

TENNESSEE

LAND *life & Science*

VOL. 8/NO. 2/2011 | UT INSTITUTE OF AGRICULTURE

Working Toward Food Security

UTIA RESEARCHERS WORK TO BOOST
PRODUCTIVITY AND SUSTAIN THE SOIL

THE UNIVERSITY of
TENNESSEE 
INSTITUTE of
AGRICULTURE

Dear UTIA Friends,

As I write this letter, I am completing my second week as UTIA Chancellor. Thanks to everyone for the warm welcome that has been extended to me and my wife, Candy. It is truly an honor to join the UT family.

I'm excited about the opportunities and challenges that lie ahead for UTIA. The institute's faculty and staff team is an extremely talented and dedicated group of individuals who understand the role of the land-grant university. They are committed to meeting the needs of our students and the citizens of Tennessee through academics, research and extension. We remain committed to excellence in everything we do, and I ask that you be actively engaged with us as we move forward.

This issue of *Tennessee Land, Life and Science* highlights several of our important programs and accomplishments. One of our goals is to provide the very best hands-on learning experiences for our students. The clinical experiences provided through the College of Veterinary Medicine and internships through the College of Agricultural Sciences and Natural Resources are critical student development activities. You will read about examples of these experiences and how they have enhanced learning. One of our immediate priorities is to add a teaching farm located in close proximity to campus and increase opportunities for hands-on learning. We are working to accomplish this goal through private gifts.

The Native American Interpretive Garden recently opened on the agricultural campus. It is a cooperative effort between the University of Tennessee and the Eastern Band of the Cherokee. The garden will honor the Native American tradition dating back to 644 A.D. of using burial mounds as a way of burying and honoring their deceased.

In this issue, we honor a true friend of the University of Tennessee, Bromma Pemberton. We are so grateful for this centenarian and the support she provided for our agricultural programs. Thanks to her generosity, the Pemberton Endowment will support innovative agriculture programs in perpetuity.

As you can see, there are many exciting accomplishments in UTIA. Looking ahead, we will continue to face serious funding challenges due to our economy. Your support in telling the story of the importance of our programs is more important than ever.

Go Vols!



UTIA Chancellor Larry Arrington

At a special institute reception in October, UT President Joe DiPietro welcomed Dr. Larry Arrington and presented him with a chain of office signifying his leadership as chancellor of agriculture.

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Rich Maxey

On the cover "Child helping with the maize harvest, Tebellong, Lesotho." Photo credit: Barry Mann, www.barrymannphotography.com



6

TENNESSEE

LANDlife&Science

- 6** Outreach to African Nation of Lesotho Takes No-till to a New Level
- 8** Expanded Large Animal Hospital on the Way
- 9** UT Center Provides National Training in Food Security
- 10** New Faces, Changes at the Institute
- 11** Dr. Larry Arrington Arrives as Chancellor
- 12** Mike Keel Seals the Deal on 30-year Career
- 13** Native American Interpretive Garden Debuts
- 14** UT Extension Acting in Storms, East to West
- 15** Tribute to Beloved Professor Dr. Frank Bell
- 16** Jump-starting UT Research Spin-offs
- 18** Bromma Pemberton Leaves Legacy; NIFA Seminar
- 19** Undergraduates Intern Nationally and Internationally
- 20** Social Media: We're on it
- 21** In Profile: Dr. Don Hodges
- 22** Good Things are Coming
- 23** Young 4-H'ers Stitch Robes of Hope
- 24** Freshman Seminars Show Versatility of Faculty Members
- 26** Protecting Nursery Crops With Precision
- 27** The Gathering Invests Wisdom in Start-up Ventures
- 28** Alumni Share Memories of the College and Institute
- 30** Alumni Dream Jobs—Read About Theirs, Tell Us About Yours
- 32** New Facilities for Animal Science and Food Science and Technology



12



14



16

News around the Institute

IN A RESEARCH LAB, STUDENTS PROBE FUTURE OF BLUE CRAB POPULATIONS

Concerned about the blue crab's decline in the Atlantic Ocean and Gulf Coast, biosystems engineering senior Jay Bevington and classmates developed a system in the lab to raise crabs and perhaps someday replenish the population. In the protected environment, a female can lay her eggs in peace without the threat of predators disturbing them. In the wild, typically one in a million eggs makes it to adulthood. "So what we're doing is trying to increase the odds," Bevington says.

The idea is that someday crabs can be grown in artificial surroundings, raised to a certain size and then set free in the ocean. It could even happen in some Tennessee aquaculture operations.

Bevington and fellow seniors Joseph Freeman, Benjamin Hoptroff and Clayton Parsons ('11) received a research award for their design project from UT's campuswide Exhibition of Undergraduate Research and Creative Achievement (EURēCA).

Watch a video on this story by searching for "utiacomm crab lab" on YouTube. —Chuck Denney



Joseph Freeman and other UT biosystems students want a brighter future for blue crabs.



Fred and Fay Baker of Hickman County, and Tennessee farmers like them, want to keep their land in agriculture.

EFFORT TO PRESERVE FARMLAND NETS GOVERNOR'S AWARD FOR EXCELLENCE

The Farmland Legacy Partnership has been awarded the Tennessee Governor's Environmental Stewardship Award for achieving excellence in agriculture and forestry. The partnership represents more than a dozen organizations working together for the common good of helping Tennessee agricultural producers make sure that their land can be successfully passed to the next generation of producers.

UT Institute of Agriculture members active in planning and delivering workshops in the effort are Extension Area Specialist Alice Rhea, Research Associate Jane Starnes, Extension Area Specialist Alan Galloway, and Associate Professor Chris Clark and Assistant Professor Michael Wilcox of the Department of Agricultural and Resource Economics.

EXTENSION'S ALLAN TAPPED AMONG 'MOST INFLUENTIAL' IN SUMNER COUNTY

The Gallatin News Examiner has honored UT Extension Family and Consumer Sciences Agent Theresa Allan as one of the 30 most influential people of Sumner County, Tennessee, for 2011. The editors noted they originally chose a field of 100 or more citizens for the honor and had to narrow the number down to the desired 30. Allan made the final cut.

She was recognized for teaching approximately 15 programs that address aspects of human development, health and safety, nutrition, and family economics. While diverse, the newspaper noted, "All her programs focus on empowering people to make better decisions."



Theresa Allan

NATIONALLY, INTERNATIONALLY RECOGNIZED

- A UT College of Veterinary Medicine researcher has been tapped to serve the U.S. Department of State as a science advisor in Washington, D.C. Dr. Brad Fenwick, professor of Biomedical and Diagnostic Sciences, has been named a Jefferson Science Fellow, one of 13 scientists chosen for 2011.

- DuPont has awarded \$1.3 million to the 2011 class of DuPont Young Professors from universities around the world. The field of 18 honored includes Dr. Juan Luis Jurat-Fuentes, an associate professor and AgResearch scientist in the Department of Entomology and Plant Pathology.

Jurat-Fuentes and his lab team study the mode of action of *Bacillus thuringiensis* (Bt) toxins and the mechanisms through which insects develop resistance to them. The worldwide growth of Bt crop technology highlights the importance of Jurat-Fuentes' research to prevent insect resistance and preserve the utility of this technology.

HONORING OUR COMPANION ANIMALS

The UT Veterinary Social Work Program held its fifth annual Pet Memorial Day on Sunday, September 11. It was a day of remembrance to honor the companion animals that have touched owners' lives and hearts with their unconditional love, service and devotion.

HELPING FARMERS REBUILD A WORLD AWAY

For close to four decades, Extension Fruit and Nut Crops Specialist Dr. David Lockwood has been assisting Tennessee growers in starting, optimizing and sustaining their operations. By training two National Guard Agricultural Development Teams, the Plant Sciences professor is extending his skills out to farmers in war-ravaged Afghanistan.

"The troops wanted an overview of ways they could help Afghans get back on their feet in agriculture, specifically fruit production. While the time I had with the Georgia team was short, the day I spent with the Tennessee guardsmen was one of the most fulfilling of my life," Lockwood said. "Everybody was there because they wanted to learn. They were an eager audience, they asked a lot of good questions and they knew they'd be called upon to use the information."

"Basically the Afghans have gone a generation off the farm now, due to damage caused by the Russian invasion. They've just been trying to get enough to live on. Now they're able to start building back some agriculture themselves and hopefully this will develop to the point that they can start exporting fruit again. To me it was a real good feeling to have a little bit of a hand in resurrecting a way of life that they had known for many years and perhaps through the training make a positive contribution to their lifestyles and economy."



Dr. Brad Fenwick



Dr. Juan Luis Jurat-Fuentes



Dr. David Lockwood

Tennessee No-till Know-how Benefits Africa

ON THE CONTINENT OF AFRICA, THE NATION OF LESOTHO IS EXPERIENCING AN AGRICULTURAL CRISIS.

Dr. Dayton Lambert, a UT agricultural economist, likens the impact of human and environmental actions on soil degradation to a “perfect storm” of circumstances—ones that have now become a self-reinforcing cycle. The result is a crisis that began more than five decades ago in a nation with one of the highest rates of food insecurity in the world. Only 15 percent of Lesotho’s food is grown domestically. And that production is lessened each year by greater loss of soil fertility and loss of topsoil, resulting from dramatic erosion and land degradation.

“Use Google Earth and you can see the vegetation of South Africa next to the brown, washed out areas of Lesotho,” Lambert says. “One of their biggest exports is water to South Africa. Their second is probably soil just being washed away.”

Lambert is part of a team of four UT scientists and Extension specialists working with local scientists in Lesotho to demonstrate and evaluate different conservation agriculture technologies. Through comparison trials of various cover crops, plant population densities and planting techniques, they are searching for situation-specific solutions that smallholder farmers can use to boost productivity while improving and sustaining soil fertility and curtailing losses through erosion.

Their outreach began with a Ready for the World grant from UT, Knoxville. That program’s goal is to expand students and faculty members’ horizons through novel and international experiences. Students from UT and

Lesotho have each been involved in the conservation agriculture project. For UT students, it’s been a game changer.

“I still hear from students every semester, and they’ll always come back to things they saw and learned in Lesotho,” says Dr. Neal Eash, a soil scientist on the project.

“Real learning occurs when students look outside of who they are and where they come from to a different environment. It triggers creative thinking and changes how they see the world.

And it’s true for faculty as well: we bring different perspectives back into the classroom.”

The two other team members involved in the outreach are Dr. Forbes Walker, a UT Extension soil scientist, and Dr. Michael Wilcox, a UT Extension agricultural economist. All four have substantial experience working in Africa through the Peace Corps and other volunteer service organizations.

Investigating conservation agriculture technologies involves demonstration test plots and socio-economic surveys to understand current farming

practices and operations, as well as community openness to adopting new agronomic techniques. A baseline study will be repeated in five years to assess which farm households have adopted the technologies, who hasn’t, and the reasons why.

The Ready for the World funding enabled the team to win further grants. Funding from the U.S. Agency for International Development, U.S. Department of Agriculture and three international non-governmental organizations is supporting their work and expanding their research into Mozambique. The team’s dedication



Neal Eash

Water washes away Lesotho's topsoil, carrying it to South Africa.



Dr. Eash and a UT student examine a test plot of corn with graduates of the National University of Lesotho who now work for non-governmental organizations. The plot demonstrates conservation agriculture techniques and a plant population density the team is recommending to farmers.

exemplifies UT's land-grant mission to find and share solutions that improve society.

In some important ways, the situation in Lesotho parallels that of West Tennessee before the mid-1980s. There the use of the plow led to the loss of some of the most fertile soils in America. Through plowing and cultivating ever more marginal lands to try to feed their families, Lesotho's farmers have lost some of the most fertile soil in Africa. No-till, the soil conservation technology that UT researched and taught Tennessee farmers, is being taught again, this time in Lesotho.

"It just made sense to take what we've learned here and help a country in peril," Eash says. "Our Institute of Agriculture is built on food production. That's what we're good at, and that's what we can teach to others."

Dr. Makoala Marake is head of the Department of Soil and Resource Conservation at the National University of Lesotho (NUL). He is a partner in UT's work in Lesotho.

"In Lesotho, the organic link between agriculture and development is all too clear," Marake says. "A higher proportion of a rapidly growing population is increasingly becoming more dependent on the land for a livelihood, yet environmental degradation is resulting in declining productivity, in respect to both crops and livestock."

"Thus in Lesotho, the question of agricultural production is a clarion call for sustainable land management. It's a matter of concern for the present and, not just idiomatically, the future generation of our people."

A typical yield for conventional farming by a smallholder farmer is equivalent to 7 or 8 bushels of corn per acre. "In the U.S.," Eash says, "it's not uncommon to get combine losses of 5 to 7 bushels per acre."

"In our on-farm demonstration plots in Lesotho, by increasing the planting density and experimenting with inputs, we've achieved harvests that equal good yields in Tennessee—160 bushels per acre."

NGOs are teaching the conservation agriculture technologies to farmers. The UT-NUL research is providing the scientific data to inform their work. "Without us, it's

like giving recipes for a cake without ever trying out the recipe," Eash says.

At a recent field day, a Lesotho woman rose before dawn and walked seven hours to be there. She stood up and showed the ears of corn she had harvested. She had tears in her eyes as she said, "I can feed my family."

"That's the result of the work we're doing," Eash says. "To me, the reward is when I get out with farmers and see the pride they have in what they're doing. Africa's pride has been beaten down. To see it come back, to see a twinkle in their eyes and see that they're happy and thankful for what they have. That to me is what it's all about."

"In a nutshell it's about people and capacity building and helping them to help themselves. UTIA has taught generations of Tennesseans. Now we are bringing that Tennessee know-how to a destitute Africa. Go Volunteer spirit!" —Margot Emery



Dr. Forbes Walker (left) harvests corn plots in Maphutseng, Lesotho, with a recent graduate from the National University of Lesotho (NUL) Molefi Mpheshea (center) and NUL soil science technician Mafona Mothabeng. In January, Mpheshea will begin study in Knoxville for an M.S. in soil science under Walker and Eash in the Department of Biosystems Engineering and Soil Science with funding from USAID.

Off to a Great Start, Large Animal Hospital Expansion Moves Ahead

The long-awaited expansion and renovation of the Large Animal Hospital at the UT Veterinary Medical Center is underway. The center plays a prominent role in supporting animal industry needs throughout the region—from using MRI to diagnose a lameness problem in the individual equine athlete to protecting herd health and helping increase a producer's bottom line. This project is essential to the College of Veterinary Medicine's commitment to the people and animals of Tennessee and across the southeastern states.

Designed to meet the needs of the animal industries throughout the region for several generations to come, the \$20.9 million expansion will help the center protect the food supply from farm to fork, provide the most advanced technologies and medical therapies available, meet all the medical needs of the center's equine owners and industries in one location (and eliminate the need to trailer horses out of state), and ensure we are able to maintain our responsibility to provide a strong teaching program for veterinary students. This facility will continue to be bolstered by clinical, translational and basic research, something only found at an academic Veterinary Medical Center.

The equine and farm animal hospitals will encompass 33,446 square feet of

new construction and 18,764 square feet of renovated space. New equine space will include a permanent MRI unit and expanded surgical and isolation space. The center's new farm animal hospital will include a dedicated farm animal isolation unit, standing and recumbent farm animal surgery suites and a secure off-loading facility. The new large animal reception area will include space for client waiting and consulting as well as continuing education areas. A separate facility will house the center's new equine orthopedic diagnostic center at 32,225 square feet, allowing the center to provide contemporary equine diagnostics, treatment and rehabilitative therapies. Total area for the entire project is 84,435 square feet. The target date for project completion is December 2012. —Sandra Harbison

Thank You!

With the help of private donations from clients and friends, alumni and alumni classes, and numerous organizations and associations committed to animal health and welfare, the college more than fully achieved the \$1 million Large Animal Hospital Challenge Match provided by the university. This match jump-started the private funding of the project.



Attending the spring groundbreaking ceremony were L to R: Jim Thompson, CVM Dean; Drs. Mickey Sims and Steve Adair; Scott Wyrick, CVM General Superintendent; Dr. Carla Sommar Dahl; Julius Johnson, then CAO, Tennessee Farm Bureau Federation and now Commissioner of Agriculture; Joe DiPietro, UT President; Lacy Upchurch, Tennessee Farm Bureau Federation President; Jim Hinton, Cope Associates Inc.; Dr. Juergen Schumacher; Steve Glafenhein, Institute of Agriculture Director of General Services; Dr. Bob DeNovo; Lanny Cope, president, Cope Associates Inc.; and Al Claiborne, veterinary student '14. Cope Associates, Inc. of Knoxville, Tennessee is the architect for the Large Animal Hospital renovation and construction project.

New Initiative Will Improve Safety of Nation's Food Supply

Through a grant funded by the U.S. Food and Drug Administration, the institute's Center for Agriculture and Food Security and Preparedness (CAFSP) will develop and deliver high-quality training to food safety officials at the local, state and national levels. Projected to be funded at \$6.6 million across five years, this work is in support of high priority needs of the National Integrated Food Safety System. The goal is to achieve consistent, quality food inspection throughout all 50 states and U.S. territories.

The work builds upon the center's core competencies in developing food safety and defense training courses for a national audience. The Department of Homeland Security and other federal agencies have funded this previous work. The new training courses will draw upon that previously developed curriculum as well as new courses that focus on national food protection. This program will support implementation of the 2011 FDA Food

Modernization Act, which mandates consistent food protection training.

The CAFSP will train food safety officials who are responsible for inspecting 80 percent of the nation's food supply. They monitor food safety at processing facilities, grocery stores and restaurants. They also are expected to act when communities experience disasters. Picture hurricanes, flooding, lengthy power failures and accidental or intentional disasters affecting the food supply. All can impact the safety of food available to consumers.

"We want to provide nationally consistent training that will improve inspectors' preparedness to meet these challenges," said CAFSP Director Dr. Sharon Thompson.

"We also want to help inspectors deal with the diversity of food imports, much of it ethnic in nature. These foods may be unfamiliar to the inspectors, including the health risks that contaminated foods

may pose." The CAFSP will also focus on training related to the safe transportation of food once it reaches U.S. borders. Safe food transportation practices can also prevent contamination and adulteration of food products.

In addition to providing training that will help inspectors expand their skills, the CAFSP will train them in cultural competencies so they are prepared to work with ethnically diverse food processors and vendors. Assisting in the effort will be two sub-contractors with experience serving multicultural populations: New Mexico State University and the University of Hawaii, both land-grant universities, as is UT.

"The exciting thing about this is preparing the nation to do consistent, quality inspections that make sure our food supply is safe," Thompson says.

"I think it's exciting that we'll be on the ground floor building it." —Margot Emery



Watch a Today Show segment on risks posed by improper refrigeration in trucks transporting food. The video is at <http://on.today.com/foodinspection>.



CASNR NAMES ASSISTANT DEAN

Selected from a talented pool of candidates, Dr. John Stier was chosen to join the institute and College of Agricultural Sciences and Natural Resources as assistant dean.

"He brings with him a delightful sense of humor, a passion for students, and a strong work ethic," says Dean Caula Beyl. "He will be able to share new perspectives on the teaching mission and best practices gained from having experienced the academic side of three different universities: the University of Wisconsin, Michigan State University and The Ohio State University."

"I'm tremendously excited to be joining the dynamic team of faculty, staff and students of CASNR," Stier says. "There are a lot of great activities going on, more in the works and a wonderful sense of enthusiasm and opportunity. My family and I are eager to be among the newest Volunteers."

UT APPOINTS SCHRICK HEAD OF ANIMAL SCIENCE

The Department of Animal Science has a new leader. Dr. F. Neal Schrick, a full professor in the department, assumed the role effective November 1.

"Dr. Schrick's track record as a UT faculty member speaks for itself," said Dr. Larry R. Arrington, chancellor of the Institute of Agriculture. "I'm pleased to have someone of his caliber leading the Department of Animal Science and look forward to seeing the department continue its tradition of excellence."

Schrick has been honored for his teaching and research of reproductive physiology and endocrinology in cattle. He is the principal or co-principal investigator on more than \$7.6 million dollars in grants and contracts. He holds a patent and routinely speaks at international, national, state and local events on causes of reproductive loss in cattle and methods for improvement.

KOON TAPPED AS REGIONAL AGRICULTURE PROGRAM LEADER

Martin Koon is the new regional agriculture program leader for UT Extension's Central Region, based in Nashville. In his 18-year career with Extension, Koon has worked with youth, adults, animals, computers, bows and arrows, ATVs and video games. In his new capacity, he will work with directors, specialists and agents in the 31-county area that covers all of his native Middle Tennessee.

"One of my goals," Koon says, "is to develop a 'Young Professionals Cohort' for new agents to prepare them for work with UT Extension. I believe our employees are our greatest resource, and we must provide training to help them be successful."

NEW DIRECTOR OF SERVICES FOR THE INSTITUTE

Succeeding Mike Keel who retired from UTIA this year (see page 12), UT system architect Steve Glafenheim has been appointed director of general services for the institute. As architect, Glafenheim worked closely with Keel and has guided many projects across the institute's statewide campus.

"I've developed a strong passion over the years for the mission and vision of UT's Institute of Agriculture," Glafenheim says. "I am really excited about the future and being a part of the most unique and diverse campus of the UT system."

NEW DIRECTOR OF FOREST RESOURCES CENTER

Dr. Kevin Hoyt is the new director of the UT Forest Resources AgResearch and Education Center and Arboretum. Hoyt succeeds Richard Evans who retired after 39 years as director. Hoyt earned B.S. and Ph.D. degrees from the Department of Forestry, Wildlife and Fisheries. Prior to his appointment, he worked as a senior forestry analyst and sustainable forest manager.

One of 10 field laboratories operated by UT AgResearch, the Forest Center is headquartered in Oak Ridge, Tennessee, and also manages forests in Morgan, Scott and Franklin counties.



Dr. John Stier



Dr. Neal Schrick



Dr. Kevin Hoyt



Martin Koon

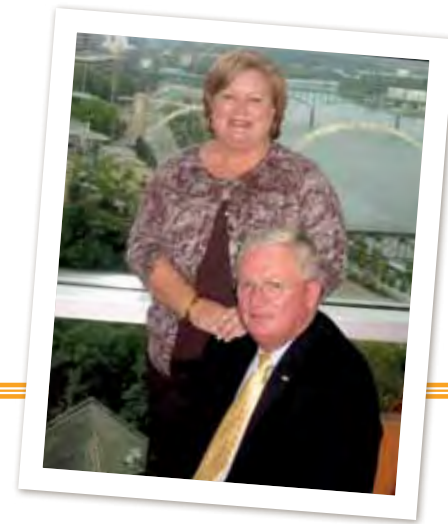


Steve Glafenheim



TRANSITIONS

WELCOMING DR. ARRINGTON



Kelly and her children, Jackson and Wyatt; Justin and his daughter Ellie; and youngest son Brett who lives in St. Petersburg, Florida, working and going to college. —Lorna Norwood

On a cell phone in the parking lot of the local barbecue place in the small town of Bell, Florida, six miles from his house on the Suwannee River (where cell service is spotty), incoming Institute of Agriculture Chancellor Larry Arrington said he considers himself a “river rat.” “I love to be on the river, I love to be outdoors, I love to play golf.”

He came by that love of all things outdoors honestly. Raised in rural Plant City, Florida, population 20,000, Arrington developed a love of the land and agriculture early in life. He grew up in the vegetable and cattle industries, and his father was his high school agriculture teacher. He attended his first FFA convention when he was about 3 years old.

“I grew up in agriculture, 4-H and FFA. I showed cattle, and I was lucky enough to be on the state winning FFA livestock judging team in the ninth grade,” he reflected. That experience allowed him to spend a lot of time on a land-grant university campus. “It all kind of came together for me and that exposure helped me get through college and kept me out of trouble.”

In fact Arrington, who holds a Ph.D. in agricultural education from The Ohio State University, spent his career working in agriculture at the University of Florida where he served as Extension dean and interim vice president of agriculture and natural resources. His move to the UT Institute of Agriculture September 12, 2011, allows him to continue his commitment to the land-grant system.

Having already sold his home in Florida at the time of this interview, he and his wife Candy had everything in storage and were living on the river until they could close on a home in Blount County, 18 minutes southwest of the institute campus. He described the property as small and not requiring a lot of upkeep.

He has enough on his hands in this, his first year at the institute. He said his three goals “out of the gate” are: learning the internal and external workings, our faculty, our people, our structure, our clientele; getting to know state and federal legislators before the state legislative session starts in the spring; and learning our processes and procedures for engaging our clientele.

“I don’t think anything is broken, I just think part of our continued success will be making sure we have clientele engaged in the decision-making process, especially with regard to our programming,” he explained.

Arrington said he feels good about what he has seen and heard so far at the institute, especially the level of teamwork and commitment that seems to be pervasive. “We have a group of deans who work well as a team, and many faculty members bragged to me about that during the interview process.” He said that he is also encouraged by the reciprocal level of appreciation and willingness to work together between the institute and the Knoxville campus.

He realizes, though, that there are also challenges. He said he believes funding issues will continue to be the greatest challenge for the next couple of years, as well as infrastructure issues and developing a workload methodology that will help justify and balance financing the land-grant side with the tuition side.

The Arringtons have three adult children and three grandchildren:





Mike Keel and a surprise flock of flamingos celebrating his flying the coop. Keel and his wife, Martha, established an endowment to keep the institute's grounds well-maintained. Pink flamingos have only put in one appearance, in Keel's honor, on the lush lawn surrounding Morgan Hall.



MIKE KEEL SEALS THE DEAL ON 30-YEAR CAREER

He's a gentle giant of a man with an even bigger heart.

Mike Keel just ended a 30-year career with the UT Institute of Agriculture, with much of that time as director of General Services. He supervised capital outlay and maintenance projects, as well as upkeep of all the buildings in Knoxville, the three 4-H camps and 10 AgResearch and Education Centers across the state.

"I've always tried to be a 'can-do' person," Keel says. "I'm persistent, and I work hard. What I did was cultivate relationships to

improve the ag campus. I also sought to motivate people so they felt good about their work."

Keel should feel good about his work, too. Among the construction and renovation projects he's led: the Plant Biotechnology Building, Brehm Animal Science and Food Science and Technology buildings, and numerous greenhouses and labs. Keel is especially proud of the work he's done improving the 4-H centers. "That's been a career-long process to improve the standards at our camps so parents could be proud of them and we could, too," he says.

He served as a top advisor to five different UTIA vice presidents, and he admires every one of them. "Each had different philosophies and managed people differently, but they were all good people," he says. "I always tried to be an asset and loyal to them, and I learned a lot from each one of them."

We mentioned Keel's big heart. He's been honored with the Friend of 4-H Award. He's also served as chair of the UT Federal Credit Union's board of directors and received the Medic Blood Service's Outstanding Community Service Award. He's given time

to youth in the community and even coached Little League.

At 6-foot-6, Keel possesses a long and sweet golf swing and has broken 70 on the course before. He and his wife, Martha, enjoy golf together, and Keel has been to almost every Masters Tournament since the mid-'60s.

Besides golf and his talented granddaughter's ice skating events, Keel has no real plans for retirement. He might have a home office, but other than that ... "I'm looking forward to having very few responsibilities," he says.

—Chuck Denney



NATIVE AMERICAN INTERPRETIVE GARDEN HONORS, PROTECTS SACRED SITE

*T*he past and present came together when the University of Tennessee and the Eastern Band of the Cherokee dedicated the Native American Interpretive Garden on the Institute of Agriculture campus June 15. A sacred place for reflection and remembrance, the project realized a vision of former Plant Sciences professors that dated back to the '70s.

"It's a place that's going to be preserved. The endowment which we're going to participate in is going to be structured to give it perpetuity. That's the gratifying part to know that we've accomplished something, and it's going to be maintained. That excites me," said Eastern Band of the Cherokee Nation Principal Mitchell Hicks.

UT President Joe DiPietro said that the vision goes beyond just the physical location. He said that efforts are underway to make it easier for Native American students in North Carolina to attend UT at in-state tuition rates. DiPietro has established an endowment in former President Jan Simek's name to provide ongoing support for the garden. Simek, distinguished professor of science and an archeologist with expertise in Southeastern archeology, was instrumental in restarting conversations with the Eastern Band of the Cherokee to move the project forward.

The goal of the garden is to honor the Native American tradition dating back to 644 A.D. when the Woodland

People used burial mounds as a way of burying and honoring their deceased. The project is designed to enhance educational opportunities and the aesthetic beauty of the Indian Mound Park with native plants and interpretive signage.

The original design was developed by Ornamental Horticulture and Landscape Design professors Hendrik van de Werken and Don Williams and has since been updated and enhanced by Sam Rogers, registered landscape architect and associate professor in the Department of Plant Sciences. Van de Werken and Williams' early efforts resulted in the Indian Mound being placed

on the National Register of Historic Places in 1978.

Funding for the project has come from across UT, as well as from the Cherokee Nation and agricultural honor society Gamma Sigma Delta.

—Lorna Norwood



UT Aids Citizens After Devastating Storms

WEST TENNESSEE

Widespread flooding last May hurt homes, lives and threatened livestock. That's where Shelby County UT Extension Agent Becky Muller stepped in. Working as a partner to the county's Medical Support Command and Disaster Animal Rescue Team (DART), she coordinated rescues and hay donations for 125 horses and a herd of goats. "Anything large-animal related was funneled to me, even 12 deer 'trapped' on President's Island."

Youth in 4-H also got involved. When school bells started ringing this fall, students in Dyer County had new supplies—courtesy of a service-learning project by 4-H youth statewide. "Mississippi Rising—4-H Responding," collected 850 items for children affected by flooding. —Margot Emery with Chuck Denney

MIDDLE TENNESSEE

Violent spring storms struck much of lower Middle Tennessee, with widespread wind, hail and water damage to structures, fences, crops and livestock. An April 27 tornado that was spawned from a storm that killed 71 in Hackleburg, Alabama, hit Franklin County. While there was no loss of human life, farmers lost barns and timber and suffered all manners of damage.

In Lincoln County, where an EF-2 plowed through, County Director

David Qualls said the damage was difficult to estimate. "We responded to calls regarding everything from building damage, safe food storage following electric outages, tree damage and removal, and livestock poisoning." Qualls explained that when fences are down after a storm, animals will get into woods and eat things they shouldn't eat, particularly wilted leaves from cherry trees. "Almost any fruit tree, but especially wild cherries, produces cyanide and their leaves are poisonous until completely dry. But they smell sweet and are attractive to livestock," he said. "We answered a ton of calls."

Qualls said the April storms were just the first of many in 2011, which made it a difficult summer for his clients. "We had four major storms last summer, and lots of people were hit," he

said. "One of my clients suffered damage all four times." —Patricia McDaniels

EAST TENNESSEE

All day April 27 storms threatened Bledsoe County. That evening an EF-4 tornado carved a 10-and-a-half-mile swath through the Brayton and New Harmony communities. UT Extension agents worked full time at an emergency command post at the seed and feed store at the Jackson Family Farms in central New Harmony. "Extension helped us recover," said Justin Jackson. The agents cooked and distributed food, water and clothing and did what they could to help emergency workers.

"They also helped us with information," Jackson said. "One of our biggest problems

was knowing what to do with building insulation that had been scattered across our fields. For us alone, it probably affected 100 acres."

"We did everything we could think of to help," said Shirley Riggs, a program assistant with the Tennessee Nutrition and Consumer Education Program. "This was just something none of us had ever been through, and we hope never to go through it again."

—Margot Emery

The Jackson Family Farms sustained \$350,000 in damage, and their neighbors suffered big losses, too, in farm damage and damaged or destroyed homes.



WEST TENNESSEE

Extension Agent Becky Muller rescued horses from TC Stables in Shelby County. Two days later, floods threatened to submerge nearby power lines.

Becky Muller



EAST TENNESSEE

Julie Jackson

A Tribute to Dr. Frank Bell

Beloved professor Dr. Frank Bell passed away last December at age 95. He taught at UT from the end of World War II to 1981. More UT ag alumni named Bell as the faculty member who had the greatest impact in their academic and professional lives than any other in a 1989 survey.

He was best known for teaching the undergraduate soils science classes and as an official or unofficial adviser and mentor to generations of students.

"Dr. Bell demanded perfection from his students in the soils and farm management classes," recalls Donald Walton, '78 Ag Mechanization. "He expected hard work from us and generally got it. This included spelling and grammar."

Bell cared deeply for students and graduates. He was good about remembering details of their lives, and he founded both dial-a-tutor for the college and, in the first year of his retirement, joined with 'Prof.' Ed Lidvall to found the institute's alumni gathering, Ag Day.

He also had a good eye for land. "When my father (Donald Walton, '37 Ag) was looking to buy our farm, he

had Dr. Bell come and look at it," says Walton. "The farm was overgrown, but in one area they found some pokeweed about 10 feet tall. Dr. Bell told my father if he didn't buy the farm, then he would."

As a student, Paul Denton's first course at UT was with Bell in Brehm's tiered auditorium.

"There were two double doors leading into that classroom. Suddenly they crashed open and Frank Bell exploded into the room. He was talking and laughing with his graduate students on the front row and then he plunged into teaching. I thought if this is what my classes at UT are going to be like, wow!

"Dr. Bell had a dynamic and out-sized personality in his life, and as a teacher he was like that all the way through,"

says Denton, now a Plant Sciences professor and '76 B.S., '78 M.S. Plant and Soil Science graduate.

"I think Frank's life lessons were more important than his soil lessons," says Lynn Murray, '67 Agronomy and now senior manager of dry bean procurement for Bush Brothers Inc.

"I've forgotten a lot of the scientific facts I've learned in his class, they come and they go, but the kinds of things students learned just from watching him and being around him remain: the value of hard work and fair play and that doing the right thing will get you somewhere in life."

When Bell mentioned his main contributions and best students, the name of Professor Charlie Graves always came up. "He'd say 'Charlie's the man. Charlie's the man!'" says Denton.

"I wouldn't be here today if it wasn't for Frank Bell," says Graves, who is now retired from Plant Sciences. "After being in the Navy during the

Vietnam War, I returned to UT to train to be an ag education agent. It was all I thought I knew how to do." But when Bell met Graves, Bell told him he needed to go to graduate school to study agronomy. "I told him I was only a sophomore!"

With Bell's guidance, he completed his B.S. ('58 Ag Ed) and went on to earn a master's ('59 Agronomy). Working with former Vice President of Agriculture Webster Pendergrass, Bell managed to get Graves hired to conduct UT's state variety test program. For 41-and-a-half years Graves conducted the tests, declining offers of other jobs. "I had the best job in the Experiment Station, and while I didn't see much of Frank during that time—he was busy teaching students—he continued to look after me throughout his career.

"Frank had a knack of thinking you were better than you were," Graves says. "And this inspired us to live up to his estimation. He was one of a kind that way."—Margot Emery



Jump-starting UT Research Spin-offs



Better Medical Implants

Dr. John Biggerstaff is a world-class specialist in inflammation response and blood flow. Manufacturers of medical devices need better data on how their products interact with the body. “Sometimes you want the body to interact positively with the system, but with other things such as oxygenators, you don’t want the body to react to at all because blood flow can be altered and have deleterious effects on organs or even cause death,” he says. Doctoral student Ben Curry fell in love with the research and is refining what they believe is the most comprehensive set of tests in the country that assess biocompatibility of medical implant devices. Biggerstaff says, “Application of this technology to new medical devices will save lives.”



Sensors for Disease Control

As they work toward a technology that farmers can use in their fields for disease prediction and control, biosystems engineer Dr. John Wilkerson, plant pathologist Dr. Mark Windham and master’s student Crystal Kelly have devised a wireless network of small environmental sensors that provide an early warning when conditions are right for disease growth in greenhouses. “With greenhouses, one area may receive more light, another more heat,” Kelly says. “This network of data would make greenhouses more efficient and environmentally friendly. It would also allow more precise watering and use of chemicals.” The result would be healthier, more uniform plants and less dead loss.

UT Distinguished Professor Fred Tompkins is on a mission. Through a new special topics course, he is striving to open students and professors’ eyes to the idea of launching innovative and potentially lucrative business spin-offs. His vision is to enable students to create careers for themselves—ones that potentially enrich East Tennessee’s technology business base, grow jobs and boost the state’s economy.

The course is offered through the College of Agricultural Sciences and Natural Resources, but its reach extends to students across the university who are engaged in the sciences, engineering and technology development.

As former CEO of the university’s Research Foundation, Tompkins knows the value of faculty members’ discoveries. But professors are generally fully focused on gaining and sharing knowledge, not creating commercial ventures. And that’s where opportunity for their students comes into play.

“Many of our science and technology-focused students have never considered launching venture spin-offs,” Tompkins says. “I want some of them to get ‘bitten by the bug’ or at least open their minds to that potential.”

Twenty guest lecturers join Tompkins to share their first-hand knowledge of various aspects of launching a business venture and making it succeed.

“The course is all about encouraging, educating and enabling,” he says. “I’m also always on the lookout for folks who are willing to invest funding in these students – money that can be used to mature their ideas and their technologies and to determine if a viable business that can meet a societal need is a real possibility.” —Margot Emery



Detection of a Killer Disease

There is no imaging test available in the U.S. to detect an under-diagnosed disease called amyloidosis. This disease can trigger Alzheimer's and contribute to heart failure, Type 2 diabetes, rheumatoid arthritis and about 23 other diseases that ultimately lead to death. Dr. Jonathan Wall, student Emily Martin and three other researchers at the UT Graduate School of Medicine have developed a peptide agent, formed a start-up LLC called Solex, and are working on an imaging procedure to empower physicians to detect amyloid deposits and instantly assess the effectiveness of treatments. The Mayo Clinic has said if it is available, they'll use it. Their next step is to obtain funding for a clinical trial.

Vertical Urban Crops

Tim Carter sees vertical greenhouses as a way to bring agriculture to densely populated areas and cut the costs of trucking produce across the country. "I envision a building comparable to a 2-acre plot in which plants are grown hydroponically with optimum fertilization and light." His concept uses new technological breakthroughs in LED lighting for low-cost, highly efficient grow lights and the latest in computer-controlled environments. "With our population increasing and more people moving to cities for jobs, farms will have to transform—at least in the future when fossil fuels won't sustain us." His retail flower business, The Butterfly Garden of Knoxville, is a way to raise funds for his company, Proventus.



AgResearch Hosts Federal Grants Webinar

Last August, National Institute of Food and Agriculture program leaders, in partnership with the institute, offered a one-day national workshop covering the preparation and management of competitively awarded, systems-based grant applications. There were more than 300 registered participants, with each of those potentially representing groups of viewers using a Web interface to follow the program.

“This was an excellent opportunity for UT AgResearch scientists and Extension specialists to learn about upcoming USDA NIFA grant programs and how to integrate their work into future successful grant applications,” says Dean of Research Bill Brown. “We are proud that UTIA hosted the event and that a capacity crowd turned out for it.”

The U.S. Department of Agriculture Sustainable Agriculture Research and Education program, the Specialty Crop Research Initiative, the Organic Research and Extension Initiative and the Organic Transitions Program all solicit applications that use a systems approach and trans-disciplinary teams to meet challenges faced by producers and consumers. —Margot Emery

A capacity crowd of researchers and Extension personnel took part in the USDA webinar.



Pemberton Leaves Legacy at Institute

Bromma Pemberton Linville passed away on March 8 at 101 years of age. Few individuals have been as dedicated to the Institute of Agriculture and the University of Tennessee as Bromma and her late husband, Grover Pemberton. More than 30 years ago, Grover and Bromma established the Grover Pemberton Agricultural Endowment with the Institute of Agriculture. Through a gift of Grover's family farm, the Pembertons created a legacy for their love of agriculture and the University of Tennessee.

Bromma was the epitome of a self-made woman. She evolved from meager beginnings to serve as the senior vice president of the First National Bank in Oneida, Tennessee, and officer on dozens of boards and organizations. Even after the passing of Grover in 1983, Bromma maintained a close relationship with the Institute of Agriculture through her service on the Agriculture Development Board and interactions with faculty and staff. She has always been known for her trademark color pink in every outfit and the butterfly pin that she wore on her shoulder. At the age of 100, Bromma authored a memoir titled “A Butterfly on My Shoulder” that told her story of growing up poor and evolving into a civic and social leader in East Tennessee.

Bromma's love for the University of Tennessee extended well beyond the endowments established in her husband's name. So, as she made arrangements for her estate, the University of Tennessee was a major benefactor. Through her estate plan, the Institute of Agriculture received a third of the \$3 million estate gift to UT.

We are very thankful for her service and generosity to the Institute of Agriculture and the university. —Rhodes Logan



National, Global— These Students are There

Summer, a season of lazy days, vacations and general goofing off. That is, unless you're a college student intent on making the most of your time away from class. For motivated students, summer means one thing: internships. Here are three CASNR students who made the most of their time away from campus last summer.

For Heather Bayko, a recent graduate in animal science, her internship took her to Paris, France. Bayko was selected for an internship with the U.S. Department of State, Bureau of European and Eurasian Affairs (EUR). Her area of work with EUR was in the Environment, Science, Technology and Health section.

While in Paris, Bayko worked on a number of U.S. foreign policy science issues ranging from climate change to nuclear policy to trade patterns of genetic animal products between France and the United States. "The neatest part for me was being on the policy side of these scientific issues," she says. "I worked bilaterally with French counterparts within the French government on science and agriculture issues and was able to use my knowledge of the French language daily."



Evan Betterton, a rising sophomore majoring in natural resources and environmental economics, spent his summer in Washington, D.C. He spent 10 weeks serving as a program assistant for the Citizenship Washington Focus Program. Betterton

was one of eight students selected from a pool of 600 applicants. "I'm truly honored to be selected and look forward to sharing this unique educational experience with 4-H members across the country," he said.

As part of his internship, Betterton helped to facilitate the program's educational workshops, which focus on responsible citizenship, leader-

ship development, healthy lifestyles and cultural awareness.

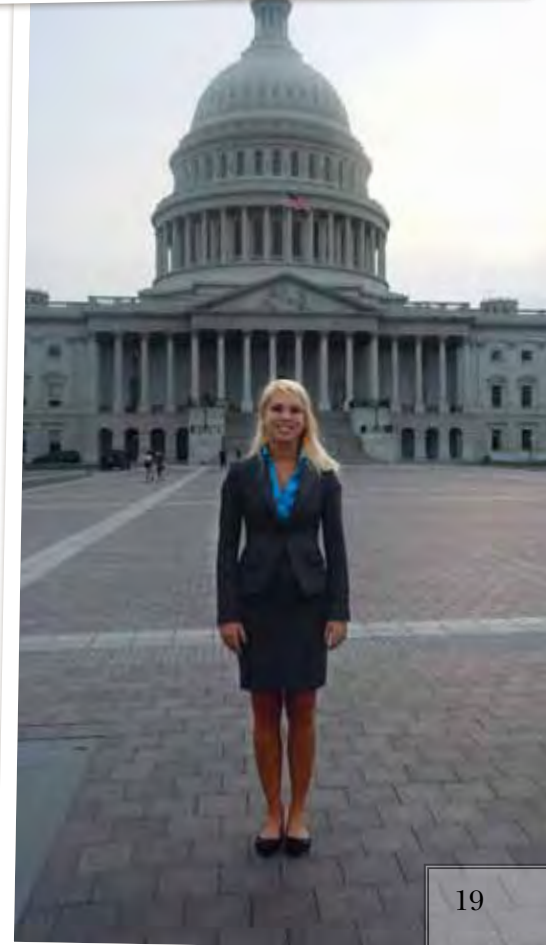
Another CASNR student who spent the summer in the nation's capital is Katie Teague, daughter of Bedford County Extension Director John Teague. She's a graduating senior majoring in agricultural economics and business, with minors in animal science and business administration. Her internship with the American Farm Bureau Federation in the Department of Economic Analysis concerned a number of economic issues, especially the issue of food versus fuel. "It's amazing because I'm able



to work in so many areas of agriculture and use my education from UT," she says. "I love being in Washington, D.C., amidst all of the history and politics."

No matter how difficult the challenges, these students say that nothing beats the experience of an internship. "I'm a huge advocate for students studying or interning abroad," says Heather Bayko. "It expands a student's perspective within his or her career field and the world. It allows a student to grow both professionally and personally," she says.

Katie Teague echoes Bayko's sentiments, "Don't ever be afraid to go, to try, ask or apply for anything," she says. "The professors and administrators at UT want to help you. I would not have had the opportunities that I have had if it had not been for my amazing advisor and professors and the ounce of courage it took to click on a few 'apply' buttons." —Doug Edlund





WE'RE
ON IT!

UT Extension, AgResearch, the College of Agricultural Sciences and Natural Resources (CASNR) and College of Veterinary Medicine (CVM) are now using social media to engage online users. These sites are not designed to replace existing websites, but to work as an interactive extra that provides information and gathers feedback. Here's a brief description of the social media tools being used.



The four units each have their own official Facebook pages. For UT Extension, its Facebook page is a platform to share information about the latest programs and initiatives

happening at the county, district and state levels. Also, many Extension county offices are maintaining a presence. To find them, go to www.facebook.com and search for "UT Extension" and the Tennessee county's name. Tennessee's 4-H Youth Development Program is also on Facebook.

On CASNR's Facebook page, students, faculty and anyone else who is interested can get the latest on happenings around the college and keep up with those important deadlines.

At CVM's site, you can follow the posts of clients relaying stories about their animals as well as keep up with important college and UT Veterinary Medical Center news.

AgResearch has multiple presences on Facebook, too. Visit www.facebook.com and search "Highland Rim Ag Research," "UT Gardens Jackson," "Milan No-Till Field Day" and "West Tennessee Agricultural Museum."



UT Extension, 4-H and CVM are also on Twitter. There, you can follow the latest

news and information about the three units. Unlike Facebook, Twitter limits its updates to 140 characters. Think of it as a headline service of news. Links are provided to in-depth articles and videos.

YouTube

UTIA has had a channel on YouTube for more than four years. The content has attracted nearly 350,000 viewers from around the world and 155 subscribers. The videos on the site are news stories produced by UTIA Marketing & Communications. YouTube started out as an experiment to distribute video online and has become our most successful social media site to date. Viewers can watch high definition videos either online, on their smart phones, tablets or streaming video devices to a television.

One of the biggest benefits to having a social media presence is that it allows information to be delivered quickly and to gather feedback from users. They can access the information 24/7 online, or through their smart phones and/or tablet devices.

For a complete list of links to UTIA social media sites visit bit.ly/utiasocial
—Doug Edlund

In profile:

Don Hodges

AS A FULBRIGHT SCHOLAR IN SLOVENIA LAST YEAR, FORESTRY PROFESSOR DON HODGES SHARED HIS EXPERTISE AND GAINED INSIGHT INTO EUROPEAN FOREST MANAGEMENT.

WHAT WAS YOUR EXCHANGE LIKE?

It was great! I really enjoyed working with the faculty and students in Slovenia and making research connections that I hope will continue for several years. The goal was to promote mutual understanding between the U.S. and Slovenia. So my wife, Cindy, and I visited as much of the country as we could, often with our host. I was also invited to lecture in Bosnia-Herzegovina and Germany, so we traveled and made contacts beyond our host country, too.

FROM A FOREST PERSPECTIVE, WHAT'S THE MOST INTERESTING THING YOU LEARNED?

That forestry issues in North America and Europe are fairly similar, but the approaches offered to address them differ substantially, particularly in some of the former Yugoslavian countries that are still trying to develop government agencies and companies to function in a market system.

WHAT'S THE FOCUS OF RESEARCH THAT YOU'RE CONDUCTING WITH SCIENTISTS AT UT AND SLOVENIA?

I worked with scientists at both the University of Ljubljana and Jozef Stefan Institute (a national research laboratory) to develop biodiversity indicators for Slovenian forests and link those indicators to past management activity. We hope to replicate the work here. Our ultimate goal is to develop forest management recommendations that will enhance productivity, biodiversity and ecosystems

on private lands in both locations. I'm still working on this, and we have plans for exchanges of graduate students this year. I also hope to entice one of my Slovenian collaborators to come to UT for a sabbatical.

WHAT WAS THE MOST FUN THING YOU DID DURING YOUR FULBRIGHT?

We spent two weekends in February in a small town called Ptuj for the Slovenian version of Mardi Gras called Kurentovanje. It's held to chase winter away and ensure a good year for crops and livestock. Traditionally, each of the surrounding villages was known for a particular crop or animal, so the parades are made up of groups from each village dressed in sheepskin and masks to look like their specialty. We were joined by a couple of other families on Fulbrights in Slovenia and had a great time.

IN THIS RECESSION, HOW ARE ECONOMICS SHAPING OUR FORESTS?

Economics have always shaped forests, and Tennessee is no different. Prior to the recession, the economic boom generated a good deal of demand for wood products, as well as for forestland for second homes. Now some mills are closing. The fear is that if forest products processing does not return after the recession and wood prices remain low, many owners will be looking for other functions for their land and that could impact recreation, wildlife and other uses significantly.



Good Things Are Coming

The \$1 billion Campaign for Tennessee has been very successful for the entire University of Tennessee system. At the end of 2011, as we celebrate surpassing the goal of \$85 million for the Institute of Agriculture, we would like to thank everyone who made a gift to the many programs, funds, scholarships and awards that support the College of Agricultural Sciences and Natural Resources, Extension, AgResearch and the College of Veterinary Medicine. However,

as we celebrate our success, it is important to point out that over \$200 million in needs were identified at the start of the campaign, and this list has grown significantly since then.

Here is a preview of a few of the exciting fundraising projects currently in the planning stages that will help transform the Institute of Agriculture. You will be hearing more about these projects in the future.

- The opening of the newly renovated buildings in Animal Science and Food Science and Technology will propel these departments forward in teaching, research and Extension. Little has been done to either of these facilities since they opened in the first half of the 20th century. We are very appreciative of this investment by the state of Tennessee, however very little is appropriated from the state for upkeep and upgrades. Naming opportunities in Brehm and the Food Science and Technology buildings will provide the latest equipment for undergraduate and graduate students today and in the future.
- The Experiential Learning Center for Animal Science will be located at the Blount Unit of the East Tennessee AgResearch and Education Center and will make a tremendous difference in hands-on learning experiences for students throughout the Institute of Agriculture. Many alumni remember working and living on Blount Farm while UT students. That experience will again be available along with hands-on classrooms, a meats lab and facilities for teaching livestock courses with scale-model operations for cattle, swine and sheep.
- The renovation and expansion of the large animal hospital at the UT Veterinary Medical Center will transform the current facility into contemporary equine and farm animal hospitals serving Tennessee and beyond. New services include an in-house MRI, a lameness diagnostic and rehabilitation center and secured drive-through drop off and pick up for animal patients. The safety of animals and practitioners, sanitation of the facilities and sufficient isolation space for potential disease control have been focal issues. Completion is anticipated by December 2012.
- Endowed assistant professorships and full professorships are badly needed in every academic department. When compared with peer institutions, it is clear that UTIA falls behind in endowed positions. As resources from the state of Tennessee dwindle, the need for funding for teaching, research and Extension positions becomes more important than ever. Endowed positions propel academic departments to new levels of excellence by attracting and retaining the very best and brightest faculty.
- While 4-H programs have struggled in surrounding states, Tennessee's 4-H programs have remained some of the strongest in the nation. The backbone of the 4-H experience has always been the 4-H camping opportunities across the state of Tennessee. Plans are underway to replace the 4-H camp in West Tennessee and make it a facility that is second to none in our region of the country. Naming opportunities will abound in this new facility, and your support will be needed to make sure that the 4-H experience will be available to future generations of 4-H youth in West Tennessee.

If you know someone who might have interest in investing in one of these projects or any of the many others within the Institute of Agriculture, please contact the Development Office at 865-974-1928.

—Rhodes Logan

THE UNIVERSITY of TENNESSEE
UT FOUNDATION
INSTITUTE OF AGRICULTURE

In Loudon County, 4-H Youth Sew Gifts of Hope

EACH STITCH PRODUCES COMFORT—BOTH PHYSICAL AND EMOTIONAL

Some 4-H youth in Loudon County, Tennessee, are nifty with a sewing machine. They take material, needle and thread, and transform them into clothing. But it's what they do with the garments that goes way beyond fashion.

In a 4-H program called "Robes for Hope," the teens make robes that are donated to a women's shelter for victims of domestic violence. Wearing purple—the color of the stand against abuse—13-year-old Madison Moats volunteers her time for the program. "Domestic violence does affect a lot of older people, but it also affects a lot of kids my age," Madison says. "I think it's really important that if there's something I can do, then I'd be glad to help."

All told, the 4-H'ers made about two dozen robes, and local churches also contributed clothing. The kids did this project on national "Make a Difference Day" last fall and they continue to help the shelter. The clothing created is donated to Iva's Place, a nonprofit that offers help to women and families in crisis. Iva's Place is named for Loudon County humanitarian Iva Evans, who supported this cause for many years. Today center leaders also use the name Iva as an acronym for Immediate Vital Assistance Services.



it's more than just an article of clothing. It means a future. It's a first step toward change."

Ten-year-old Mary Catherine, the daughter of the University of Tennessee Extension's Donna Eason-Pile, also helps make the robes. "Community service begins at an early age for kids in 4-H," Eason-Pile says. "What's important here is that my daughter can aid and assist others who may be less fortunate. She develops a sensitivity to the needs of others."

A woman in an abusive situation deserves understanding and help. Domestic violence may seem like a heavy topic to talk to kids about, but it is a reality of modern society. There were more than 80,000 domestic violence assaults in Tennessee this past year, and it's feared many, many more go unreported.

"So this robe is the first warm hug that they have. It's proof that people care about them," says Sue Anderson, director of Iva's Place. "So they're clean. They're refreshed. This belongs to them. It goes with them. So

"I think it's best to confront issues like this head-on," says Amanda Brooks, 4-H agent with UT Extension in Loudon County. "You know there's no way to sugarcoat what goes on in domestic abuse situations. So it's important for our kids to understand that this happens."

It happens, but we can do something about it. That's what Brooks wants her kids to learn in this project, along with several other important lessons. "It gives them the opportunity to talk about how we should not become a victim or put people in that situation," she says.

Loudon County 4-H has applied for a grant to expand this program. While a gift of a soft robe isn't life changing, it is a symbol and an actual item of compassion. What these kids are doing is a small, but significant gesture—piecing together fabric for someone trying to put the pieces of their life back together. —Chuck Denney



Freshman Seminar Classes Show Versatility of Institute Faculty

What do you get when you cross Japanese anime with CSI Knoxville, mushroom mania with the science of twins, SEC football traditions with insight into what it takes to be a veterinarian?

You get just a smattering of freshman seminar topics taught by faculty in the colleges of Agricultural Sciences and Natural Resources and Veterinary Medicine.

Freshman 129 seminars are one-unit, pass/no-credit courses that pair students with enthusiastic professors who are passionate about the learning process and the topics they teach from their personal lives. Students get to choose a subject that interests them while faculty orient the students to skills they'll need to be successful at the university. Professors in agriculture, natural resources and veterinary medicine also see value in opening the first-year students' eyes to the many majors and study options available to them on the agricultural campus.

SEC FOOTBALL

This class, more than any other, fills up fast. Taught by Dr. Mark Windham of Entomology and Plant Pathology, the course indoctrinates students to the traditions and vibrancy of Southeastern Conference football. The son of a college letterman, Windham grew up in a family that was either at SEC football games or watching them on TV. "We were passionate about it, and I still am," he says.

"The SEC conference is just a lot of fun, and I knew it would be something that students would be interested in, but one of the things I thought is that they wouldn't have a clue about what Tennessee is and where the traditions come from: the checkerboard, the Power T. They'd have a vague idea about General Neyland and Neyland Stadium, but they'd have no clue about Shields-Watkins Field or when we started wearing orange or the beginning of the Vol Navy." (For that, Windham says a fan couldn't get his car to work on game day, so he took his boat.) The professor gives students a personal tour of the stadium, explores the traditions of the other teams and discusses issues facing the conference.

Due to his comprehensive and entertaining knowledge of the SEC, Windham is now in demand on the alumni circuit and as a conference keynote speaker.

BEING A TWIN

Dr. Dean Kopsell, a vegetable physiologist, has this topic down. Both he and his identical twin pursued careers as research professors. But twins don't always share careers, and this is one of many concepts



Rich Maxey

that he teaches in a class that explores the science, culture and media images of being a twin. “I get students who are twins, siblings of twins or just curious about the topic,” he says. “Their varied perspectives make class fascinating.”

SO YOU WANT TO BE A VETERINARIAN?

Dr. Kim Newkirk, a veterinary pathologist, teaches the ins and outs of preparing for, and being, a veterinarian. For freshmen, this is good exposure since the course material either confirms their plans to be a vet or helps them discover early on that they want to pursue another career track. “I grew up wanting to be a veterinarian,” Newkirk says, “but I had no idea the variety of career options within the field of veterinary medicine. This course is a chance to address that.”

SPIRITED AWAY: THE ANIME OF HIYAO MIYAZAKI

Students explore the works of master anime writer and director Hiyao Miyazaki. With Animal Science Associate Professor Cheryl Kojima, they delve into



12 movies, from *Nausicaä of the Valley of the Wind* to *Ponyo*. While Kojima’s specialties are animal breeding and genetics and swine production, she has a passion for Miyazaki’s anime.

“Miyazaki’s films are a great way to introduce some issues that are very relevant to modern agriculture, such as land use and appreciation for our dwindling natural resources, to a student base that is largely non-agricultural,” Kojima says.

“I love the fact that my students and I have a common interest that seems far away from traditional academia. We can enter into intense discussions about these issues, and my students engage in critical thinking and analysis without feeling like it’s a chore or an assignment. I often come away learning a great deal from my students. Freshman seminars are great for encouraging both learning and teaching on both sides of the podium!”

MUSHROOM MANIA

“Mushrooms are super cool,” says Dr. Kurt Lamour, plant pathologist. “They thrive in the dark and damp and make this world possible.” Lamour has been collecting mushrooms since he was able to walk. “Following fungi led me to graduate study

and to my current job studying the ecology and evolution of fungal-like organisms.” His students get to grow edible oyster mushrooms and take them home to eat. “I simply want to share my enthusiasm for these fascinating, and extremely important, members of our natural world.”

CSI KNOXVILLE

Under the direction of Biosystems Engineering Professor Rob Freeland, a specialist in surveying and mapping, freshmen use ground-penetrating radar and satellite mapping to delineate the lost boundaries of mass graves of Civil War soldiers. “This is an outside surveying course along with historical investigative research of murder, cover-up and retribution,” Freeland says. “It’s drama and research that holds everyone’s interest.”

AND STILL OTHERS

In addition to these courses, students also have the option of studying “Living Green in a Global Age,” “Chocolate Unwrapped: The Health Benefits of Chocolate,” “The Adventures of a Garden Gnome” and “A Bug’s Life,” which teaches students “fun, fun, fun—fun with BUGS!,” says entomologist Dr. Jerome Grant.

While the courses entertain, faculty are also thorough in encouraging the freshmen to discuss how things are going with their studies and helping them solve problems about obstacles they encounter. “It’s a serious purpose mixed in with all the fun,” says Dr. John Mount, associate professor of Food Science and Technology. —Margot Emery



Jean Hulsey



*G*row it to a certain size and then sell it to someone else who can plant it in his or her yard. That's the nature of growing ornamental plants for market.

The nursery business in Tennessee generates more than \$177 million in sales each year. There are nearly 800 nurseries in the state, mostly concentrated about halfway between Nashville and Chattanooga.

Almost everyone in Brandon Fuston's family is in the nursery business in McMinnville, where they produce pear trees for landscaping. "We keep growing, and now we're running about 110 acres." And their reputation in Warren County is growing, too. Residents are learning that, "if you need ornamental pears, give us a call," Fuston says.

There's no question this part of the state has the climate for growing shrubs and trees such as dogwoods. But Fuston thinks the fact that there are so many nurseries in his area reflects tradition in agriculture. "Sons and daughters grow up, and the industry gets in their blood. I believe once it gets started, it becomes a family tradition," he says.

Fuston's operation was one of several Tennessee nurseries represented at a workshop put together by UT Extension. Nursery operators must work to keep their

plants and trees safe from diseases and insects. At the workshop, producers learned how to calibrate an airblast sprayer that distributes pesticides.

"An airblast sprayer is a crucial piece of equipment used in nursery production. They are essential for getting very good coverage of plants of all different sizes," says Dr. Amy Fulcher of UT Extension.

Fulcher is an assistant professor working in sustainable ornamental plant production and landscape management. She says in modern nursery management, producers need to obtain optimal pesticide coverage, but also limit excess pesticide use, which can be costly both financially and environmentally. To produce beautiful ornamentals, operators must be very precise in setting their sprayers.

"Nursery production is very complex from the standpoint that it's plants of all different ages, different sizes and, maybe most critically, different species. And they often have their own associated pest problems. So getting good coverage is one more facet of that management," Fulcher says.

Nursery operators earned pesticide certification points for attending the seminar. In addition to UT, there were also presenters from The Ohio State University and the USDA, with attendees from four states. —Chuck Denney

*Photos by Amy Fulcher 1. An airblast sprayer applies water to trees with water sensitive paper attached at various positions on the plants to detect spray penetration, coverage and droplet size. 2. Randy Zondag of The Ohio State University Extension and Heping Zhu, USDA-ARS, demonstrate how to calibrate an airblast sprayer. 3. Randy Zondag of The Ohio State University shows how water sensitive paper can be used to determine sprayer coverage and water droplet size. 4. Water sensitive paper is used to detect spray penetration, coverage and droplet size. This paper is at the appropriate height to detect if trunk coverage is sufficient to prevent flatheaded apple tree borer *Chrysobothris femorata* infestations.*

Protecting Nursery Crops With Precision



The Gathering Invests Wisdom in Start-up Ventures

Sizzlin' right out of the pot, crisp and delicious, just like granny used to make. Fried pies are both tasty and nostalgic.

Jenny Chandler and her mom, Brenda Presson, have a sideline to their home-based cooking business called Old-Fashioned Fried Pies. "I say that Mama is a fried pie purist because she's really particular about what she does," Chandler says. "She only uses dried fruit. We cook them in lard, but that's a code word for 'old-fashioned.'"

And there you have it, the name of the business. Chandler serves up three main flavors—peach,

"The Gathering is a network of entrepreneurs—'homestead economics' is what we call it"

apple and chocolate, and on special occasions apricot. Many of us grew up eating these pies. "One of the greatest compliments that we can have is when somebody takes a bite and says 'Oh, this is just like my granny's,'" Chandler says. "When people purchase one of our pies, it's almost as if they're taking a little stroll down memory lane, and we like that."

The pies are fairly easy to make, but take patience. They roll the dough, and Mama takes the fruit filling and puts a good-sized glob down. Then they mash little divots into the dough to keep the juices in. Then boil it for a few seconds. Each pie has its own unique shape and size. "We want them to be as fresh as possible when they go to our customers," Chandler says.

Old-Fashioned Fried Pies is one of the small businesses in The Gathering, a rural economic development program with UT Extension. Through the program, agents have worked with nearly 200 small businesses and more than 300 people in the Clarksville, Tennessee, area to increase their knowledge and skills.

Chandler runs her business out of Ashland City, but she's also done work at the domestic kitchen at the Montgomery County UT Extension office. Extension agents help her make sure she meets food-manufacturing standards. Running a business is anything but a small job, and The Gathering gives owners a network of others to consult.

"The Gathering is a network of entrepreneurs—'homestead economics' is what we call it," says Martha Pile, a UT Extension agent for Montgomery County.

"A coalition of 50 key leaders are working together to see that every community possible in an eight-county region has a voice and a venue to promote their products and talents. Extension is providing the tools, information and opportunities for networking and success for homestead businesses and entrepreneurs.

Meanwhile, the pot is boiling and there's lots of cooking to do in coming months. Chandler and her mom received a contract to serve food, including the fried pies, at an Ashland City manufacturing plant. They're also selling pies at the Clarksville Farmers Market. —Chuck Denney

Jenny Chandler and her mother, Brenda Presson, cut no corners in making delicious, traditional fried pies.



Alumni Memories

WOODROW LUTTRELL

One of Luttrell's nicknames was "Politician." It was well earned. The 1938 agriculture graduate was well known on the ag campus and the Hill for his attempt to influence the all-campus student council election. "The All Student Club was made up of sorority and fraternity members, but they didn't represent everyone," he explains. So Luttrell and two of his friends decided to form an independent, "non-frat" political party for club elections. They made their intentions known to the entire student body during the announcements segment of chapel one Wednesday. (The compulsory student chapel meeting is a long-gone campus practice, but in the 1930s Luttrell said the weekly gathering was among the common student life experiences that helped mold individual young men and women into a family of Volunteers.) "We stood up and invited everyone interested in a non-frat political party to a meeting," he said. "Only the three of us showed up."

Undaunted, Luttrell ran for the Agriculture College representative's seat. His opponent, a friend from a fraternity, couldn't bring himself to run against Luttrell, so the renegade politician was elected to the student council in 1937. "We had a great thing going for a few years. By early 1938, we had formed the Independent Student Party of non-frats with frats, and all candidates of this party were elected."

Luttrell's energy spilled over into other aspects of campus life. Among his endeavors: player and coach of the Ag Club basketball team, member of the dairy products judging team (eighth in the nation in cheese judging in 1937); member of the Scarabbean and Alpha Zeta societies. He also edited the Agriculture Club magazine, *The Tennessee Farmer*. This post foreshadowed his future life. Luttrell worked as an Extension agent and then as editor of the *Tennessee Farm Bureau News*.

JANICE HURST WILLIAMS

As a UT Extension agent working in the mid-1960s, Janice Hurst Williams set out to earn a master's degree from the College of Agriculture. She chose a subject related to her work: textiles and clothing. "Today those clothing construction skills are largely outdated, but the people skills I learned along the way definitely are not," she says.



Above: Woodrow Luttrell still has his homemade Alpha Zeta membership paddle, although the members' signatures have faded in the 73 years since his graduation. Below: Janice (B.S. Home Economics, '62, and M.S. Ag Extension, '67) and husband Lafayette Williams (B.S. Animal Husbandry, '61, M.S., '63) operate a two-century farm, raising beef cattle and now adding an agritourism operation for parties, picnics and farm tours. Their RiverView Family Farm is located beside the Tennessee River in rural west Knoxville.



Like so many graduate students, Williams has tales to tell of tension between her committee members. A UTK professor challenged her research. For her thesis defense, Williams' major professor, Dr. Robert Dotson, told her to pause before answering each question. When the challenging professor asked a question, Dotson would immediately question the professor on her reasons for asking the question. "Basically one of things I learned most was to keep quiet and let the other two argue it out, and they passed the orals for me," Williams says.

With insight and a trailblazing nature, Williams changed a few things during her time as a communications specialist at the institute. She was one of the first Extension employees to have a baby after a new maternity policy was enacted. That policy meant she could keep her job after having a child. And then there were the pantsuits. In the early '70s, women were expected to wear dresses, hose and heels to work. They parked in the cotton patch that is now the Biosystems Engineering and Soil Science Laboratory Building and climbed the hill to Morgan Hall carrying a lot of gear. Williams mentioned to her boss that she was making a red wool pantsuit. He said, "You finish it, you wear it, and I'll back you." She did.

Her favorite memories are of working as an Extension agent with 4-H youth in Putnam County, Tennessee. One 4-H'er became the director of the national Division of Youth and 4-H at USDA, another became a prominent Knoxville attorney and others achieved leadership positions in diverse fields including Extension. "I had this unbelievable group of people in Putnam County. I don't know how I could have been so lucky. In fact, all the UT Extension and 4-H agents I worked with then and now are just wonderful."

DABNEY WELLFORD

For a freshman, it wasn't a promising start. Dabney Wellford arrived by train from his hometown of Cordova, Tennessee, a week late for classes in January 1946, with no prior contact with UT, no lodging, not even a winter coat.

But Wellford had planned to attend UT for a long time and had completed some correspondence courses with the university while serving in World War II. UT must have counted that in his favor because it accepted him and assigned him to temporary housing in nearby barracks. It was at that point, though, that Wellford's run of luck ended. Due to wartime shortages, it wasn't until late spring that he could find a winter coat. "I nearly froze to death," he says. "The heaviest clothes I had were my Army uniform, which I wore all winter."

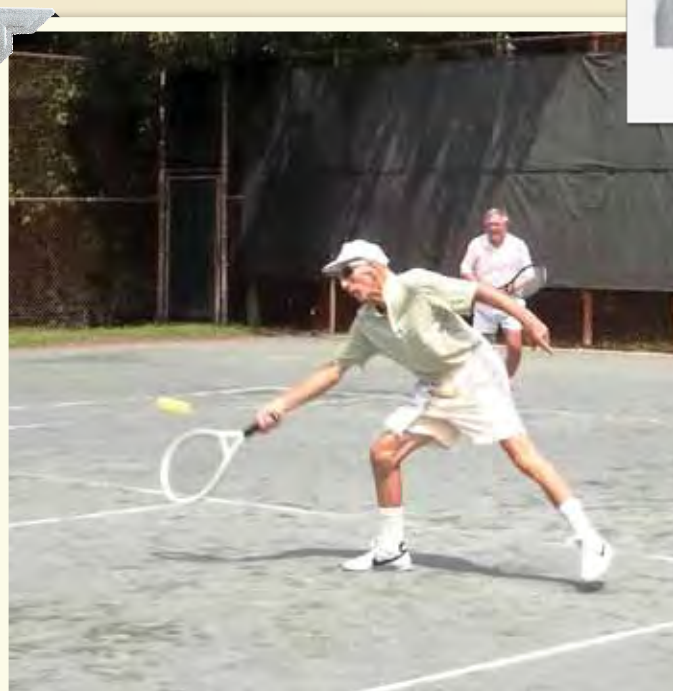
Wellford's agricultural classes were in Morgan Hall, which was the only building on campus except for Ag Engineering. He fondly

remembers Dr. Lloyd Seatz of agronomy, 'Prof.' Ed Lidvall of animal husbandry and Dr. Frank Bell, who taught soils. "Dr. Bell lived and breathed agronomy soils like it was his life, and as a result, he was a wonderful teacher."

At UT, Wellford was involved in a lot of activities. "I enjoyed being a student. I just enjoy life," he says. His accomplishments were noticed, and in 1949, the university named him a Torchbearer, the highest honor that UT bestows on a student.

Dabney Wellford and his wife, Dot, are avid tennis players. They play mixed doubles in the U.S. Senior Olympics, as well as in the local and state qualifiers. "We play in the 80-year-old bracket, and I'll tell you, there are a lot of doggone good players in their 80s," Wellford says with a grin. —Margot Emery and Patricia McDaniels

"I wanted my Torchbearer photo for the yearbook to indicate I was in agriculture, so I took the photographer over to the dairy barn and had my picture taken with the cows."



We'd like to continue featuring alumni memories. To do so, we need your help. Please consider sharing your recollections of life as an agriculture, natural resources or veterinary medicine student with Margot Emery, 865-974-7141 or agalummi@tennessee.edu.

Alumni Dream Jobs

TELL US ABOUT YOUR DREAM JOB
AT AGALUMNI@TENNESSEE.EDU

DONNIE SMITH, PRESIDENT AND CEO, TYSON FOODS

Smith, '80 Animal Science, oversees all aspects of Tyson's business. He joined Tyson Foods the year he graduated and married his college sweetheart, Terry Wooten, '80 Education, a little sister of Alpha Gamma Rho. He spent seven years in live poultry operations in Tennessee before moving to Springdale, Arkansas, where he held a series of senior positions before being named president and CEO in 2009. "I have always had a love for animal agriculture," Smith says. "As a student, I became active in several ag clubs including the Poultry Science Club and developed an interest in the then rapidly growing poultry industry. My adviser, Dr. Charlie Goan, whom I thought the world of, helped fan that flame of interest." Tyson employs 115,000 people at 400 sites in North America and other parts of the world. "One of the things I love most is traveling to our facilities and visiting with the wonderful team members who make up the Tyson family. They're so dedicated to making great food and making a difference that I always leave inspired and motivated to continue to serve them with all I have!"

DR. CRAIG BACON, SENIOR VICE PRESIDENT, TYSON FOODS

Bacon serves as senior vice president of research and development for Tyson Foods. He began his career at Oscar Mayer Foods and holds an M.S. ('87) and Ph.D. ('90) in Food Science and Technology. "I love seeing innovation occur for our customers and consumers to create great meals," Bacon says. "Four years ago Tyson opened the new R & D Discovery Center. This state-of-the-art facility allows our customers to come in and develop cutting-edge new products." Since opening the center Tyson has developed more than \$8 billion in new products sales. "My work is centered on pioneering new products and better ways of doing things. It's always interesting."



DR. NATHAN HENRY, VETERINARIAN

Henry has worked in Vietnam since 1999. He represents the non-government organization Asian Rural Life Development Foundation based in the Philippines. Henry ('82 B.S. Animal Science, '85 DVM Veterinary Medicine) manages and advises an agricultural and community development project assisting the poorest of the poor: ethnic minority mountain farmers in North Vietnam. "We partner with Thai Nguyen University in poverty reduction and alleviation. We train mountain farmers in simple technologies such as small-scale livestock, forestry, tea production and more." There is also a veterinary component to help strengthen the veterinary services in the province by training farmers to be village paravets. "The main thing that inspired my wife and me to do this work was wanting to help poor and marginalized individuals and communities experience a better life through transformational community development, which is restoring proper relationships between God, man and the environment."



SARA J. HENRY, NOVELIST

"If I'd blinked, I would have missed it. But I didn't, and I saw something fall from the rear deck of the opposite ferry: a small, wide-eyed human face, in one tiny frozen moment, as it plummeted toward the water." So begins a riveting mystery novel by '77 Plant and Soil Science B.S. graduate Sara J. Henry. Her debut novel, "Learning to Swim", has met with high praise. While Henry began writing at age 5, it was an interest in plants, encouraged by agriculture electives taught by Drs. Frank Bell and Max Springer that drew her to study soil science. Yet there was a plot twist soon after graduation. "I had a very brief career as a soil scientist: 12 weeks. I went to work for the USDA in Gainesville, Florida—possibly not the best place to start a career in soil science because when you're mapping soil, you have to dig to the clay layer, which in Florida is about 80 inches. And then you have to try to fill in that narrow long hole you've just made with your bucket auger, not easy when much of the sandy soil has blown away. Did I mention how hot it is? And every Friday my boss would say cheerily, 'Well, only 35 years to retirement.' This led me to conclude that life was too short to not pursue full time the thing you dream of, which for me was writing." Henry is now at work on her second novel.



NEW FACILITIES FOR ANIMAL SCIENCE AND FOOD SCIENCE AND TECHNOLOGY

In the next year students, faculty and staff in the departments of Animal Science and Food Science and Technology will move into newly renovated instructional and research buildings. In fact, Brehm Hall and the building used by Food Science and Technology were rebuilt from their support beams to create state-of-the art facilities. The update also includes a dynamic new show arena.

“The state of Tennessee and the university have made significant commitments to our programs,” says Rhodes Logan, director of development. “We truly hope you will be inspired by what you see when you visit campus in the coming year.”

While the facilities themselves are now modern, other improvements to them remain needed, he says. “As alumni and friends, we hope you will consider contributing to support the latest technology and equipment for our programs in the new facilities.” Naming opportunities abound, from labs and classrooms to the name of the entire Food Science and Technology building and the arena of the Brehm Animal Science Building. Funding these opportunities will put the academic units one step closer to becoming top-ranked programs in their fields.

For more information,
contact the UTIA
Development Office at
865-974-1928.