good nutrition and a healthy lifestyle,” said Kisha Faulk, family and consumer sciences program development coordinator and former Fulton County Extension agent. Faulk chaired the Pizza Farm program development committee, which included representatives from Fulton, DeKalb, Gwinnett, Cobb and Clayton counties. “It also showed that Extension was alive and well in the metro community. Pizza Farm is an opportunity to let us expose urban youth to Georgia’s roots in agriculture,” said Faulk.

The Pizza Farm program uses the pizza theme to educate students about the different commodities that the state produces. Students rotate between stations that tie Georgia agriculture to a pizza—vegetables and tomato sauce, wheat and dough, dairy, meat toppings, even Georgia-grown fruit—and encourage healthy lifestyle choices. “It exposes them to the work that we do in dairy, beef, farms, vegetables and other produce grown here,” Faulk said. “Urban youth are familiar with the grocery store, but not the fact that the food at the grocery store is tied to the farm—it’s all one, big cycle.”

In 2014, about 1,000 students came through Pizza Farm, roughly 200 students more than in 2013. Count the dignitaries that also attended in 2014—mayors, state legislators, school board members, county department heads, the state commissioner of agriculture, leaders from the college as well as industry groups—and the final total was more than 1,000, Faulk said.

FORTSON FARM
Fortson 4-H Center brings the farm-to-table concept to the classroom through their traveling farm program. The facility keeps a small, working farm with sheep, goats, calves and chickens and, at a teacher’s request, will bring animals to a school to teach students about the animals and the products they provide.

“Teachers later bring their classes out to the 4-H center to see the Fortson Farm in action. There’s an on-site environmental education class, as well as an organic garden where students harvest what is grown and then use the fruits and vegetables to make a smoothie. Additionally, classes often act on the opportunity to donate and “adopt” one of the farm’s animals—they get a certificate and fact sheet about the animal beforehand, then get to see their adopted animal as part of the trip.

Fortson Farm personnel try to stay in the metro area, within a 50-mile radius of the 4-H center, but they won’t deny any teacher a presentation, Allen Nasworthy, Fortson 4-H Center director, said: “Their faces light up, especially the metro kids,” Nasworthy said. “Some kids have no clue where products come from, and we just assume kids learn this at some point. They ask, ‘Can we get milk from that cow?’ ‘Yeah, we do.’ They get excited not just to learn about the animal, but to be around it.”

TASTE OF ATLANTA
Participating in the Taste of Atlanta event, held in Midtown for three days in late October, allowed Extension to reach thousands of metro-area residents who came to the annual festival to celebrate the city’s food scene and, of course, sample great food. “It is a natural fit,” said Becky Griffin, urban program associate with Extension’s Georgia Center for Urban Agriculture. “Extension has educational programming on growing food, food safety and preparing food. The Taste of Atlanta audience is at the event because they love food. We want them to know we are here and available to help them grow food in their urban environment and to safely prepare and preserve food.”

Metro-area agents staffed the Extension booth, giving out urban agriculture-specific information and Extension publications on growing food in backyard plots and containers, Atlanta community gardens, city-friendly crops, and food safety and preservation.

“People were surprised at the types of food they could grow in a small environment,” Griffin said. “Many experienced gardeners did not realize that we can grow food in Atlanta all year long. It was fun to give them advice on what they could plant during cool weather. Also, many people did not realize they could join a community garden, so if they live in a high-rise Atlanta apartment, they can still grow food.”

Additionally, the College of Agricultural and Environmental Sciences promoted its annual Flavor of Georgia contest. Eleven finalists and winners from the 2014 contest were on hand to participate in the event and hand out samples of their winning products. • Kathryn Schiriro

Yee Haw!
Great Southland Stampede named No. 2 in the nation

The Great Southland Stampede Rodeo, through the UGA Block and Bridle Club, was named second in the nation—out of about 150—for indoor rodeos by the International Professional Rodeo Association (IPRA). To make the honor even sweeter, the top rodeos were voted on by IPRA cardholders—contestants, contractors and rodeo colleagues.

“Everyone around us recognized how hard we’ve worked,” said 2015 rodeo chairwoman Caitlin Quinn. The club was informed of the honor at the IPRA Gold Buckle Gala in Oklahoma City.

One of only two student-run IPRA rodeos in the country, the Great Southland Stampede Rodeo is a fundraiser for the Block and Bridle Club and runs for three days each spring. The 2015 rodeo is set for April 9-11. • Kathryn Schiriro

FUNDRAISER EARNs PI ALPHA XI $5K

Every year, the UGA chapter of the Pi Alpha Xi Horticulture Honor Society grows a crop of poinsettias for their holiday season fundraiser. This year, the students, including (from left) Maya Baumelstein, Lauren Miller, Lisa Heineman and Izzie Stancio, cold event more than 150 poinsettias, grossing more than $5,000 enough to fund the honor society’s activities for two years. The poinsettias, part of a capstone greenhouse production course in the college’s Department of Horticulture, are grown from cuttings provided by Georgia greenhouse producer Davis Floral Company in Elberton, Georgia. • Merritt Melancon
There’s an app for that

UGA College of Agricultural and Environmental Sciences experts, along with partner institutions and organizations, are creating mobile apps for agricultural and environmental stakeholders. Smartphone apps for Apple® operating systems are available through the App Store, and apps for Android® operating systems are available through Google Play.

Native Plants of North Georgia
A field guide of the flowers, trees, ferns and shrubs—including photos of plants organized by blooming periods, leaf and bloom descriptions, and scientific and common names—in North Georgia’s lawns and forests. Free and available online at extension.uga.edu/mobile.

IPMPro/IPMLite
Helps green industry professionals (IPMPro) and homeowners (IPMLite) make pest management decisions, train employees and keep pesticide records. Works for USDA Plant Hardiness Zones four through eight in 22 states. Costs $24.99; available at ipmproapp.com. IPMLite, $9.99.

Turfgrass Management – Lite
Three turfgrass apps—Turfgrass Management – Lite, Turfgrass Management – Subscription and Turfgrass Management Lite (Spanish)—for use by the green industry, turfgrass science students and homeowners. Turfgrass Management – Lite includes photos of turfgrass varieties, pests, weeds and diseases. Lite and Spanish versions are free; the subscription app costs $19.99 annually and includes the Lite version, plus information on pest control applications and a pesticide database. Available at GeorgiaTurf.com.

Turfgrass Management Calculator
Covers applications, pesticide rates, fertilizer and topdressing sand requirements, and calibration of sprayers and spreaders. Costs $5.99.

Turfgrass Weeds and Turfgrass Management Quiz
Turfgrass Weeds teaches users through a series of flash cards. The Turfgrass Management Quiz is a trivia-style app. Free.

Smartirrigation Cotton
Helps cotton growers irrigate their crops based on local conditions. The app can be used with overhead sprinkler (center pivot, solid set) and drip irrigation systems. Free; available at smartirrigationapps.org.

GA Cotton Insect Advisor
Provides support for determining UGA Extension-recommended insecticide treatments for management of stink bugs in cotton. Growers or scouts enter conditions based on field observations, and the app suggests appropriate chemical applications and rates. Free; available at apps.bugwood.org/GaCottonInsectAdv.html.

SE Agricultural Stink Bug ID
Helps identify stink bugs collected in agricultural settings. Includes images for each life stage of 15 species and key characteristics used to identify that species. Free; available at apps.bugwood.org/SEAgStinkBugID.html.

SEEDN (Southeast Early Detection Network)
Southeastern U.S. residents report invasive plants, wildlife, insects and plant pathogens, which are then verified by local and state experts. Images and descriptions of the species are also included. Free and available, along with more than 20 other apps, through apps.bugwood.org/apps.html.

Service Forester’s Toolkit
Contains calculators and charts to help foresters in the field determine soil texture, site index, basal area of trees, tree stand density and more. Free; available at extension.uga.edu/mobile.

Georgia Roadside Management
Created for the state Department of Transportation, the app covers best management decisions for controlling roadside weeds and vegetation, growth regulators, first aid, personal protection, equipment maintenance and mowing procedures. Free.

Sharon Dowdy

As the global population increases, food insecurity is becoming a critical problem. Through research, innovative technology, education and outreach, CAES brings solutions to the table for farmers and families worldwide.

HOW WILL THE COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES HELP FEED

9,000,000,000 PEOPLE

BY 2050?
Plant breeder Glenn Burton may be best known for developing bermudagrass for use on golf courses and as forage for cattle, but he also helped India more than double its production of millet at a time when social scientists were predicting impending disaster for that country.

In 1960, the world’s population reached 3 billion and researchers were projecting that the population would overtake the global food supply within the decade, resulting in mass starvation. Plant breeders, like Burton and Norman Borlaug, saw the predictions as a call to action.

“Helping feed the hungry of the world is my greatest accomplishment,” Burton is quoted as saying. “It was important to me because I saw those hungry people, and I was able to help them.”

“Dad was a committed public servant,” said Joe Burton, Glenn’s son. “He saw plant breeding as a way to help those in need, both in the U.S. and internationally. He was very idealistic in that way.”

Born in Clatonia, Nebraska, in 1910, Burton was in college at a time when agricultural scientists were trying to help farmers cope with the Dust Bowl. After graduating from Rutgers University with his doctoral degree in 1936, Burton traveled to Tifton, Georgia, to work as principal geneticist with the Division of Forage Crops and Diseases for the U.S. Department of Agriculture’s (USDA) Agricultural Research Service.

Glenn Burton bred forage and pasture grasses for 61 years and became a faculty member at the University of Georgia when the Coastal Plain Experiment Station, now the UGA Tifton Campus, became part of the university.
He bred forage and pasture grasses for 61 years and became a faculty member at the University of Georgia when the Coastal Plain Experiment Station became part of the university.

Over that time he released 44 improved cultivars of bermudagrass, forage and grain millet, napiergrass, sudangrass and bahiagrass, each customized to meet specific growing conditions or improve production. The new breeding techniques and the new knowledge he generated about genetics were published in 777 journal articles between 1936 and 2003.

Each breeding project Burton undertook was meant to increase the productivity and sustainability of farmers, but in the 1960s, he and other scientists were called to help improve the world’s food production.

Using the same tools they developed to produce harder, more productive crops for the U.S., plant breeders of Burton’s era worked with local scientists to develop crops that could produce more food on existing farmland.

Burton worked with the Rockefeller Foundation in 1961 to reach out to plant breeders in India to produce millet hybrids that could grow on land too dry for other grains. He worked with the foundation’s scientists to cross his Tifton 23A pearl millet with the best Indian cultivars, and the result was an increase in production from 3.5 million tons to 8 million tons at the close of the decade.

“Throughout his career, Dad believed that plant breeding was one way to improve food security and supply, particularly in less developed countries,” Burton said. “He was a firm believer in good Extension, getting research findings to the farmer both here and abroad. Much of the work he did in foreign countries should probably be considered Extension—helping plant breeders manage their crop genetic resources in ways that would lead to improvement.

“Dad was an innovator who would ignore conventional wisdom about an agricultural problem that could be solved in a new way. He was always thinking of different ways to solve problems,” Burton said.

“He was a basic research component to her work—which seeks to describe the evolution that has resulted in today’s cultivated grass crops—she also works actively with scientists in India and Africa to develop crop varieties that will bolster food security.

In 2012, Devos was the senior author on a paper describing the genome of foxtail millet, a hardy, drought-resistant grain that serves as a staple crop in China, but is used by Devo’s colleagues as a model for switchgrass. This was part of a long thread of research projects focused on improving grass crops to contribute to food security and become better suited as biomass feedstock for ethanol production.

Scott Jackson came to UGA from Purdue University in August 2011 with research scientists and a number of ongoing National Science Foundation and U.S. Department of Agriculture-funded research projects. Jackson is currently working on other legumes. He is researching the use of genomic technologies for crop improvement, with a focus on international agriculture and food security.

Jackson is also a member of the UGA Institute of Plant Breeding, Genetics and Genomics.

“Dad’s spirit and vision are alive and well today, living on in any number of breeding programs addressing food security around the world,” said Wayne Parrott, College of Agricultural and Environmental Sciences professor of crop and soil sciences and plant breeder.
Peggy Ozias-Akins, a professor in the college’s Department of Horticulture, has spent much of her career working to develop varieties of fungus-resistant peanuts and varieties that are free of the proteins that trigger life-threatening allergic reactions in about 1.1 percent of the population.

In addition to working with Scott Jackson’s lab to publish the peanut’s genomic sequence in 2014, Ozias-Akins has pioneered methods for reproducing the genes responsible for desirable traits in plants, as well as cloning plants with desirable traits.

Aimed at making peanuts resistant to the fungi that produce aflatoxin, a carcinogen that causes allergic reactions in about 1.1 percent of the population, Ozias-Akins has helped identify important traits in other crops, like bermudagrass and Miscanthus, which shows promise as a biofuel crop.

Andrew Paterson, named a UGA Regents Professor in 2012, leads the Plant Genome Mapping Laboratory, administered by CAES and the Franklin College. Since coming to UGA in 1999, he’s built upon his reputation as a leading expert in plant genetics by spearheading the sequencing of the genomes of sorghum and cotton, and helping to analyze sequences of cabbage, canola, cacao, peach, papaya, peanut, sugarcan, tomato and turf. He’s helped identify important traits in other crops, like bermudagrass and Miscanthus, which shows promise as a biofuel crop.

WAYNE PARROTT

Professor, Department of Crop and Soil Sciences
Wayne Parrott, since joining the faculty in 1988, has developed new molecular breeding techniques and soybean varieties that are insect resistant, disease resistant or that include added nutrients. He also studies the safety of genetically modified foods, and he has not found a substantive difference between genetically modified crops and their traditional counterparts.

He reiterates that world food security depends on our ability to grow more food on the land we have—using cultivars that produce more with fewer resources. Parrott has published a guide for environmental risk assessment of GMOs, along with 90-plus journal articles and 14 book chapters. He has chaired the genomics, molecular genetics and biotechnology division of the Crop Science Society of America and of the plant biotechnology section of the Society for Vitro Biology, and is a fellow of these societies. He has traveled throughout Latin America and other countries, and advised legislators and regulators globally on the requisites for a functional regulatory system that ensures the safety of genetically modified products.

Parrott is also a member of the UGA Institute of Plant Breeding, Genetics and Genomics.
CAES INTERNATIONAL FELLOWS FOCUS ON BUILDING A

Food secure future

While hundreds of young Georgians come to the College of Agricultural and Environmental Sciences to help build a more food-secure future, dozens of other students and scientists travel thousands of miles to gain the tools they need to help feed their neighbors.

In 2014, CAES hosted four noteworthy international fellows—two Borlaug fellows through the U.S. Department of Agriculture Bioenergy Research and Development (BHEARD) fellowship, one Borlaug Higher Education for Agricultural and Environmental Sciences (BHEARD) fellow through the U.S. Agency for International Development (USAID) and one UGA doctoral student, who was granted a Borlaug Leadership Enhancement in Agriculture (LEAP) fellowship, also through USAID. UGA is proud to have hosted these fellows from Africa at one time, said Vicki McMaken, assistant director of the college’s Office of Global Programs.

USAID Borlaug fellows Agnes Mwangwela, from Malawi, and Joelle Kagasa, from Rwanda, worked with CAES food science and crop development researchers to gain new tools to combat aflatoxin contamination in peanuts. Aflatoxin is a carcinogen produced by a common soil fungus that can grow on improperly grown, harvested, stored or processed peanuts.

In developing countries, where peanuts are a staple food, typical harvesting and processing protocols don’t always prevent aflatoxin exposure. Contaminated peanuts cannot be exported or processed, limiting their value.

Mwangwela—a senior lecturer and dean of the faculty of food and human sciences at Lilongwe University of Agriculture and Natural Resources—and Kagasa—an award-winning agricultural researcher who leads a team of scientists in the Rwanda Agriculture Board Horticulture Program—worked with researchers in the college’s Peanut and Mycotoxin Innovation Lab (PMIL), a USAID-supported Feed the Future program working to improve peanut production and solve the aflatoxin contamination problem.

BHEARD fellow Afia Karikari traveled to UGA to pursue her doctoral degree in plant breeding, genetics and genomics. Karikari, a research scientist at the Council for Scientific and Industrial Research’s Savannah Agricultural Research Institute in Ghana, is working with CAES molecular biologist and PMIL scientist Peggy Onias-Akua to breed aflatoxin-resistant peanuts.

“Like Borlaug, I feel extremely distraught to see food insecurity still existing in some developing countries,” Karikari said. “If one man was able to help feed about a billion people in the world, I am strongly encouraged that I can also help achieve not only food security, but food sovereignty, especially in the developing world.”

LEAP fellow Brad Hounkpati, a Fulbright Scholar from Togo, is working with CAES entomologist Joe McHugh to develop more sustainable farming practices using lady beetles for Togo’s farmers.

He is completing his field research—trying to find species of lady beetles native to West Africa that could be used for pest control and working with farmers on integrated pest management programs using the native lady beetles he has bred and studied in farm fields. He plans to return to West Africa to continue his work and serve as faculty in the college of agriculture at the University of Lomé.

“If one man was able to help feed about a billion people in the world, I am strongly encouraged that I can also help achieve not only food security, but food sovereignty, especially in the developing world.”

AFIA KARIKARI

For a burgeoning world population, precision agriculture and related agricultural technology will drive food security. The creative minds at the College of Agricultural and Environmental Sciences are researching and developing technology and efficient practices that could help the world answer the question of how to feed 9 billion people by 2050.

WRITTEN BY CATHRYN SCHILIRO AND CLINT THOMPSON
ILLUSTRATED BY KATIE THOMPSON

THE AGRICULTURAL INNOVATION ISSUE | southscapes 25
The first plant Erico Mattos used for his research was a sweet potato nicknamed “Napoleon.”

Much like the infamous French emperor, the sweet potato was a “control freak.” “It was the first plant in the world to control its own light,” said Mattos, who received his doctoral degree from the college’s Department of Crop and Soil Sciences in 2013.

Mattos, who came to UGA following undergraduate studies at the University of São Paulo in Brazil, began his work with microalgae—he was using LED lights to increase biomass production, which was being studied as a source for alternative energy. Instead of making manual adjustments to the LED lights, Mattos and his lab partner decided to try and create a biofeedback system that would allow the microalgae to adjust the light itself. The microalgae proved to be too small, and they elected to try the biofeedback system with larger plants. Enter Napoleon and his fellow sweet potatoes.

The biofeedback system determines, through readings of the plant’s chlorophyll fluorescence collected by a sensor nestled in the plant’s leaves, whether the plant has enough light for photosynthesis. If the plant is receiving more light than is needed—and the light is being wasted—the lights in the automated irrigation system adjust automatically. In essence, the plant is adjusting its own light, changing not only whether the light is on or off, but also the intensity of the light, the frequency of bursts of light and how long those bursts last. Today, Mattos, co-founder of the horticultural lighting company PhytoSynthetix, housed at UGA, has used the biofeedback system to successfully provide light for lettuce, petunias and pothos plants, in addition to sweet potatoes.

“In 10 years, feeding about 9 billion people is going to be hard because we live on a planet with a fixed amount of land,” he said. “We have to increase food production. Moving production indoors and to urban centers means no transport, shipping or handling costs. The yield is higher because the crop isn’t prone to rain, drought or disease. The one cost-prohibitive problem is energy consumption because of lights.”

“In plant factories, lighting costs are huge,” said Marc van Iersel, professor in the college’s Department of Horticulture, who collaborated with Mattos on the project. “They’re popping up all over the country with little information on how to grow plants well. You know, there’s a reason we grow plants outside. We are very bad at judging how much light a plant needs.”

Limited-spectrum, high-intensity discharge (HID) grow lights are used in greenhouses. Mattos’ system uses full-spectrum LED grow lights. “Precision irrigation has taken an imprecise practice (of guessing when plants need watering) and transitions it to what the plants specifically need—no more, no less. Until now, growers just used their judgment based on experience (to determine a plant’s irrigation needs).”

UGA CAES researchers, along with colleagues from the University of Maryland, Carnegie Mellon, Colorado State and Cornell universities, recently concluded a five-year project, funded by a $5.2 million grant from the U.S. Department of Agriculture’s Specialty Crop Research Initiative, to develop these new automated irrigation systems.

The irrigation system developed as part of this project is made up of a series of wireless nodes—each having five, metal-pronged sensors attached—that are installed in the soil surrounding the plant’s roots. The sensors pass an electric current between the metal prongs, and voltages measured indicate the amount of water in the soil. Information from the sensors is gathered in the node and then sent to a base station, where the grower can monitor the data and initiate the irrigation system. The grower— with an Internet-connected device—can set the irrigation system to automatically turn on based on programmed soil moisture thresholds.

A test of the system at McCorkle Nurseries, in Dearing, Georgia, reduced losses due to irrigation-related disease in the nursery’s 4 acres of gardenias from 30 percent to zero, shortened the production cycle from 14 to eight months and, consequently, decreased costs related to labor, fertilizers, fungicides and other inputs.

Erico Mattos checks on the placement of a fluorometer, which measures chlorophyll fluorescence, in an experiment at the UGA Horticulture Plant Physiology Laboratory. UGA-developed software modifies the light in response the photosynthetic needs of the plant, resulting in more efficient use of light and reduction of energy costs.
In addition to irrigation, college scientists, such as George Vellidis, professor and precision agriculture expert on UGA’s Tifton Campus, are researching methods that will present growers with options to better manage their farming operations. All fields are not uniform in shape and design, but precision agriculture practices allow farmers to match inputs of fertilizer, in addition to water, to the yield potential in a certain area.

“If you’ve got a part of a field that’s not performing well, you can take the inputs you’re putting there and redistribute them to parts of a field that have higher yield potential. If you’ve got a cotton field, for example, where you have a patch that the best it’s ever going to do is one bale of cotton, and you’ve got another part of a field that can do three- to four-bale cotton, you can take your nutrients and put them over there,” Vellidis said. A precision agriculture expert, Vellidis describes “precision agriculture” as using data from the field in the form of maps in conjunction with agronomic knowledge and information to manage the variability within fields, which could be caused by different soil types, elevations or water availability. Precision agriculture involves using technology to optimize the distributions of inputs, such as nitrogen, plant growth regulators and defoliants, in a field—one such way is the use of optical sensors to collect information on plant health. With a designated algorithm, the data can be used to indicate which plants need which levels of nitrogen, based on their optical signatures. Plant size greatly affects the optical signature, or distinct characteristics.

“In the areas that have really small plants, the algorithm decides how much nitrogen you should apply or (the algorithm) says these plants are so small, at this point adding more fertilizer will not result in any additional yield. Then you have these in-between areas where plants have really good yield potential and you could achieve really good yield potential by adding fertilizer. Then you have plants that are approaching maturity stage, so you don’t really need to add much more fertilizer to them,” Vellidis said.

Technology-related precision agriculture practices like this result in increased yields and a reduction in the agricultural inputs being used, and improved environmental sustainability. Perhaps most importantly, increases in farm efficiency and profitability per acre could result; Vellidis points out.  

Clint Thompson

THE FUTURE IS SMART

Smart irrigation, or precision irrigation practices in the field, encompasses various techniques, all with the objective of applying the minimum, required amount of water to varying parts of the same field. A portion of a field with much sandier soils needs more water than a section that’s boggier, or one that overlaps with another pivot.

Calvin Perry, public service faculty and superintendent of the college’s C.M. Stripling Irrigation Research Park, has partnered with George Vellidis, professor and precision agriculture expert on UGA’s Tifton Campus, on various water-related research projects. Under Vellidis’ leadership, they developed a smartphone app, released in April 2014, to help cotton farmers conserve water and money by watering their crops based on local conditions.

“There’s a continued need for it (precision irrigation) because of global awareness of water limitations and competing demands for water in agriculture. 

In Georgia, there’s a growing awareness that irrigators need to up their efficiencies and improve their application methods.” Perry said.

Preston Jimmerson farms more than 2,000 acres of cotton and peanuts in Colquitt County, Georgia, some of it on the edge of the Lower Flint River Basin. Jimmerson uses soil moisture sensors for some of his irrigation scheduling. He also uses a variable-rate irrigation system—which allows him to adjust the rate at which water is applied—to cut off water in non-cropped areas and custom tailor water application in cropped areas.

“The fields that we mainly use the soil moisture sensors on are about 15 miles from our base office. Being able to look on the computer in the morning and know what’s going on there rather than having to drive out—it’s a 30- to 45-minute round trip—really saves time. We can also see how much water is still in the soil, and sometimes we can hold off watering a day or two. It helps all the way around, and occasionally we’ve able to skip a watering,” Jimmerson said.

“Long-term, sustainable water resource management is critical to Georgia’s future, especially in agriculture,” said Casey Cox, project director of the state Flint River Soil and Water Conservation District. “It is vital that we work toward measures that conserve our natural resources for future generations. Precision irrigation is a tool that enhances water conservation as well as on-farm efficiency and decision making.”  

Clint Thompson

THE FUTURE IS FINE-TUNED FERTILIZER

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Clint Thompson
Glen Rains’ next research project on the Tifton Campus is aimed at providing first aid to crops via an autonomous vehicle.

Over the next three years, Rains, professor and agricultural engineer with the college, plans to study the use of an autonomous rover to scout for disease and insect problems in peanut crops. The robotic vehicle will be equipped with sensors and cameras that will take images and temperature readings of peanut plants. A robotic arm to take leaf and soil samples to be tested by a laboratory. The data will be transmitted for analysis.

“There’s still an immense amount of loss to farmers that occurs through pathogens and insects, or the incorrect prescription of nutrients and water. The overall goal a farmer should have is to optimize scouting so that their prescription is more in tune to what they need and is done in a timely manner,” Rains said.

Adjustments will be made during the three-year study, Rains said. His ultimate goal is to equip the rover machine as a plant hospital on wheels. Whatever the crop needs, it will receive. “You could possibly go out, diagnose and treat the plant almost individually as it goes through the field. There are ways of holding multiple pesticides in small containers and injecting that into a water stream that goes onto the plant,” Rains said.

If some disease pathogens are spotted in a field, it’s too late to apply treatments, Rains said. With an autonomous vehicle for sensor readings, early detection could thwart disaster. “If we can get an array of sensors that detect those pathogens early enough, then we can possibly isolate those locations to where we find and treat without having to do calendar spraying or just spraying once or twice a week,” Rains said. “You could save a lot of money and still produce the crop you want.”

“Clint Thompson

The goal is to make Georgia the go-to place for high-tech agriculture. There are opportunities for us to make a big impact, and to put Georgia at the forefront of this technology.”

_HARALD SCHERM_

The University of Georgia College of Agricultural and Environmental Sciences, Georgia Institute of Technology and state Department of Agriculture are paving the way to make Georgia the country’s premier agricultural technology. By launching the Georgia Agotechnology Innovation Initiative, leaders in academia and government will be working with the state’s growers and producers, industry partners and other stakeholders on developing short- and long-term technology solutions for agriculture’s future in both the state and the nation.

“We’re trying to bring the three together and to complement our expertise,” said Harald Scherm, the college’s assistant dean for research and a professor of plant pathology. “Georgia Tech is a top engineering school; UGA is a top agriculture school. We’re developing a roadmap of where we see opportunities for collaboration and transformational innovation in the agricultural technology space.”

While highly effective, many of the traditional technologies used for enhanced production during the past Green Revolution have largely reached maturation, with future gains diminishing despite continued research. The solution moving forward will be development of new and transformational technologies that will catapult productivity beyond what is currently conceived as possible.

As part of the Innovation Initiative, the college has secured a one-year planning grant from the Specialty Crop Research Initiative, through the U.S. Department of Agriculture’s National Institute of Food and Agriculture (NIFA), to investigate the use of unmanned aerial vehicles—UAVs—in specialty crops in the Southeast. This planning grant is being used to bring academics, engineers, Extension specialists, the UAV and sensor industry, and growers together to determine needs and opportunities for research and technology development, according to Scherm.

Also related to the Innovation Initiative, in December 2014, NIFA’s National Robotics Initiative announced a grant of more than $900,000 to Georgia Tech to fund work on robotic technology that will allow for the collection of data—including soil and leaf samples—to detect crop and pest management issues and, ultimately, improve crop yields. The previously mentioned work on the peanut scout rover is a key part of this project. The college will work with Tech on this project as well, and results from this work may factor into the research the college plans to do with UAVs.

“The goal is to make Georgia the go-to place for high-tech agriculture,” Scherm said. “There are opportunities for us to make a big impact, and to put Georgia at the forefront of this technology.”

Kathryn Schilo

THE FUTURE IS ROLLING, ROBOTIC PLANT HOSPITALS

THE FUTURE IS PERFECTLY PACKED, UNBLEACHED BLUEBERRIES

A 2½-millimeter, rubber-coated, spherical device, packed with a circuit board, accelerometers, memory chip and microcontroller, along with other components, is set to go down the packing line. This “blueberry” in disguise could make an economic impact on the blueberry industry, in which Georgia is ranked the No. 1 producer.

Charlie Li, formerly of the college’s Tifton Campus, now an associate professor of Environmental Sciences, at UGA’s College of Engineering, has developed and is testing a sensor—the

Berkeley Impact Recording Device, or BIRD sensor—that mimics a blueberry and follows picked berries from harvest through the packing line to measure the number and duration of impacts in order to minimize bruising. “Blueberries can get bruised, causing a reduced economic impact,” Li said. “Improving the harvesting process makes the consumer happy, the producer happy, the farmer happy.”

The BIRD sensor is planted in the bush with the blueberries, harvested and run through the packing line, making its way into the clamshell container with the blueberries until it’s retrieved—its location is tracked through the entire process. The sensor collects information on the number of times it hits a surface, the duration of the impact as well as the gravitational acceleration of the impact. The duration of the impact indicates whether the surface hit by the sensor is hard or soft—soft surfaces create longer impacts and hard surfaces create shorter impacts. The process and packing line can be adjusted to minimize impacts that lead to bruising and negative effects on the bottom line. Li and his team are testing the BIRD sensor in UGA’s packing line in Chile in 2014. The BIRD sensor goes down the packing line in Chile in 2014.

THE FUTURE IS HERE

IN NEW CLASSES

PRECISION AGRICULTURE

Students learn advanced technology in new classes

The addition of a specialized precision agriculture academic courses is expected to bolster strong academic programs within the College of Agricultural and Environmental Sciences.

Beginning in fall 2015, CAES students in Athens and Tifton enrolled in the Agriscience and Environmental Systems program will have the opportunity to choose classes designed to strengthen their knowledge in specialty areas of study. Precision agriculture is one of these areas of emphasis, along with sustainable agriculture and plant breeding and genetics.

“The addition of the areas of emphasis will provide focus areas for students who want to specialize in some areas of agriculture that are in demand. These students can more readily demonstrate to potential employers unique skill sets not available from other higher education institutions in Georgia,” said William Vencill, a professor and undergraduate coordinator of teaching programs in the CAES crop and soil sciences department.

These areas of emphasis allow specialization within a major. In precision agriculture courses, students will learn about remote sensing by unmanned aerial vehicles—UAVs—yield monitoring and computer simulation techniques, such as variable-rate irrigation.

Jason Peake, director of academic programs for CAES, said the addition of specialized courses was necessary to meet the demands of the agricultural industry.

“The agricultural industry is demanding a higher level of specialization; generalized degrees and generalized knowledge can be farmed out to lower-wage earners. In precision agriculture, employers need someone who knows the intimate details of how precision agriculture systems work; not only how to install the equipment, but how to troubleshoot it, how the technology operates and how to program those systems,” Peake said.

Clint Thompson

IN NEW CLASSES

ADVANCED TECHNOLOGY

THE AGRICULTURAL INNOVATION ISSUE | southscapes | 31

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“Ag ed started about 100 years ago to help Americans become more food secure,” said Kay Kelsey, head of the Department of Agricultural Leadership, Education, and Communication (ALEC) in the College of Agricultural and Environmental Sciences. “Children were taught how to grow food and were expected to go home and teach their parents how to grow food.”

“Things are changing, and with the population soon to grow from 7 billion to 9 billion people, food is once again going to become a concern,” Kelsey said. “Ag ed classes will be focusing on helping all families, not just farm families, grow their own food. Many of our students still return to the family farm, but not all of them do.”

According to Kelsey, agricultural education courses need to focus more on teaching students how to grow food to feed individual families. “Everyone with a little space can grow their own vegetables. I planted nine plants and harvested 100 pounds of sweet potatoes. That shows you the impact of a little bit of knowledge,” she said.

CAES faculty are training today’s agricultural education teachers to reach students in urban schools, not just rural areas. This is the focus of new ALEC faculty members Kris Elliott and Eric Rubenstein, urban agricultural education faculty who joined the college’s Griffin Campus in fall 2014.

Regarding urban agriculture and preparing future agricultural educators, perceptions toward agriculture must be changed, Kelsey said.

“A high school principal needs to know that one out of every five jobs in Georgia is linked to agriculture, from bankers making loans to farmers to retailers selling goods to farmers. There is a misunderstanding of agriculture in urban areas. It’s agriculture illiteracy,” she said.

Elliott is busy building connections in urban areas, becoming involved in urban agriculture projects and searching for opportunities for student internships in metro areas.

“Our job, first and foremost, is to prepare our students to be excellent classroom teachers,” said Elliott, who taught agricultural education in the Central Valley of California before coming to Georgia. “In Sacramento, my students didn’t show hogs or lambs, but they did have rabbits and poultry. We have to educate urban audiences and let them know agriculture is the original science. It’s much more than cows, plows and sows.”

A former Pennsylvania FFA member, Rubenstein feels agricultural education programs allow teachers to reach each student’s specific interests.

“The types of programs vary across the state and the nation. Ag ed teachers have to find something that builds on the student’s strengths to help them become a well-rounded person,” Rubenstein said. “Teachers have to engage students in the program and then broaden their perspective.”

The principal, with input from the community, determines the focus of each school’s agricultural education program, Kelsey said.

“No two ag ed programs are identical. The goal of an ag ed program should be to give students options. They can be college track or they can choose to enter the workforce immediately after high school. Just becoming a farmer is a cliché. They can become farmers, but there are a multitude of good-paying jobs directly out of the (high school agricultural education) program,” Rubenstein said.

Through the college’s agricultural education program, ALEC faculty prepare students to become agricultural education teachers, whether they choose to stay in Georgia or not. Agricultural education is a good job for new college graduates, Jason Peake, ALEC’s veteran agricultural education professor, said. Starting salaries for first-year agriculture teachers, with a bachelor’s degree and a teaching certificate, averages about $45,000 in Georgia.

“That is good money for a 22-year-old starting their career. We have a 97 percent completion rate, which is great. And, once our students graduate, our job placement rate is above 95 percent,” Peake said. “Teaching agriculture is a way of life, not just a job. It’s been a good way of life for me and for many of my students. If you love it, it’s the best job you can ever have.”

“A CENTURY OF THE SMITH-LEVER ACT, the federal act that established the Cooperative Extension Service at land-grant institutions, was celebrated last year. The soon-to-be commemorated Smith-Hughes National Vocational Education Act, established by the U.S. government in 1917, not too far behind its sister Extension legislation, laid the groundwork for vocational education classes, namely agriculture, to be taught in high schools nationwide.

Extension legislation, laid the groundwork for vocational education established by the U.S. government in 1917, not too far behind its sister at land-grant institutions, was celebrated last year. The soon-to-be the federal act that established the Cooperative Extension Service, A CENTURY OF THE SMITH-LEVER ACT,
Once university land used for sheep and hog farming, the UGArden, a 4-acre, student-run farm initially financed by the College of Agricultural and Environmental Sciences’ Department of Horticulture, is committed to building a community focused on sustainable food. Created in 2010 for students of all majors throughout the university, UGArden is a tool for instruction, sustainable practices, experimentation and service learning.

“The primary reason UGArden exists is to teach students how to grow fruits, vegetables and herbs organically,” said CAES Associate Professor David Berle, director of UGArden. “Some come to learn how to garden, others to learn about composting or growing and making herbal teas. Some come just to get outside after being in a class or lab all day and some come to be part of the local food movement.”

Under the direction of Berle, Johannah Biang (BSA – Horticulture, ’09; MS – Horticulture, ’12) is the farm’s manager. As a former graduate student, Biang would often spend time at the UGArden conducting research and helping out as needed. Now, Biang oversees planting, works with student interns and assists with class instruction.

“Sometimes I call (UGArden) a garden and sometimes I call it a farm because it really started small as a garden, and then it exploded. Our goal isn’t to make money, so it’s cool that we can try out nine different types of peppers and see which ones work. We’re trying to use the UGArden as a teaching tool for the community,” Biang said.

Whether students come as volunteers or as part of a class, they are learning how to produce different kinds of food, from vegetables to herbs and mushrooms. Although not certified as organic by the U.S. Department of Agriculture, the UGArden teaches students organic practices.

More than 50 students visit the farm weekly, and excess food production is donated within the Athens community.

“Seventy-five percent of the produce grown at the UGArden is distributed to families in need in the community, either through the Campus Kitchen program, Clarke Middle School or through the weekly produce stand at the Athens Area Council on Aging,” Berle said.

Through the UGA Office of Service Learning’s Experience UGA program, meant to connect Clarke County School District students with the university, UGArden gives local seventh-graders the opportunity to take part in outdoor activities at UGArden, where they learn about ecology and the farm experience.

“Being an intern at UGArden has allowed me to interact not only with fellow students interested in sustainable agriculture, but also the community,” said Madeleine Breza, a senior from Annapolis, Maryland, who is double-majoring in anthropology and international affairs with a certificate in local food systems. “It is such a great opportunity for students to get out of the classroom and to come spend some time outdoors, while learning how to maintain an organic farm.”

UGArden provides outreach to UGA students interested in sustainable food and service learning through the student-run UGArden.

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WRITTEN BY MAGGIE DUDACEK
PHOTOGRAPHED BY JAKE GOODMAN

CAES provides outreach to UGA students interested in sustainable food and service learning through the student-run UGArden.

Learn more about UGArden by visiting caes.uga.edu/alumni/news.
Alumna Abby Love has addressed food and income security in Tanzania, an experience that left her with not only inspiration for her career path, but also what she calls her “second family” in the African country. “I fell in love with the culture. In every way, it’s different. I have a computer; they’ve never seen a computer. I have a camera; they’ve never seen a picture of themselves. They taught me how to wash clothes by hand, carry water on my head. There are things that are part of their life there that I’d never had to do. I really have a family there now,” Love said.

Food insecurity, an issue Love worked to address in Tanzania, left a lasting impression. “The first time I went back, my friends there said, ‘Is this a dream? We never thought you would return!’ It was amazing to show them I cared about them in a different way. ‘I came. Our group is transitioning to a self-sustaining business,’” she said. Love credits the knowledge she gained as an undergraduate with helping her think about the opportunities and issues facing the community in a different way. “I do think my environmental economics and management undergraduate degree allowed me to look at the circumstances in the village differently than my fellow volunteers who had different backgrounds, because I was looking at things in terms of scarcity, opportunity and trade-offs that people were making,” she said.

During her stay in Bungu, Love made the decision to return to CAES for graduate school. “My time in Tanzania made me want to learn more about behavioral economics, agricultural economics and development. I got really curious about the theory behind things,” she said. Completing graduate school, Love realized she felt too far removed from her work. “I’m here, this is a dream. I was never thought you would return!” It was amazing to show them I cared about them on a deeper level,” she said.

Now, three years later, Love is happy to report that the group they established is very effective. “It’s amazing how far they’ve come. Our group is transitioning to a self-sustaining business,” she said. Love credits the knowledge she gained as an undergraduate with helping her think about the opportunities and issues facing the community in a different way. “I do think my environmental economics and management undergraduate degree allowed me to look at the circumstances in the village differently than my fellow volunteers who had different backgrounds, because I was looking at things in terms of scarcity, opportunity and trade-offs that people were making,” she said.

A double-graduate of the college, Love (BS – Environmental Economics and Management, ‘11, MS – Agricultural and Applied Economics, ‘14) heard about the not-for-profit 2Seeds Network from a friend. She applied for a full-time, volunteer project coordinator position and found herself in Tanzania, in the village of Bungu, three months after receiving her bachelor’s degree. Along with two other 2Seeds volunteers from the U.S., Love began her nine-month stint in Bungu with three months of community assessment, honing in on community members’ major agricultural and food security issues. 2Seeds focuses on partnership and building something together, using the project coordinators’ critical-thinking and problem-solving skills coupled with the community members’ knowledge of the area to address food insecurity,” Love said. She learned that, while Bungu is very lush and gets lots of rain year-round, one major problem was market access. Love and her 2Seeds colleagues brought together 12 Bungu community members. The 2Seeds group visited and worked on their farms, used local experts to train them on simple economic concepts and then broke the 12 into three production groups. Members of each group rotated sowing different “cash crops” each month, then helped each other harvest them on simple economic concepts and then broke the 12 into three production groups. The members of each group rotated sowing different “cash crops” each month, then helped each other harvest and take the crops to market as one entity to offset labor and transportation costs. “We addressed market access by reducing transportation costs through farmers working together,” Love said. “We organized people rather than building infrastructure.”

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EMPOWERING AG LEADERS

2013-2014 class of Advancing Georgia’s Leaders in Agriculture and Forestry program graduates

The College of Agricultural and Environmental Sciences’ Advancing Georgia’s Leaders in Agriculture and Forestry program graduated 13 of the state’s industry leaders last fall. Participants gained knowledge in agriculture as well as business and leadership, and traveled across the state, nation and world, touring farms and processing plants.

A revamped version of its predecessor, the Georgia Agri-Leaders program, AGL educates and empowers Georgia’s agricultural and natural resource industry leaders to become effective advocates for the largest economic drivers in Georgia—the state’s agricultural and forestry industries.

“As millennials and Generation Xers are preparing to take on greater leadership roles, it is important to invest in enhancing their skills,” said Lauren Griffeth, AGL program director. “Our vision is to facilitate skills-focused leadership development that will help participants build professional capital while broadening their scope of industry knowledge.

“My experience in AGL helped me gain a better understanding of all the sectors within agriculture and forestry in Georgia,” said Jutt Howard, director of sales and scheduling for North Georgia Turf and 2013-14 AGL graduate. “I formed lasting relationships with my fellow participants and industry leaders across the state. The program focused on the current challenges our industry faces and taught me the tools needed to navigate through issues I might encounter as a leader.”

As a result of the program, Howard has taken on more leadership responsibilities and is more involved with industry organizations. “I stay more in tune with issues facing our industry and offer input to leaders affecting change and policy,” he said.

Coordinated in 2012 by the College of Agricultural and Environmental Sciences’ Department of Agricultural Leadership, Education, and Communication, AGL unites leaders from agriculture, forestry, natural resources and allied sectors so that they can help each other better understand these industries and analyze future challenges these industries may face.

“AGL gave me experiences that I never would have had, and contacts I never would have made,” said Jennifer Harris, marketing manager at White Oak Pastures and 2013-14 AGL graduate. “This was not just an agriculture course, but also a personality course, which helped me better understand myself and those around me. I believe that I am a better manager and employee because of some of the experiences I had with the AGL class.”

Amanda Tedrow, Clarke County Extension coordinator and 2013-14 AGL graduate, found mentors in her peers. “It was interesting to meet others in agriculture who are in leadership positions and see how they have similar experiences will play a tremendous role in Georgia’s agriculture community for many years to come.”

This year marks the beginning of the 2015-2016 AGL class. For more information, visit agl.caes.uga.edu.

“How would you help feed 9,000,000,000 people by 2050?”

MEET THE CLASS OF 2013-2014

 Brent Allen of UGA Extension, Washington County
 Brandon Ashely of the Georgia Farm Bureau Federation, Bibb County
 Sarah Cook of the Center of Innovation for Agribusiness, Turner County
 Steve Gibson of the UGA CAES Business Office, Clarke County
 Jennifer Harris of White Oak Pastures, Early County
 Jutt Howard of North Georgia Turf, Hall County
 Jussi Johnson of the Southern Land Exchange, Oglethorpe County
 Duane Myers of Kroger, Henry County
 Tate Islaz O’Rouke of U.S. Sen. Johnny Isakson’s office, Hall County
 Mark Rice of the UGA Marine Extension Service, Oconee County
 Amanda Tedrow of UGA Extension, Clarke County
 Rebecca Thomas of UGA Extension, Chattooga County
 Derek Wooten of Rocky Hammock Farms, Jeff Davis County

Alumna named director

Lauren Griffeth (BSA – Agricultural Communication, ’05) is the director of the new Center for Leadership in Agricultural and Environmental Sciences, a joint venture by the college’s Department of Agricultural Leadership, Education, and Communication and UGA Extension. In this position, Griffeth will oversee the Advancing Georgia’s Leaders in Agriculture and Forestry (AGL) and Extension leadership programs, including ExTEND and Extension Academy. In addition to her CAES degree, Griffeth has a master’s degree in educational administration and policy, and a doctoral degree in adult education, both from UGA.

“We want to hear from you!”

Win two tickets to South Campus tailgate! View our Facebook page at https://www.facebook.com/UGACAES.

Send your answers to Southscapes Managing Editor Kathryn Silvio at silvio@uga.edu or respond to the question on the college’s Facebook page at facebook.com/UGACAES.

Select answers will be published in the next edition of Southscapes, and three contributors will receive two tickets each to South Campus tailgate, the pre-football game event hosted each fall by CAES and the College of Family and Consumer Sciences.

If your answer is selected, be prepared to share your first and last names, degree (bachelor’s, master’s and/or doctorate) and degree area, your year of graduation and mailing information for your tickets.

9,000,000,000 PEOPLE

By 2050, there will be about 2 billion more people in the world, begging the question of how to feed a global population of 9 billion. Southscapes wants to know what you think. What steps can we as, the University of Georgia College of Agricultural and Environmental Sciences community, take to contribute to world food supply and food security to help ensure 9 billion people, globally, are fed?

By 2050, the college of agricultural and environmental sciences

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How would you help feed 9,000,000,000 people by 2050?

WIN TWO TICKETS TO SOUTH CAMPUS TAILGATE!
Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, visitors from across the country viewed work by Ross Oglesby is forever etched into Sunbelt Agricultural Exposition history.

During the 37th annual Sunbelt Expo, held Oct. 14-16, 2014, in Moultrie, lead dog: ross oglesby

Ross Oglesby works on a seal for the Sunbelt Expo Spotlight State Building.

The work of a College of Agricultural and Environmental Sciences graduate is forever etched into Sunbelt Agricultural Exposition history. During the 37th annual Sunbelt Expo, held Oct. 14-16, 2014, in Moultrie, Georgia, visitors from across the country viewed work by Ross Oglesby. Oglesby, who works for Keystone Memorials in Elberton, Georgia, supervised the construction of 10 granite seals that symbolize the 10 Southeastern states—Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Virginia—represented at Sunbelt. The seals adorned the floor of the Spotlight State Building, the newest addition to the grounds. Georgia was the Spotlight State in 2014.

The project was extensive, and the process for each of the 10 seals took about six hours. “The biggest issue with these was the real small, fine detail on the seals. It was a little bit smaller than what we normally do with the rest of our monuments that we produce,” said Oglesby, who was able to complete the project in two weeks. “I was very honored to be asked to do this.”

• Clint Thompson

Peyman Fatemi (MS – Food Science, ’98) joined AEMTEK, Inc., a food microbiology testing and consulting laboratory, as the technical director in charge of method evaluation and development, outreach and technical business development. He has two children and lives in the San Francisco Bay area, California.

Christy Page (B.S.A. – Agricultural Communication, ’98) opened Goodball Graphics, a marketing company specializing in silk screening, embroidery, signs, banners, promotional products, graphic design and monogrammed gifts. Goodball—online at goodballgraphics.com—has been in business since 2006 and is known for quality work and customer service. Prior to opening Goodball Graphics, Page was with the Georgia Agribusiness Council for 15 years.

Mandy Pullin (Sposaro) (B.S.A. – Animal and Dairy Science, ’99) lives in Clarksville, Tennessee, where she is a seventh-grade science teacher in Clarksville-Montgomery County School System.

R.L. Bob Blalock (B.S.A. – Poultry Science, ’81) received a bachelor’s degree in poultry science and graduated with the rest of our classmates.

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CLASS NOTES

2000s

Shepard Cronnecyes (BSA – Animal Science, ’98; MAED – Animal and Dairy Science, ’10) joined the staff of the Virginia Agribusiness Council as the director of membership.

Karl Hallbig (BSA – Agriscience and Environmental Systems, ’10; of Alapaha, Georgia, is an agriscientist for the University of Georgia College of Agricultural and Environmental Sciences.

Jason Kinsaul (BSA – Agribusiness, ’09) works with Rabo Agrifinance as the senior relationship analyst-vice president and lives in Athens, Georgia.

Glen Ramsey (MS – Entomology, ’10), of Braselton, Georgia, works with Agved Pest Solutions in Duluth, Georgia, as a technical specialist. Ramsey recently became an Entomological Society of America Board Certified Entomologist specializing in urban and industrial entomology.

2010s

Jessie Bland (Turk) (BSA – Animal Science, ’10) is the project coordinator for the Georgia Peanut Commission. Bland and her husband, Jason, a 2011 UGA graduate in forest and wildlife management, reside in Tifton, Georgia.

Ashley Hart (BSA – Food Science, ’10) lives in Minneapolis, Minnesota, and works with General Mills as a food scientist on Cascadian Farm organic granola.

Michael Pisciotta (BSA – Agriscience and Environmental Systems, ’10; MAL – Agricultural Leadership, ’11) joined the Star Granite Company in Elberton, Georgia, as the territory sales manager.

Andrew L. Ross (BSA – Agriscience and Environmental Systems, ’10; MAL – Agricultural Leadership, ’12) is a field representative for U.S. Sen. Johnny Isakson. Ross serves the constituents, business owners and elected officials of Middle Georgia. He serves on the public affairs committee of the CAES Alumni Association.

Elizabeth “Libby” Carter (BSA – Agricultural and Applied Economics, ’11; MAL – Agricultural Leadership, ’13) is the development coordinator for the University of Georgia College of Family and Consumer Sciences. Previously, she was the development research coordinator in the Office of University Advancement at the University of Georgia in Milledgeville, Georgia.

Dallas Duncan (BSA – Agricultural Communication, ’11) is the client relations manager for Computer Aid, Inc.’s agricultural data management software programs in Atlanta. She serves as a liaison between the government agencies and universities that use the programs and the company’s developers. Duncan is co-chair of the CAES Alumni Association student recruitment committee and runs successful knitting and Mary Kay businesses.

Matthew Pitts (BSA – Agribusiness, ’11), of Hendersonville, Tennessee, is the manager of key accounts with ConAgra Foods, Inc. He has been with ConAgra since 2011.


Jared Law (BSES – Environmental Economics and Management, ’12) is a sales representative for Helena Chemical Company living in Waynesboro, Georgia.

Working for UGA Extension is a Tankersley family tradition. Brian Tankersley’s (BSA – Agricultural Economics, ’79; BSA – Animal Science ’79; MAEX – Agricultural Extension, ’89) career as an agent in Randolph County was preceded by the extension agent careers of his older brother and two cousins. He worked in multiple counties, including Tift twice, where he retired from UGA in September 2014. “I did have a lot of family that were involved in Extension. Being a county agent was a well-thought-of position. I grew up in Lincoln County, and we heard, being a county agent, you were a key person in a rural community. People called on you, they needed you,” Tankersley said. His second stint in Tift County covered 15-plus years as he also served as county Extension coordinator. Tankersley was a resource for local farmers. “He is very informational, a good leader, professional. He is just an all-around good guy and we’re going to miss him,” said Philip Grimes, who owns Docia Farms in Ty Ty, Georgia. Chosen first as the state winner, Grimes was named the Swisher Sweets/Sunbelt Expo Southeastern Farmer of the Year in 2014 after being nominated by Tankersley. It was the second time Tankersley nominated a farmer that won the statewide award; he also recommended state winner Bill Binn in 2009. “I think Tift County, as well as South Georgia, is blessed to have such outstanding farmers. They’re feeding the people in the world. They’re laying it out on the line. The opportunity to help them was really good,” he said. Much of Tankersley’s success can be traced back to the college. He met his wife, Becky, while participating in the Block and Bridge Club. All three of their children graduated from UGA, and two of the three are graduates of CAES—Samantha Tankersley Kilgore, who serves as the director of communications for the Georgia Fruit and Vegetable Growers Association, and Ross Tankersley, who is a supervisor for UPS in Athens. Daniel Tankersley has a master’s degree in high school math education and teaches at Madison County High School. “The college has been great to us,” said Tankersley. Now that he’s retired from UGA, he is serving as agricultural business development coordinator at South Georgia Banking Company in Tifton. “I’m still working with farmers. I’m still working with projects related to agriculture. I’m still really helping people and that’s great,” Tankersley said. • Clint Thompson
Alumni Honored

Seven College of Agricultural and Environmental Sciences alumni were recognized during the 60th annual CAES Alumni Association Awards Banquet on Sept. 19, 2014, at The Classic Center in Athens, Georgia.

Young Alumni Awards

Jed Evans (BSA – Agricultural Economics, ’07) is the state young farmer coordinator for Georgia Farm Bureau and has grown the program’s membership and involvement.

Jim Faircloth (BSA – Agribusiness, ’08) is a district sales manager for Syngenta in Southern California, Arizona and Hawaii. He manages a sales team that provides seed, seed protection and crop protection systems to farmers in one of the most productive agricultural regions.

Rachel McClendon Santos (BSA – Agricultural and Applied Economics, ’10) worked for U.S. Sen. Saxby Chambliss on agricultural issues and is a legislative assistant to U.S. Sen. David Purdue. Santos advises the senator on legislation concerning agriculture, conservation, nutrition, forestry, rural development, energy, water and the environment.

Awards of Excellence

Larry Cunningham (BSA – Agricultural Economics, ’80) is president of R.L. Cunningham and Sons, a peanut buying and marketing firm based in Elba, Alabama maintaining gardens, a family legacy of more than 100 years.

Ron Holt (BSA – Biological Science, ’97) founded the Birmingham, Alabama-based Two Mails & A Mop in 2003, pioneering a system that pays house cleaners based on client satisfaction. Holt expanded his business to 13 locations over a decade and is franchising the brand across the U.S. Two Mails & A Mop was recognized as the country’s fastest growing cleaning business by Inc. magazine in 2013, and Holt was named a member of the UGA Alumni Association’s 40 Under 40 program in 2013.

Scott NeSmith (BSA – Agronomy, ’83; MS – Agronomy, ’86) revitalized UGA’s blueberry breeding program. Since 2001, his research resulted in 12 new blueberry varieties bred for production in Georgia. In 2014, Georgia became the No. 1 state for U.S. blueberry production. Under his leadership, UGA-licensed blueberries are now grown on every continent except Antarctica.

Floyd Shockley (Ph.D. – Entomology, ’09) is the acting collections manager for entomology at the National Museum of Natural History, Smithsonian Institution, in Washington, D.C., where he oversees the 35 million specimens of the U.S. National Insect Collection—the world’s largest. Shockley is a world-recognized expert in insect taxonomy and the evolution, natural history and comparative morphology of beetles, particularly fungus beetles. Shockley works in the entomological community by publishing research, reviewing other scientists’ research for journals and contributing to entomological outreach, directly and through tools such as the Bugwood Network and BugGuide.

Amanda Stephens (BSA – Agricultural Education, ’12) is the associate director of student engagement for the University of Georgia College of Agricultural and Environmental Sciences.

Kelly Troncoso (BSA – Biological Science, ’12) recently finished her second year of a two-and-a-half year physician assistant program at Mercer University. She hopes to practice in a pediatric hospital.


Clayton Brown (BSA – Agricultural Education, ’13) is an agriculture teacher in Rabun County and lives in Tigers, Georgia.

Sarah Hatcher (BSA – Food Industry Marketing and Administration, ’13) is the marketing and events manager for Young Chefs Academy in Sandy Springs, Georgia.

Stephanie Heifler (BSA – Animal Science, ’13) is currently studying at Georgia Regents University’s College of Allied Health Sciences to obtain a master’s degree in medical illustration.

Peter Eure (Ph.D. – Crop and Soil Science, ’14) is a research and development scientist for Syngenta Crop Protection.

Savannah Koetting (BSA – Agronomy, ’14), of Raleigh, North Carolina, works with BASF Corporation and is in the Agricultural Sales and Marketing Professional Development Program, an 18-month rotational program. She is currently working on the customer relationship management team at the sales and marketing headquarters in Raleigh. This spring, Koetting was placed in the Midwest for her sales rotation as she prepares to be part of the next generation of sales representatives for BASF.

Cassandra Kuzmiz (BSA – Agricultural Communication, ’14) is a communications specialist with the American Feed Industry Association. Located in Alexandria, Virginia, the American Feed Industry Association is the world’s largest organization devoted exclusively to representing the business, legislative and regulatory interests of the U.S. animal feed industry and its suppliers.

Follow the CAES Alumni Association on Facebook and stay plugged in to your alma mater. Search “CAES Alum.”

Alumni Honored (continued)

2010s

Anna McIntyre (BSA – Agricultural Communication, ’12) joined the staff of the Georgia-Atlanta-Business Council as the director of events and member relations. She is currently working on a master’s degree in agricultural leadership at the University of Georgia College of Agricultural and Environmental Sciences and serves on the student recruitment committee of the CAES Alumni Association.

Layne Oldfield (BSA – Animal Science, ’12) has been accepted and is currently enrolled in the University of Georgia’s College of Veterinary Medicine with plans to graduate in 2018.

Clay Oliver (BSA – Biological Science, ’12), a Georgia farmer, took home a Good Food Award in the oils category at the Good Food Award ceremony in San Francisco, California, in January. Since he started pressing food oils in 2012, Oliver has expanded to produce cooking oils from sunflowers, pecans and peanuts from his family’s farm just north of Pitts, Georgia. The Good Food Award Seal, found on winning products, assures consumers they’ve found something exceptionally delicious that supports sustainability and social good.

Olive Oils are produced on the Olive Farm, a Centennial Farm, in Wilcox County. Clay is a fifth-generation farmer continuing a family legacy of more than 100 years.

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Farm to Table

Kristin Hammock (Papak) (BSA – Horticulture, ’99) has used her College of Agricultural and Environmental Sciences education to experience a personal version of sustainable agriculture.

“My experience in the ag school was really my first introduction to the world of agriculture. And boy, was I hooked!” said Hammock, who initially came to the University of Georgia as a biology major, but then decided “life in a lab” wasn’t for her and opted for “something more tangible.”

“I researched my options and came across horticulture. It seemed perfect—it had the science I love, I would be outside growing things and I would be the next person in a long line of gardeners in my family,” she said.

After graduation and a stint in Alabama maintaining gardens, Hammock and her husband, Jeff, also a UGA graduate, moved back to Georgia, where she began a farm.

“I planted a vegetable garden. I planted fruit trees. I bought a few chickens. My husband built me the chicken ‘Taj Mahal’ knowing, before I did, that six hens would soon turn into 30,” she said.

With a love for cheese-making, Hammock quickly realized that her cheese was only as good as the milk in it, so she decided to buy two goats and supply her own milk.

“One hundred turned into 12. We built a barn. We raised some pigs,” she said.

“Two goats turned into 12. We built a barn. We raised some pigs,” she said.

“Somewhere in the midst of all this, I learned to forage edible, wild mushrooms, started raising broiler chickens and began to hunt deer.”

With a knowledge and passion for sustainable agriculture, Hammock and her family love to teach others about where their food comes from. She hosts regular field trips to the farm and maintains a blog about farm life.

“Five years ago, we would look at our dinner and point out the things that came from our farm. Now we look at our plates and point out the tremendous things we didn’t raise, usually the salt and olive oil, though the olive trees are growing on the deck,” she said.

The Hammocks own and operate Hammock Haven Farm in West Georgia. To read more about Hammock, her family and her farm, visit her blog at hammockhavenfarm.blogspot.com. • Maggie Dudzak
**Alumni meet donor challenge**

Last year’s appeal to Col-
lege of Agricultural and
Environmental Sciences
alumni donors to “double
their impact” started
when long-time CAES
supporters Dick and Julie
Phillips offered the college a
$25,000 challenge gift to
increase alumni giving to
the college’s Annual
Fund. From Sept. 1 to
Dec. 31, 2014, the Phillips
family matched, dollar for
dollar, the donations made by
CAES alumni to support
college initiatives,
including the Deans’ Promise
and the Eterra Fund. This
was an opportunity for
previous Annual Fund
donors to renew and
increase their
gifts, while also giving
new donors a chance
to double the value
of their first gift to
the college.

Thanks to CAES
alumni generosity
during the campaign,
the college was able to
secure the $25,000
challenge gift made possible by
the Phillips family. Another goal of
the challenge, to increase alumni participa-
tion, was also met—with more than 470
alumni donors this year, nearly double the
college’s enrollment.

**The “Double Your Impact” campaign featured the faces of CAES students Sarah and Rachel Harrison, sisters from Tifton, Georgia, who will graduate this May, both with bachelor’s degrees in poultry science. Their passion for poultry started with judging competitions when the sisters were part of Tift County 4-H. “That’s how we met a lot of faculty at UGA,” Rachel said. Both Sarah and Rachel have enhanced their classroom experience with internships through poultry science connections. Sarah has interned at Tyson Foods in Cumming, Georgia, and in Temple孵
ville, Virginia, while Rachel has worked at Zoo Atlanta, with the zoo’s birds and reptiles, and at Quailwood Animal Hospital in Tifton. **

The Department of Poultry Science has worked with Sarah and Rachel to secure scholarship funding for every year of their college career. **

The Harrison’s work with the department on the recruitment team and educate young students about the poultry industry.**

After graduating, Sarah thanks to their experience in the college and the poultry science department, Sarah is going to graduate school for poultry science, while Rachel has been accepted to the University of Georgia’s veterinary school. You can contribute to CAES this fiscal year, ending June 30, by giving online at caes.uga.edu/alumni/gifts or by mailing in the envelope included in this issue of Southscapes. **Kathryn Schiliro**

**For more than 30 years, the College of Agricultural and Environmental Sciences has recognized the best of its faculty and staff with the D.W. Brooks Awards and CAES Faculty and Staff Awards. The list of winners of this year’s D.W. Brooks Awards of Excellence are a great testament to them, to the commitment this college continues to have to our land-grant mission and to the legacy of success for our students, our state and agriculture worldwide,” said CAES Dean J. Scott Angle, at the awards ceremony.**

**D.W. BROOKS AWARDS FOR EXCELLENCE**

1. **Professor Terrence Centner**, of the Department of Agricultural and Applied Economics, won the D.W. Brooks Faculty Award for Excellence in Teaching. The award recognizes his work developing the college’s pre-law and environmental law programs, and his creative instruction.

2. **Professor Timothy Grey**, of the Department of Crop and Soil Sciences, won the D.W. Brooks Faculty Award for Excellence in Research. The award recognizes his work combating herbicide-resistant Palmer amaranth, or pigweed, and developing weed management strategies to replace a recently banned soil fumigant—methylene bromide.

3. **Associate Professor Dennis Hancock**, of the Department of Crop and Soil Sciences, won the D.W. Brooks Faculty Award for Excellence in Extension. The award recognizes his work as the state’s forage specialist and his efforts to promote sustainable and profitable grazing strategies to farmers across the state and the U.S.

4. **Janet Hollingsworth**, the Family and Consumer Sciences program development coordinator for Southeast Georgia, won the D.W. Brooks Faculty Award for Excellence in Public Service Extension. The award recognizes her work developing health, nutrition and child car seat safety programs in Appling and Wayne counties.

5. **Professor Ignacy Misztal**, of the Department of Animal and Dairy Science, won the D.W. Brooks Faculty Award for Excellence in Global Programs. The award recognizes his expertise in genetic analysis and animal breeding, which has led many international scholars to study with him.

**CAES FACULTY AWARD FOR OUTSTANDING ACADEMIC ADVISOR**

7. **Brice Nelson** (BSA – Animal Science, ’85), director of student and employer engagement, won the CAES Staff Award for Administrative or Professional Support. He has led the college’s student recruitment efforts for the past decade and has helped nearly double the college's enrollment.

8. **C.J. O’Mara** (BSA – Animal Science, ’92), senior agricultural specialist, and **Brooke Powell** (BSA – Agribusiness, ’99), agricultural specialist, both of the J. Phil Campbell Sr. Research and Education Center, won the CAES Staff Award for Skilled Trades Support. O’Mara and Powell managed the transition of the 1,055-acre research farm as it changed hands from the USDA to UGA.

9. **Tiffiny King**, senior graphic designer in the Office of Communications and Creative Services, won the CAES Staff Award for Technical Support. She has been a fixture in the college’s mascot, Caesar, 14 years ago. In 2014, she created a museum exhibit to celebrate the centennial of UGA Extension.

**D.W. BROOKS DIVERSITY AWARDS**

11. **Associate Professor Cesar Escalante**, of the Department of Agricultural and Applied Economics, won the D.W. Brooks Diversity Award for Faculty. The award honors his work supporting graduate students from diverse back-
grounds and his research into discriminatory lending practices and immigration policy.

12. **Brittnee Thirkield**, a graduate student in the Department of Food Science and Technology, won the D.W. Brooks Diversity Award for Students. Her award recognizes her work as a mentor to younger students, through both formal and informal interactions.
Looking forward

How an abstract art piece became the standing sentinel of a research farm

In 1954, Abbott Pattison, a visiting artist-in-residence, welded pieces of boilerplate steel to create a 12-foot-tall, two-ton, abstract, equine sculpture, what would become a landmark of both Athens and the University of Georgia.

The Iron Horse was crafted at the university and displayed in front of Reed Hall, which didn’t provide adequate safety for the sculpture. Students vandalized the horse, according to multiple sources, and the fire department was called and ordered to use the fire hose to force the students away from the sculpture.

After the chaos ensued from the Iron Horse’s presence on UGA’s campus, L.C. Curtis, a professor in the College of Agricultural and Environmental Sciences’ Department of Horticulture, asked for the horse to be placed on his row crop and cattle farm, located off of Highway 15 in Greene County, Georgia, where the sculpture remains.

There were later efforts to get the Iron Horse back on campus, but all failed. The Curtis family sold the land to the college but Jack Curtis, L.C.’s son, now deceased, retained ownership of the horse.

The college held an open house for the 660-acre farm—the Iron Horse Plant Sciences Farm—late last year. The Iron Horse Farm is used for field research, demonstrations and teaching. Crop and soil sciences, entomology, plant pathology and plant biology scientists and graduate students conduct research and instruction on row crop breeding, forage and biomass crop breeding, forage agronomics, weed control and management, insect control and pollinator protection, and disease control and management.

“This will be a showplace of agricultural research,” said J. Scott Angle, dean of CAES, at the farm’s open house event in late September. “We’re going to make this farm a showcase for agriculture, not only for our state, but for our country. The only way we can grow more food is through new technology because we have no more land, so what goes on here is very important.”

“We’re ramping this farm up to help benefit the growers of this state,” said Don Shilling, professor and head of the Department of Crop and Soil Sciences. “Twenty to 25 scientists will be working on this farm at any one time, and their work will be directly transferable to Georgia and the Southeast.” According to Shilling, university students and Extension agents will also have the opportunity to contribute to the research being done at the farm.

The Iron Horse now stands as a symbol of the college’s mission to explore and study sustainable agriculture in order to feed the world’s growing population.

**Maggie Dudacek**
Call him “Ranger Nick.”

When Georgia Farm Bureau’s “Farm Monitor” television show contacted Associate Professor Nick Fuhrman in 2013 and asked if he would be interested in filming a wildlife segment, he jumped at the chance.

“I said ‘yes’ because I love it. In a very selfish way, I love doing the Ranger Nick stuff, and I miss working with animals, even though I do it some in my classes,” he said. “I actually appreciate being called ‘Ranger Nick’ more than ‘Dr. Fuhrman.’ I think it fits me so well.”

Fuhrman, of the college’s Department of Agricultural Leadership, Education, and Communication, also saw the show as a way to let people know what universities do for the public.

“I try to take out all the academic jargon of what we do... With this show, I can reach out to the public, be down to earth, goofy and funny, and show people that I’m not an ivory tower academic who can’t relate to people,” he said.

The Ranger Nick segments air once a month on the “Georgia Farm Monitor” through 13 stations statewide, the RFD-TV Network nationally and can also be found on YouTube by searching for “Ranger Nick.”

Sharon Dowdy

Nick Fuhrman interviews (from left to right) service dog trainer Deana Izzo, with dog, Chandra, while trainer Danielle Arnold, with dog, Bentley, students Carrie Barber, Jake Todd, Eli Parham and CAES mascot Caesar listen in.