Teamwork with Flowers Creamery in Giles County is one example of how we help citizens thrive in great places.
EMPOWERING WOMEN WORLDWIDE, pg. 26

The Smith Center for International Sustainable Agriculture is pioneering Real. Life. Solutions. to help women around the globe succeed as farmers and agribusiness leaders.

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GREETINGS FROM TIM CROSS

AROUND UTIA

EXTRAORDINARY HONORS FOR FACULTY

UT ONE HEALTH INITIATIVE: REAL. LIFE. SOLUTIONS. FOR PANDEMICS, THE ENVIRONMENT, AND MORE

ORGANIC CROPS VSAS

IN GREAT PLACES

DONORS’ ECONOMIC IMPACTS AT LONE OAKS

AN INSECT MYSTERY SOLVED

WHY I RESEARCH: CHRIS BOYER

GREAT GRADS

STAYING TRUE TO OUR MISSION AMID THE PANDEMIC
Just when you think you have a handle on one challenge, another one usually makes itself known. That’s the situation we found ourselves in at the University of Tennessee Institute of Agriculture after having progressed through unification with UT Knoxville. However, the unprecedented disruption that COVID-19 has had on the Institute, the University, the state, and the entire world was not necessarily top of mind when thinking about our next big issue to tackle. Yet the risk of pandemics like COVID-19 has long been on the minds of a team of faculty members who work in areas of One Health. In reviewing our last issue of Land, Life and Science focused on our One Health Initiative, it is clear that these individuals have been giving the threat of zoonotic disease and its potential to reach pandemic levels a lot of thought. Now, we are witnessing their concerns play out in real time and in real life.

COVID-19 is first, and foremost, a public health crisis that requires our immediate collective actions to mitigate. As we’ve seen, it has also had a devastating effect on our economy, which will have a long-range impact on all aspects of life, including agriculture. As of 2019, agriculture, forestry, and related industries contributed an estimated $81 billion to the Tennessee economy, not to mention almost 350,000 jobs. A report our experts helped prepare for the governor of the state of Tennessee documents those industries and the impacts of agriculture upon the state. You can explore them at tiny.utk.edu/TNecon2020.

As an agricultural economist and leader of the University of Tennessee Institute of Agriculture, I am proud of the report and of those who contributed. Our role in adding value to the agricultural industry that is so vital to our state is truly a worthwhile mission. And that industry affects so many of our citizens. In this issue, you can learn about how our programs and people are striving to improve the lives of residents of Tennessee as well as people well beyond our borders. And you can read how our donors and supporters are enabling us to create these opportunities and possibilities.

A potential positive that may come from the COVID-19 pandemic is a better understanding on the part of the public of the importance of food and those who produce it. In times of crisis, farmers are the ones who are stepping up to provide this fundamental resource to everyone, and the Institute plays a vital role in supporting those efforts.

Stay healthy and safe always.

TIM L. CROSS
UTIA Senior Vice President and Senior Vice Chancellor

Society to Benefit from Historic Agreement

UT’s forests and surrounding lands represent some of the best-maintained and highest conservation priorities within Tennessee and the Southern Appalachians. A historic agreement signed by UTIA and The Nature Conservancy (TNC) will allow researchers to implement a long-term forest management strategy, support cutting-edge research, and establish an alternative revenue source for UT’s forested properties.

Through TNC’s Working Woodlands program, the UT Forest Resources AgResearch and Education Center will work to achieve Forest Stewardship Council certification for 11,400 acres of forested properties that spread across four counties. UTIA is the first academic institution to enroll in the program.

In addition to forest certification, as part of the agreement TNC will facilitate developing and maintaining a carbon offset project on the UT forests and market carbon credits to buyers on the voluntary carbon market.

UT AgResearch Dean Hongwei Xin describes the agreement as a win-win partnership that will benefit society. “The Forest Resources AgResearch and Education Center will continue to provide one of the most comprehensive outdoor research laboratories in the nation while, at the same time, maintaining forest sustainability for future generations,” Xin says.
New Website Showcases Real. Life. Solutions.

The UT Institute of Agriculture’s online presence has a fresh, new look. In March, UTIA’s Office of Marketing and Communications and Information Technology Services began a phased rollout of the new website in WordPress, a change from SharePoint.

The infrastructure and design refresh is based on results from multiple rounds of user experience studies. The new site is more accessible to all users and features improved functionality for visitors and content managers.

In addition to building the infrastructure and theme, the two UTIA teams also worked together to develop training for content managers, including topics such as accessibility on the web, writing for the web, using appropriate voice and tone, and building pages.

Agriculture industry leaders have bestowed the title of Cotton Researcher of the Year to UT Extension cotton specialist Tyson Raper. The award was presented on January 31 at the National Conservation Systems Cotton and Rice Conference in Memphis, Tennessee.

Raper’s research program has made significant contributions to cotton profitability in Tennessee and across the Mid-South. The award committee noted his work on evaluating DD60’s—the formula for calculating crop heat units—for modern cotton varieties.

Conlan Burbrink Awarded Once-in-a-Lifetime Opportunity

The Herbert College of Agriculture is known for its focus on real-life learning. Turfgrass science and management major Conlan Burbrink got the chance of a lifetime to experience real-life learning through Toro’s Super Bowl Sports Turfgrass Training Program. He won selection by Toro to assist the grounds crew in field preparations for Super Bowl LIV at Hard Rock Stadium in Miami. Burbrink had never been to an NFL game and said it was ironic that his first one was the Super Bowl.

Burbrink was chosen for the program because of his exemplary leadership in turfgrass management. One of his interests is researching lower extremity injuries. “I believe there is a need to more accurately understand how a field contributes to the fatigue an athlete undergoes, especially in football,” says Burbrink. “The overall goal is to provide the athletes with the best surfaces possible, and to mitigate most of the injuries related to the playing surface, while increasing overall safety and enjoyment of the sport.”

Burbrink plans to pursue his master’s and PhD degrees to further explore how soil characteristics impact the lower extremities of football players and ball interactions in various other sports.

Learn more about this spring graduate and his exceptional career preparation at tiny.utk.edu/burbrink.

Tyson Raper Honored at National Conservation Systems Cotton and Rice Conference

Cotton and Rice Conference in Memphis, Tennessee.

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Celebrating a Horticultural Gem

At the close of 2019, the long-time director of the UT Gardens announced her retirement. Across a thirty-seven-year career, Sue Hamilton guided the development of the Gardens from a collection of small trial plots into the showpieces they are today. "They" is plural, with the UT Gardens now in place in Crossville and Jackson, Tennessee, as well in Knoxville, offering beauty and learning to Tennesseans throughout the Volunteer State. In recognition of that role, the three UT Gardens sites were named the official State Botanical Garden of Tennessee in 2013. That’s one of the outstanding achievements under Hamilton’s watch. Another was the establishment of an annual Gardens Gala, whose proceeds provide vital support for the Gardens’ mission of outreach, teaching, and research. Next year’s Gala, originally scheduled for spring 2020, will be hosted by former Governor and First Lady Bill and Crissy Haslam and held in Hamilton’s honor. While the COVID-19 pandemic delayed the physical celebration by a year, friends showed support on the evening of the originally scheduled Gala by pushing the Sue Hamilton Growth Endowment past the $100,000 mark. The endowment, created in Hamilton’s honor, provides ongoing necessary financial support for the Gardens.

You can learn more about Hamilton’s career in the fall 2019 issue of Cultivate, the magazine of the UT Gardens. Find it at tiny.utk.edu/cultivatefall. In addition, Hamilton discussed her career in the January 2020 episode of the TN Magic Moments podcast, which can be accessed wherever you listen to podcasts or tnmagicmoments.com/podcasts.

James Newburn, curator of the UT Gardens, Knoxville, since 1999, is serving as interim director while a search for a new director is conducted. To learn more about the endowment, contact Tom Looney with the UTIA Office of Institutional Advancement at tom.looney@tennessee.edu or 865-974-8622.

Wesley Crowder Named Firefighter of the Year

Wesley Crowder, a research technician stationed at the West Tennessee AgResearch and Education Center, was recently named Firefighter of the Year by the Exchange Club in Jackson, Tennessee. Crowder works as a driver and hazmat technician for the Jackson Fire Department. He’s worked or volunteered as a firefighter for more than twenty years. Each year the Jackson Exchange Club recognizes a local first responder who has shown exceptional commitment to his or her profession.

Crowder has also spent more than twenty years working in field research with the UT Department of Entomology and Plant Pathology. His duties include planting and harvesting trials, collecting necessary in-season data, and maintaining equipment. Co-workers say they value Crowder’s problem-solving skills, work ethic, and dependability—good traits for both researchers and firefighters.

“TOGETHER, WE’RE STILL GROWING.”

In September, the UT Institute of Agriculture far exceeded our goal. Through this success and ongoing assistance from our alumni and friends, we will continue to support Real. Life. Solutions. that impact the future of our friends, our neighbors, our state, and our world.

Together we grow.

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Together we grow.

“We are thankful for each and every donor who made this possible. The faculty, staff, and students at the UT Institute of Agriculture are at the heart of our land-grant mission. Your contributions will allow us to keep the pace and advance all components of the Institute.”

—KEITH BARBER, VICE CHANCELLOR OF INSTITUTIONAL ADVANCEMENT, UT INSTITUTE OF AGRICULTURE
National Recognition for Six UTIA Faculty

Our faculty are known for producing outstanding research and academic programs and we are pleased to highlight national recognitions that they have achieved in the past fiscal year. The following honors, bestowed by peers in their profession, attest to the world-class science, outreach, and service these Institute members have accomplished.

BARRY ROUSE
Biomedical and Diagnostic Services
AVMA Lifetime Excellence in Research Award
Rouse, veterinarian and immunologist in the UT College of Veterinary Medicine, received the American Veterinary Medical Association’s (AVMA) Lifetime Excellence in Research Award. The national award is given annually in recognition of outstanding contribution to the veterinary or biomedical professions through basic, applied, or clinical research. Rouse is world renowned for his immunopathology research discoveries involving HSV-1 and ocular disease.

PAUL AYERS
Biosystems Engineering and Soil Science
ASABE Fellow Award
Ayers was one of thirteen individuals of meritorious professional achievement inducted as Fellows of the American Society of Agricultural and Biological Engineers (ASABE). The grade of Fellow is the highest honor bestowed by the society. It recognizes members for extraordinary accomplishments and contributions to the field of agricultural, food, or biological systems engineering. In addition to meritorious achievement, individuals must have a minimum of twenty years of engineering practice or teaching and twenty years as a member in ASABE.

MIKE SMITH
Animal Science
PSA Fellow Award
Prior to his retirement, Smith, a professor in the Department of Animal Science, was elected a Fellow in the Poultry Science Association (PSA). The award was presented at the 2018 annual meeting of the organization in San Antonio, Texas. The status of Fellow is one of the highest distinctions a PSA member can achieve and only five can be honored each year. Fellow status recognizes members of the Poultry Science Association for professional distinction and contributions to the field of poultry science without concern to longevity.

ELIZABETH STRAND
Biomedical and Diagnostic Sciences
AAVMC Billy E. Hooper Award
The Association of American Veterinary Medical Colleges (AAVMC) named Strand the recipient of the 2019 AAVMC Billy E. Hooper Award for Distinguished Service. The award is given by the AAVMC to an individual whose leadership and vision have made a significant contribution to academic veterinary medicine and the veterinary profession. Strand is an associate professor in the UT College of Veterinary Medicine and is a licensed social worker certified in grief recovery, critical incident stress management, mindfulness-based stress reduction, workplace conflict, suicide prevention, and state Supreme Court mediation. She founded the first veterinary social work program in the US, located at UT, to be defined as a subspecialty.

NEIL STEWART
Plant Sciences
SIVB Fellow Award
Stewart was named a Fellow in the Society of In Vitro Biology (SIVB). The distinguished title recognizes outstanding professionals who have made significant contributions to the field of in vitro biology and demonstrated service to the society. Stewart holds the Ivan Racheff Chair of Excellence in plant molecular genetics at UTIA. His research spans plant biotechnology, synthetic biology, genomics, and ecology. He has been performing agricultural biotechnology and biotechnology risk assessment research since 1994, with support from various granting agencies such as the Department of Energy, the US Department of Agriculture, the National Science Foundation, NASA, and industry.

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NEIL RHOADES
Plant Sciences
SWSS Fellow Award
The Southern Weed Science Society (SWSS) bestowed its Fellow Award on Rhodes, a professor in the Department of Plant Sciences, at the society’s recent annual meeting in Oklahoma City. The Fellow Award is the most prestigious honor given by SWSS. Recipients must have been members for more than twenty years, have made significant and regular contributions of service to SWSS, and been integral to the success of their university. Last year, Rhodes was presented the Excellence in Regulatory Stewardship Award for tirelessly working to improve the use of herbicides in the South.
Last year, when we selected One Health for the theme of the fall/winter 2019 issue of Land, Life and Science, we scarcely could have predicted the immediate arrival of the COVID-19 global pandemic and the effects it has had upon all of us. But an awareness of the increasing risk of pandemics and other ill effects brought on by environmental pressures and increasing proximity of humans and wildlife are at the heart of the science of One Health. This growing field of multidisciplinary research seeks ways to improve the health and well-being of humans, animals, and the environment, for the protection of us all.

In mid-February, the University of Tennessee System formally announced the UT One Health Initiative. To be led by scientists at the UT Institute of Agriculture and UT Knoxville, who pioneered in One Health at the University, the Initiative will unite the One Health-focused work of researchers throughout the University’s campuses and institutes, as well as at Oak Ridge National Laboratory. The goal is to position UT as a leader in addressing one of society’s grand challenges by engaging in the increasingly complex science needed to develop Real. Life. Solutions. for our world.

In May, the University of Tennessee’s “front porch” took on the role of public health lifeline when the state asked UT Extension offices to help distribute some of the 5 million masks provided to county health departments. The masks were provided by the Governor’s Economic Recovery Group to help fight the spread of the coronavirus at the center of the COVID-19 pandemic.

Distribution took different forms from county to county. In Sullivan County, masks were distributed at a drive-through station staffed by Extension personnel who braved a cold spring drizzle. In Rutherford County, masks were given to vendors and shoppers at the 2020 opening of the Rutherford County Farmers Market. In the past UT Extension has helped government efforts to engage the public in times of national emergency or great need including efforts associated with the Great Depression and World War II. This spring’s distribution of facemasks to protect citizens from a global health threat certainly continues that tradition.

Learn more about the UT One Health Initiative at tiny.utk.edu/onehealth.
University of Tennessee spring graduate Michael Richards grew up among large-scale agriculture in Middle Tennessee’s Robertson County. He was in a geography class two years ago when the subject of small shareholder farms came up. The farms were said to be a solution to food famines. With his experiences in Robertson County in mind, he wondered how the economics of small organic operations stacked up to those of conventional production.

Thanks to the Herbert College of Agriculture, Richards was given the chance to roll up his sleeves and explore the economics and the practices of organic farming. Herbert is committed to offering experiential learning to students. After applying for the opportunity, Richards became one of four students selected for the 2019 UT organic internship program.

Richards and the other interns began learning the ropes of planning and growing a range of fruits and vegetables last spring. Their work intensified when spring semester ended, as they set out to cultivate a diversified mix of produce. The growing took place at the UT Organic Crops Unit, one of six agricultural units operated by the East Tennessee AgResearch and Education Center.

The fruits and vegetables of the students’ labor, picked fresh that morning, go into half-bushel boxes. These are delivered weekly to customers of UT VSAs. VSA is UT’s spin on community-supported agriculture (CSA) shares, with the University substituting a V for Vol for the more usual ‘C’ of CSAs. Sales of shares are invested in the student internship program and UT’s organic operation. The program aims to supply sixty shares each growing season. This year the program met that goal, for the first time selling out all of its available shares.

Richards says his experiences gave him the answer on economics. He also learned to judge a ripe watermelon—“Listen for the hollow thump, look for a large white spot”; the woes of rotten ones—“They smell incredibly bad”; and the persistence needed to control pests and diseases—“Thump, look for a large white spot”; the troubles of weeds—“I’d weed and string up the tomatoes and no matter how bad I did it, they’d soon become unmanageable again. Maintaining a Mock tusk took hours,” he says.

“The big epiphany that I think exists is that organic farming isn’t something that is economically viable to do in the long term and is merely a trend. After actually working on an organic farm I can say with a good bit of confidence that organic farming is absolutely economically viable and profitable, but definitely requires a larger amount of individual effort and research when compared to conventional farming techniques and practices.”

The Organic Crops internships enter their tenth year this season. Professor and coordinator Annette Wizelaki says former interns have started their own small farms, as well as entered careers in the USDA Natural Resources Conservation Service, in AmeriCorps, in the Peace Corps, and in Extension services in several states. Richards says his experiences gave him the answer on economics. Herbert is committed to offering experiential learning to students. After applying for the opportunity, Richards became one of four students selected for the 2019 UT organic internship program.

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The VSA is an awesome interdisciplinary program and a way for people outside of the Herbert College of Agriculture to learn about sustainable farming on a level most people never see.”

— Intern Michael Richards

To support the VSA’s target of sixty shareholders, Flowers and the interns plant around forty different crops, and most crops include several varieties, such as different colors of cherry tomatoes. The amount to plant is based on predicted yield, but Flowers says planning cabbage yields, knowing one cabbage per plant, is a lot different than estimating yield per tomato variety, unless it’s a variety they’ve grown in the past. Additional challenges come with growing a variety of crops. These include differences in pest and nutrient issues, planting times, and harvest and storage needs. All plantings include a buffer percent to account for issues they may face in the field.

The students also have a project each year where they select any crop they wish to grow and are independently responsible for that crop’s success. Past projects have been popcorn, luffa gourds, and catnip—which Richards grew. "My personal reason in growing catnip was to see if a small calico kitten I had recently adopted would like it. Our VSA shareholders enjoyed it since it doubled both as a treat for cats and pretty tasty herb. My cat, on the other hand, had absolutely no interest.”

Learn how you can support the internship program or even become a VSA shareholder. Information is available at tiny.utk.edu/volsupportedag.
When Brian and Morgan Flowers were evaluating the future of their dairy operation, Brian says they had two choices: maintain their operation as it was and face selling off their herd and selling out or find new ways to add value. The couple chose the latter, particularly because their idea for adding value would provide food to their community.

The Flowers say UTIA provided feasibility studies on the profitability of adding a creamery, presented workshops and seminars that gave them skills in integrating a value-added operation, and visited their farm to assess resources and help them develop a business plan. “It was a whole network of assistance, from experts in agricultural profitability to our county Extension agent,” Morgan says. “UTIA was there for us every step of the way.”

In the pages ahead, we explore how UTIA helps people find great places to be in their lives.
Members of Jensen’s tiny UT rural community. The coalition itself is two years old and working to build capacity as it provides resources to prevent substance abuse in the county’s communities.

Bynum says she sees the value of health education programs that UT Extension agents and other community partners deliver. “They promote healthier behaviors in our youth and adults, and that’s important. Their greatest value, though, may lie in changing the attitudes our residents hold.”

Bynum says she wants to see youth and adults realize their choices do matter. Even the simplest steps to boost exercise or switch to healthier foods can make you feel better. Similarly, community members’ receptivity to education about the dangers that substance abuse cause—to themselves and to everyone in the community—could have big impacts. “We want to challenge stigmas of personal behavior and do it early so the culture changes,” she says.

Bynum’s Carroll County lost one of its two hospitals in 2018. She knows health care workers who lost their jobs. Community access to health care has decreased, making health outreach programs more important than ever. The gaps in health care access in some rural areas were significant even well before the pandemic.

In Knoxville, UTIA agricultural economist Sreedhar Upendram knows the economic toll that loss of a hospital can have on a rural community. He and colleagues Amye Nairn (research leader) and David Hughes (professor and Greever Endowed Chair in Agribusiness Development) have calculated the losses.

When Scott County experienced the closure of its hospital in 2016, leading to a direct loss of one hundred employees, the total estimated economic impacts included indirect (input suppliers) and induced (households) multiplier effects. Together these impacts resulted in the loss of an estimated 158.1 million jobs, $9.8 million in labor income, $1.1 million in value added, and $12.7 million in economic activity. Tennessee has lost eight general hospitals since 2010.

Finding opportunities to sustain and strengthen rural communities is the focus of Upendram’s work. Upendram has identified ways to encourage workforce growth, rural development, and information access.

"According to the 2017 Census of Agriculture, 56 percent of farmers in Tennessee cite farming as their principal occupation," says agribusiness development specialist Kim Jensen, former interim head of the Department of Agricultural and Resource Economics. Add that statistic to a series of county maps of Tennessee, showing declines in rural jobs and populations, and the results are concerning. "The maps are contained in the 2020 Economic Report to the Governor (http://utk.edu/TNoem2020). Members of Jensen’s department contributed to the report as a heads-up to farmers on global pressures.

Rural communities may seem far removed from the world’s stage, but international trade issues can hit home hard, as they did in 2019 for soybean and cotton farmers. No one knows that better than Andrew Muhammad, the UT agricultural trade expert and holder of the Blasingame Chair of Excellence in Agricultural, Food, and Natural Resources Policy, briefs leaders of the Tennessee Department of Agriculture monthly on trade issues. He also goes into Tennessee communities to deliver trade policy updates directly to farmers and commodity groups. In January and February, ahead of spring plantings and calving, the meetings keep him on the road, giving addresses on back-to-back days.

Farmers are focused on day-to-day matters, Muhammad says. Global matters can be off the radar, but insight into the policies that shape global trade and their projected impacts will help farmers make informed production decisions. Muhammad says he sees his role as middleman, conveying insights from the Agricultural Policy Advisory Committee that serves the USDA, an independent council of which he is a member, to Tennessee producers to ensure each is well connected to the other.

"RURAL WELL-BEING IS AT THE HEART OF UTIA’S MISSION"

Efforts underway at UTIA to lift rural communities are present in every academic unit. They figure prominently in AgResearch’s work plans and count among each year’s goals for UT Extension agents and specialists, says UTIA leader Tim Cross.

"Advancing citizens in suburban and urban areas are strong emphases for UTIA, certainly," Cross says. "But it’s fair to say that rural economic development is central to much of what we do. Advancing the quality of life for rural citizens and creating new opportunities for them are at the heart of our land-grant mission."

"It’s the biggest thing that’s happened in agriculture in America," says Henry, a grower near Millington, Tennessee. "High-quality CBD done right will produce more profit per acre than any crop ever grown here."

He speaks without a hint of hyperbole—earnestly espousing the growth of hemp in Tennessee’s rural areas. HIV/AIDS epidemic, and a child needs a family. The new generation of hemp farmers needs the same family support. Dr. John Henry, a UT professor and expert in agricultural economics, knows this and is leading his students in the right direction. It’s the biggest thing that’s happened in agriculture in America, he says. The hemp industry is growing rapidly in Tennessee, with the state leading the nation in hemp production. According to the National Hemp Association, Tennessee planted 4,700 acres of hemp in 2019, and the state is expected to double that figure in 2020. Hemp is a versatile crop that can be grown in a variety of soils and climates, and it has a broad range of uses, from food and feed to medicine and fiber.

The hemp industry is expected to create many new jobs and opportunities in Tennessee. The Department of Agricultural and Resource Economics has estimated that the hemp industry could bring an additional $22.7 million in labor income, $11.1 million in value added, and $9.8 million in economic activity to the state, based on an estimated 158.1 million jobs and $9.8 million in labor income. These impacts are expected to have a multiplier effect, with additional economic benefits for the region.

"UT Extension agents and specialists strive to help producers appreciate the risks, as well as the potentials, of the hot market," says Ginger Rowsey, a UT Extension specialist in hemp production. "It’s the biggest thing that’s happened in agriculture in America," says Henry, with a passion for growing hemp. Hemp is a versatile crop that can be grown in a variety of soils and climates, and it has a broad range of uses, from food and feed to medicine and fiber. The Department of Agricultural and Resource Economics has estimated that the hemp industry could bring an additional $22.7 million in labor income, $11.1 million in value added, and $9.8 million in economic activity to the state, based on an estimated 158.1 million jobs and $9.8 million in labor income. These impacts are expected to have a multiplier effect, with additional economic benefits for the region.

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will not go into place this year. Next year remains a question. “The new rules will severely limit the hemp varieties we can plant, making it even harder to find quality seed,” says Will Clampitt, a first-year grower from Henderson County. “It will be interesting to see how the new USDA compliance rules affect the market.”

Clampitt brings a unique perspective to the hemp field. He’s a Herbert College of Agriculture alumnus (BS ornamental horticulture and landscape design ’99). From that background in horticulture, he transitioned to a career as a home health registered nurse. Like Henry, he’s passionate about the crop and its medical benefits. “That’s how I got into this. I’ve seen it help patients with chronic pain or epilepsy. Maybe it’s not the complete answer, but then, neither are opioids.”

Clampitt joined other growers who supplied plant material and will sell as a co-op. As of last winter, he had not sold his hemp but had received offers. Fortunately, he invested in warehouse space where he could cure his hemp and store it while waiting for prices to improve. “I’m not trying to turn a quick buck,” says Clampitt. “This year, I wanted to learn this crop. Honestly, even if we just break even, it’s been a pretty fun summer.”

Despite deflated prices and a murky future for regulations, Clampitt says he plans to grow hemp this year. And he’s not alone. At the end of 2019, USDA had already registered 3,800 growers on an estimated 51,000 acres for 2020.

The growing interest is a bit of a conundrum for UT Extension agents tasked with hemp education. Some agents say they fear new growers do not fully understand the hard realities of raising such a labor-intensive crop. In 2019 UT Extension hosted multiple forums to ensure growers recognized the risks, not just the potential opportunities. “For every grower who busted in 2019, there’s another potential grower who wants in,” says Henry. He, too, says he will grow hemp again in 2020. “The new growers need to understand nothing good is easy. People shouldn’t expect to grow an acre of hemp and get rich.”
Briana Jeffers says she knew she needed to provide for her family, but the mother of ten says one hundred dollars in extra expenses to go back to school was a huge barrier. “I had the time and the motivation, but I couldn’t make ends meet as a student. Skill Up Tennessee changed that.”

For Jeffers and Tennesseans like her, the difference between relying on public assistance and having access to training that leads to a successful career is often a few hundred dollars. But it’s a few hundred dollars too much. A program called Skill Up Tennessee is changing that.

Conducted by UT Extension in partnership with the Tennessee Department of Labor and Workforce Development, Skill Up Tennessee is a SNAP employment and training program. Skill Up Tennessee helps people like Jeffers better their lives by securing gainful employment. With referrals from county agents, partners, and direct recruitment, regional specialists called career navigators work with participants to identify barriers and find solutions that will enable them to pursue education or training. A true last-dollar program, Skill Up Tennessee ensures participants do not give up on their dreams because of financial barriers, whether it’s finding childcare while in class, buying textbooks, or providing uniforms and proper footwear, such as steel-toe boots or non-skid shoes.

Participants complete a career goals assessment, enroll in classes, and work toward financial independence through training that will expand their career opportunities. Each month, career navigators contact participants to provide advice and problem solve if a new barrier to continuing their progress arises. Participants are first connected to available resources such as federal Pell and TN Reconnect grants. Once all other aid sources are exhausted, Skill Up Tennessee either covers or reimburses eligible expenses.

Jeffers received support for tuition, books, scrubs, and the application fee and background check needed to be certified as a dental assistant. She also received gas cards to assist her with transportation to and from classes. “The biggest barriers are childcare and transportation,” says Laura Bolt, a career navigator in UT Extension’s Eastern Region. “For eligible participants, the program provides solutions for both.”

County agents also offer participants a work readiness class that cultivates the “soft skills” needed in the marketplace, such as timeliness, responsibility, being a team player, and responding to conflict. “Some participants may have never had a strong role model or mentor,” says UT Extension specialist Clint Cummings. “Career navigators and county agents step in and encourage participants. When they say, ‘I believe you can do this,’ participants start believing that someday they can be a role model for their own families.”

Cummings says Extension is serving about one-third of SNAP Employment and Training participants across the state, and agents and specialists hope the number continues to increase, to develop a better-trained workforce for Tennessee.

When participants realize extra resources are available if they are willing to work hard, they become even more motivated to change their situations for good, he adds.

The difference Skill Up Tennessee makes can mean a better life for citizens and their families, and that makes for a better future for Tennessee as well.

WHERE K-12 STUDENTS LEARN HOW “WANTS” FARE WITH BUDGET REALITIES

A UT Extension-developed simulation called On My Own preps youth about the financial decisions they’ll face as adults and strengthens the critical thinking skills they’ll need to reach sound ones.

Picture this. You’re twenty-five years old. You have a job and the typical monthly expenses—a mortgage, car payment, utilities, groceries, transportation, and credit card bills. You’re facing a situation faced by many: How do you know if you have enough money to make it to the end of the month?

“Career navigators and county agents step in and encourage participants. When they say, ‘I believe you can do this,’ participants start believing that someday they can be a role model for their own families.”

Skill Up participant Jasmaina Benton recently completed her MIG Welding Certificate, opening doors to a lucrative career.
help. He also needs to plan for the future if his operation is to continue.

In Tennessee’s rural Giles County, some eighty miles southwest from Nashville, Brian and Morgan Flowers are younger and their operation is set to expand from dairy milk production to making cheddar cheese. Morgan says, tongue in cheek, “Brian was looking for a partner to move into value-added, and I came along, and I guess I’m it.” She adds that she told him she’d work with people if he’d work with the cattle. The arrangement suits them both. Their Flowers Creamery has 120 cows plus replacement heifers. They operate a herd of Holsteins and another of Jerseys.

These two sets of producers are united by an interest in succeeding with incorporating value-added products to their farms. Last December, that interest drew them and thirty-two other dairy producers to Loudon, Tennessee, for a daylong presentation on value-added dairy production. The crowd of almost fifty outgrew the meeting’s original location so the presentations were given in a church recreation room. Specialists from UTIA’s Center for Profitable Agriculture led sessions. So did dairy industry representatives and UTIA faculty and Extension specialists and agents with expertise in dairy production.

When Hal Pepper, a financial analysis specialist with Center, asked how many of the farms raise cows, eight hands went up. Raise goats? Four hands rose. Sheep? Another hand. Equally diverse were the participants’ adoption of value-added enterprises. Some, such as Jeffrey and Elizabeth Turner of Shop Springs Creamery, already are thriving in value-added, combining their dairy with a highly popular ice cream business in Lebanon. Others in the room owned animals but were just beginning to explore how a value-added enterprise, such as bottling pasteurized milk, might fit into their operations.

All, Pepper says, have the opportunity to benefit from the USDA Dairy Business Innovation Initiatives grant program the CPA is conducting. The program will assist Tennessee dairy farmers with business development strategies as they explore the feasibility of value-added ideas for their operation. The grant also provides support

For Dairy Producers, Value-added Opportunities

While a new grant focuses on dairy, the Center for Profitable Agriculture offers its services to Tennessee producers in all industries.
for training, processing equipment, and marketing, and the funding will be awarded by the Tennessee Department of Agriculture. Full details will be made available at TDAs website. The grant will continue through 2022.

The Center has worked with producers to consider value-added enterprises since it started more than twenty-two years ago. Today more producers than ever are looking for ways to diversify and add income. CPA is operated as a partnership between the Tennessee Farm Bureau Federation and UT Extension and works cooperatively with TDA. Its objectives include:

- Assisting farmers and agri-entrepreneurs in evaluating, planning, and developing value-added business ideas.
- Conducting applied research, such as market development studies and industry analyses, to guide the development of value-added enterprises.
- Providing training in value-added agriculture for county UT Extension agents and other agricultural leaders.

John Harrison launched his Sweetwater Valley Farm in Loudon County before the inception of CPA, but he knows the value of value-added. First, he added cheese-making to his dairy operation. Last year, encouraged by his daughter, who’s added her own value by handling the farm’s marketing, he added a café and market-place. There, inch-thick grilled cheese sandwiches, shakes, and ice cream bring in the community, and so does the shop side of the operation with its country-themed goods and homemade candy and soaps.

"Now people come here for the café and to bring visitors. So, we’re attracting more people, and that also supports the cheese sales," he says.

Harrison gave attendees of the December workshop a tour of his operation. He also drew on his own experiences as he gave advice. "Plan, plan, plan. You can’t plan too much. Also, do budgets when starting with an idea." Think bigger, was another thought he shared, and don’t feel like you have to reinvent the wheel.

To learn more about the Center for Profitable Agriculture and all that it does, visit ag.tennessee.edu/cpa. Handouts from last December’s value-added dairy workshop and information about the Dairy Business Innovation Initiatives grant are available at the site.

In northwest Cambodia women are heavily involved in agriculture, including managing livestock. However, due to cultural beliefs, women are often marginalized and have less power when it comes to decision-making and access to inputs, especially knowledge.

As in many villages around the world, education is restricted culturally, particularly for low-income women. The UT Institute of Agriculture’s Smith Center for International Sustainable Agriculture is collaborating with local universities and other organizations to resolve those gaps by providing educational opportunities for women producers.

Koemseang Nhuong, head of the animal science program at Cambodia’s University of Battambang, says a simple way to address this barrier is to provide training using women researchers and women agricultural educators.

Last year Nhuoung and Andy Lear, assistant professor in large animal clinical sciences with the UT College of Veterinary Medicine, provided research-based information to women producers at a Battambang research station. The two also learned, directly from the women, about the barriers they encounter in improving their cattle’s health. The women scientists were able to provide a space to interact and discuss problems, which allowed the farmers a more comfortable environment for learning about cattle health.

"It’s not just Cambodia, but many areas share these challenges," relates Tom Gill, director of the Smith International Center. The Center and its work are made possible by UT alumni Donnie and Terry Smith, whose mission is to feed the world’s hungry. This endowment has been lever-aged to secure federal grants to further the Center’s work abroad.

In agricultural systems in low- and middle-income countries, women are most often found at the early stages of value chains and often lack income to buy land and invest in their families. They tend to operate on a smaller scale and own smaller livestock, such as chickens and goats, which have less value than larger livestock.

In Rwanda, the Smith International Center is helping to work with local organizations to improve the income of women farmers through poultry.

One Rwandan farmer, Esperance, says she is happy about chicken farming because she is able to make profits and reinvest.

"This work has great importance in my life. I used to go dig for other people and they would pay you right there, and you would use it at that instant, and it ends. But now the profit comes, and it helps me a lot."

In the highlands of Guatemala, women produce everything from vegetables for export to flowers for religious festivals and natural dyes to make traditional weavings. Storms and prolonged drought can cause myriad problems, including extreme soil loss and low productivity. Through support from donors such as UT alumni Kelly and Beverly Milam, UTIA scientists and students are working in Guatemala to help develop solutions to decrease soil loss and increase soil fertility.

Learn more about the Smith International Center, its mission, and its outreach and education around the globe at tiny.utk.edu/smithcenter.
IN 2019, THERE WERE 69,700 TENNESSEE FARMS MADE UP OF 10.8 MILLION ACRES, WITH AN AVERAGE FARM SIZE OF 155 ACRES.

FARMERS EARNED THE MAJORITY OF THEIR CASH RECEIPTS FROM:

IN 2018, AGRICULTURE ACCOUNTED FOR 8.1 PERCENT OF THE STATE’S ECONOMY AND $58.9 BILLION IN OUTPUT.

THE TOP MAJOR EXPORT MARKETS FOR TENNESSEE CROPS IN 2019 WERE:

- VIETNAM: $157.6 MILLION
- TURKEY: $107.8 MILLION
- PAKISTAN: $87.7 MILLION
- INDONESIA: $65.4 MILLION
- & BANGLADESH: $63.4 MILLION

TOTAL INTERNATIONAL CROP EXPORTS: $736 MILLION

THE TOP EXPORT MARKETS FOR LIVESTOCK IN 2019 WERE:

- MEXICO: $5.3 MILLION
- CANADA: $2 MILLION
- JAPAN: $1.1 MILLION
- PANAMA: $0.7 MILLION
- & FRANCE: $0.5 MILLION

TOTAL INTERNATIONAL LIVESTOCK EXPORTS: $11.5 MILLION

IN 2019, THE AGRI-FORESTRY INDUSTRIAL COMPLEX CONTRIBUTED AN ESTIMATED $81 BILLION TO THE TENNESSEE ECONOMY AND CLOSE TO 350,000 JOBS.

STRENGTH IN NUMBERS

Agriculture has a mighty impact in Tennessee. Data from 2019 and 2018, the most recent years available, show the economic value that agriculture and connected industries has to the state and our citizens.

BENN FRAKER’S FIRM TREAD GIVES HIM AWAY. So do his muscular neck and shoulders. This student is used to hard physical effort. Benn’s strength once propelled a canoe through whitewater slaloms. He competed internationally for a decade, including as a 2008 US Olympiad. These days, his physical demands walk in on four feet. They happen when a horse leans its weight on Benn as he files and shoes a hoof.

Benn is a farrier. Making a living at it led him to Knox County, which offered a larger market for his trade. Once in Knoxville, Benn decided to re-enter college. In the animal science pre-veterinary concentration, he found a superb match for his interests and skills. The UT College of Veterinary Medicine thought so, too, and admitted him. Today shoeing horses is something Benn continues on the side. It brings in money, sure, and it also allows him to continue to refine his skills. There’s always something more to learn, he says. Benn’s farriering also appears to be leading him to a growth area in veterinary medicine. If a horse becomes lame, there’s little you can do with it, he says. Heading off lameness is the best option. “While many of the skills have remained the same for years, new technologies are allowing both advanced diagnostic assessment and new approaches to problems.” Practices specializing in equine podiatry are on the rise.

EMMA MORGAN OPERATED A POP-UP BOUTIQUE OUT OF A RETRO CAMPER ON MOST WEEKENDS DURING HER COLLEGE YEARS. The 2018 food and agriculture business graduate competed on the NAMA team, which is focused on business marketing, but says she never integrated her business into her coursework except in her mind.

ADA BEA’S BOUTIQUE IS NOW A BRICK-AND-MORTAR SHOP IN JEFFERSON CITY, TENNESSEE, AND EMMA ALSO SELLS ONLINE AT adabeas.com. At least twice a month, she still starts up the camper and heads for the road. These days Emma drives to Chattanooga, North Carolina, or down to Atlanta. The geographic spread expands her market.

ANDREW SWAFFORD ENTERED INTO THE BUSINESS HE OPERATED ON THE SIDE AS A TEEN. He was sitting in the kitchen, watching his father incorporate ingredients into a batch of bread dough, while the two discussed ideas for a new FFA project. Andrew wanted something completely new. As his father lifted a jar of honey to add a drizzle to the dough, he asked, “What about beekeeping?” Andrew soon launched into it. Not much later, he had grown it into a business.
Providing educational opportunities for young people in our state is perhaps one of the most important investments that we can make to secure a brighter future for Tennessee,” says Scott Senseman, interim dean of UT Extension.

Donor dollars create impacts that far outpace traditional University revenue streams. Individuals believing in and partnering with a dream like Lone Oaks Farm often enable the University to get to the work of education and research that much quicker.

“When an individual makes an investment in the UT Institute of Agriculture, it truly is a hands-on commitment,” says Keith Barber, vice chancellor of institutional advancement.

For example, the STEM center at Lone Oaks remains as architectural renderings, but the barn already has a name—the Tennessee Farm Bureau STEM Barn. The Tennessee Farm Bureau family, made up of the Tennessee Farm Bureau Federation, Farm Bureau Insurance of Tennessee, and Tennessee Farm Bureau Health Plans, is one of many individuals and companies investing in the vision of Lone Oaks Farm.

“We are thrilled to contribute to the positive effort UT Extension has at Lone Oaks Farm in preparing the future generation of farmers and agricultural advocates, and we look forward to how this investment will not only increase Extension’s outreach, but also provide a strong teaching tool for 4-H’ers and others to learn valuable agricultural knowledge,” says Tennessee Farm Bureau president Jeff Aiken.

Farm Bureau is not only investing in the UT Institute of Agriculture, it also is investing in the state and in youth education.

“These are the types of connections we can build upon to enhance all partners,” says Barber. “Connecting people’s passion for outreach with the University’s commitment to the land-grant mission is a win for everyone.”

It is a mission already in motion. More than 1,000 students visited the farm for science-based learning last fall. STEM education and youth leadership has taken place on lakeshores, under pine boughs, and in fields since the beginning.

The difference will be instead of 1,000 students enjoying an afternoon of learning math in tree rings and weighing cotton bolls, thousands of additional students will be immersed for a week in nature, opening the radius of Lone Oaks Farm’s impacts from surrounding counties to surrounding regions.

Donors Create Economic Impacts, Too

By Lauren Vath

Crews broke ground in August 2019 for the new Hunter Education and Clay Target Center at the Youth Education Center at Lone Oaks Farm in Middleton, Tennessee.

By early February, its silhouette was affixed to the landscape as the first major construction project for the future 4-H camp.

“Our vision for Lone Oaks Farm has always been to create a premier education facility to help our youth develop a deep appreciation for the land, conservation, and agriculture,” says Tim Cross, UT Institute of Agriculture senior vice president and senior vice chancellor.

In this issue of Land, Life & Science, we look at the economic impact the Institute creates and the value our alumni bring to the state and beyond. But what about the economic impact our donors create?

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Earn a Master of Science in Agricultural Leadership, Education and Communications from Tennessee’s flagship university—and from the comfort of your own home. This online program is built for the working professional and is affordable no matter where you live. All courses are modular and asynchronous, so you can determine the pace that works for you without putting your life on hold.

Visit tiny.utk.edu/1degree to see if this program is perfect for you.

To learn more about how you can support the work of the UT Institute of Agriculture, visit together.tennessee.edu/loneoaks or give us a call at 865-974-5779.
Every Time the Small Cabbage White Butterfly Flaps Its Wings, It Has Us to Thank

by Patricia McDaniels

The caterpillar form of an unassuming small cabbage white butterfly is one of the world’s most destructive insects of food crops. A new study has found that we’re why. Sometimes, it takes a village to solve a mystery. Finding the answer to how the insect named Pieris rapae was able to spread into an almost global reach is one of those cases. We humans are the culprit, and we’ve been unwittingly helping for thousands of years. You’d think we could have learned better by now.

Discovering that we brought the butterfly’s infestations upon ourselves, though, took some doing. The finding was achieved thanks to the assistance of 150 citizen scientists, a consortium of researchers—including two from the UT Institute of Agriculture—and the tools of DNA analysis.

Research in which members of the public called “citizen scientists” play a role in project development, data collection, or discovery has opened new scientific frontiers, expanding the limits of what once was considered feasible in science. Think about the home test kits for DNA. They’ve provided new knowledge of the spread and diversification of the globe’s races while also defusing (and sometimes uncomfortably disclosing) our own particular place among our kin.

In the case of the heritage of the small cabbage white butterfly, the research team sent out a call on social media, asking the public to grab a butterfly net, then catch and send individual butterflies for genetic testing. Citizen scientists in thirty-two countries heeded the call, submitting more than 3,000 butterflies.

Once the samples arrived at the lab, the researchers documented genetic variation and similarities between existing populations. The geographic range of the small cabbage white butterfly joined us as we spanned mountains and voyaged across oceans. In North America, the butterflies even accompanied us as we crossed the continent aboard the massive “iron horse” steam engines on newly laid rails in the nineteenth century.

The success of the small cabbage white butterfly is the consequence of human activities,” says Ryan. “Through trade and migration humans helped to inadvertently spread the pest beyond its natural range, and through the domestication and diversification of mustard crops, like cabbage, kale, and broccoli, humans provided it with the food its caterpillars would need to flourish."

The research was published in the Proceedings of the National Academy of Sciences (PNAS) last year.

Citizen science is subject to the same system of peer review as conventional science. Its power lies in its ability to help conventional studies overcome challenges involving large spatial and temporal scales. Social media and the internet are key tools that allow citizen scientists, who often share similar interests through memberships in nature-based groups or professional societies, to enhance the scale and scope of a particular project and its impact on society.

“Citizen science projects have been growing exponentially over the past decade, opening doors to new scientific frontiers and expanding the limits of what was once feasible,” says DeWayne Shoemaker, professor and head of the Department of Entomology and Plant Pathology, and one of the paper’s co-authors. “The relatively unique approach we took was in asking the public to help collect—not just observe—these agricultural pests. Doing so enabled us to extract information recorded within the DNA of each individual butterfly. That information, when aggregated, told a story about the collective past of the small cabbage white butterfly.”

Ryan believes the use of collection-based citizen science projects will help scientists answer important questions in invasion biology, ecology, and evolutionary change, which can lead to improvements in crop management and success as well as better environmental controls for invasive species.

Ryan’s efforts were funded by a USDA National Institute of Food and Agriculture postdoctoral fellowship grant.
I grew up in a community in West Texas where agriculture, particularly cotton and cattle, was the main driver of the economy. It seemed like everyone’s dad, mom, brother, sister, cousin, and/or grandparents either farmed, worked at a cotton gin, feed store, feedlot, trucking business, or in sales of anything from seeds to machinery. And anyone who wasn’t working in agriculture needed farms to be profitable to spend money at local restaurants, purchase vehicles, or buy Christmas presents. As long as I can remember, agriculture and economics have always gone hand in hand.

I did not grow up on a full-time farm. Both my parents had full-time jobs, but my father started purchasing our farm when I was a child. He wanted me to be outdoors and near agriculture like he had in very rural South Texas. When I wasn’t fixing fences, grubbing mesquite trees, spraying spinney oak, or hunting deer on our farm, I was constantly being hired to help big, nearby cattle producers work cattle. The work started early and went all day. Lunch or dinner was a luxury, and it didn’t matter if it was cold, hot, or blowing dirt. These experiences taught me how hard farmers and ranchers work to earn their paycheck, how much of their paycheck is dependent on things outside of their control, and how their community depends on their paycheck to keep their rural economy going.

That understanding is why my research focuses on addressing real-world questions to help farmers in Tennessee become more profitable and better manage uncontrollable risks like weather and price fluctuations. As a faculty member in a research-based, land-grant university, I believe it is important to work closely with Extension personnel to identify important real-world research questions and to communicate these results to producers. I also believe working with faculty members from other specialties like animal science and plant sciences is vital for research to be effective. Pooling backgrounds and knowledge from multiple departments allows a research team to identify more relevant research questions and develop more effective solutions to the issues facing agriculture. I am thankful for my upbringing and for a career at the University of Tennessee Institute of Agriculture. I am grateful to be surrounded by brilliant minds working to address important questions in agriculture. My hope and our constant goal is to improve the quality of life for agricultural producers in Tennessee, as well as for those well beyond our state’s border.
Phil Baggett still recalls the moment he decided to attend UT and one day return to his family’s Montgomery County farm. It was when Extension agent Don Malone entered his fourth-grade classroom and held a 4-H Club meeting.

Baggett stuck to his decision. He earned his bachelor’s in agricultural economics in 1970 and his MBA at UT in 1972.

Across three decades, Baggett integrated his expertise in those fields as he launched, built, then sold businesses. His first, called US Slate and Marble, was sited in Jefferson City, Tennessee, where he met and married his wife, Kathy. He later sold the company to what is now Armstrong World Industries. He says he enjoyed the building process, but it was business, and he always planned to go back to the farm.

Today, he estimates he is the fifth generation in his family to farm Montgomery County land. Dark-fired tobacco was the chief crop when he was a boy. Agriculture surrounded his childhood, and 4-H shaped his education. The couple’s daughters followed that path and earned degrees at UT: Brittany, a BS in agricultural science in 2005, and Brooke, a BS in biological sciences in 2011. They also have had a hand in the family’s operation, Tennessee Grass Fed, launched in 2017.

Baggett and his wife raise grass-fed beef on the 422-acre family farm using both warm- and cool-season grasses. The desire to protect the land and provide a product he believed in prompted his decision to raise and finish grass-fed beef, he says. The farm’s clay-heavy soil is prone to erosion. Row-cropping would have required extensive fertilization. Cultivating a range of grasses, instead, has stabilized and protected the soil.

The Baggetts were among the first to enter the burgeoning grass-fed market niche. They also were among the first to launch an online store (tennesseegrassfed.com) for direct internet sales of on-farm products. Baggett credits his success to the business savvy he honed as an entrepreneur and to his education at UT. “I will never be able to pay back UT for all I learned and have been given by the institution,” he says.

Baggett counsels young people looking to pursue a career in farming to consider the other side of an operation. It’s not just what you can make or grow, he says. It’s what you can sell at a profit. Farming is a business like any other, with needs that span infrastructure, marketing, accounting, and management. “You’ve got to find a product or service to which you can add value at a profit.” Wise words, indeed.
Agriculture is #essential, even on our days “off.” Beautiful day getting an Early, Medium, and Full Corn Ear of maize CST planted in Puryear today. #SocialDistancing between hoppers #RealLifeSolutions

Bear is the most handsome 2-year-old Labrador who just completed chemotherapy for a bone tumor. Way to go, Bear! Special shout-out to Dr. Sangid at Banfield Pet Hospital in Turkey Creek, Bear’s primary care veterinarian. #ittakesateam

Stitch says hello. Our Farm Animal Medicine and Surgery team was able to spay her a few days ago before the Veterinary Medical Center transitioned its patient caseload to urgent and emergency care.

Field safety is so important and you have to plan ahead… like what do you do when your student is attacked by an adorable puppy but you have to stay six feet away? Sacrifice yourself to save your student!

A few members of Team Medicine in their brand new masks (Thanks, Dr. JW!) demonstrating proper physical distance. The UT Veterinary Medical Center’s caseload in the hospital is emergency and medically-urgent. Many thanks to all medical professionals keeping us safe.

Trinity Nash is a 4-H'er from Macon County who has sewn over 300 masks for health care workers in her community. Trinity is just one of many @Tennessee4H'ers who are stepping up to do their part to fight the spread of #COVID19 in TN.

First day all classes at University of Tennessee are officially online. The teacher’s pet and I are officially ready to hold class over Zoom!

UT College of Veterinary Medicine

The social media posts tell the story of UTIA’s spring semester. While we changed in response to the pandemic, members of the UTIA family continued unhindered to carry out our mission of teaching, research, and outreach.

Scott Sensenbrenner @UTPSDeptHead
Just want to thank, not only our @utgardens staff for the great work on handling a plant sale in a pandemic, but also the Knoxville community for supporting the gardens. Your support has helped raise comparable funding from previous sales. Thank You, Knoxville!

Karen L. DeLong @K_DeLong_UT
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Karen L. DeLong @K_DeLong_UT
First day all classes at University of Tennessee are officially online. The teacher’s pet and I are officially ready to hold class over Zoom!

Trinity Nash is a 4-H'er from Macon County who has sewn over 300 masks for health care workers in her community. Trinity is just one of many @Tennessee4H'ers who are stepping up to do their part to fight the spread of #COVID19 in TN.

Laura Russo @lrusso08
Field safety is so important and you have to plan ahead… like what do you do when your student is attacked by an adorable puppy but you have to stay six feet away? Sacrifice yourself to save your student!

Scott Sensenbrenner @UTPSDeptHead
Just want to thank, not only our @utgardens staff for the great work on handling a plant sale in a pandemic, but also the Knoxville community for supporting the gardens. Your support has helped raise comparable funding from previous sales. Thank You, Knoxville!
SAVE THE DATE
We hope to see you at Ag Day 2020!

SATURDAY, OCTOBER 3
VISIT UTIA.TENNESSEE.EDU FOR MORE DETAILS AS THE DATE APPROACHES