



UTIA

INSTITUTE OF AGRICULTURE

THE UNIVERSITY OF TENNESSEE

Real. Life. Solutions.™

2023 YEAR IN REVIEW



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About the Cover

The people who make up the UT Institute of Agriculture are the driving force behind the Real. Life. Solutions. we create and deliver. Learn more about some of our faculty, staff, students, and alumni whose work sets them apart as outstanding in their fields at utia.tennessee.edu/spotlights.



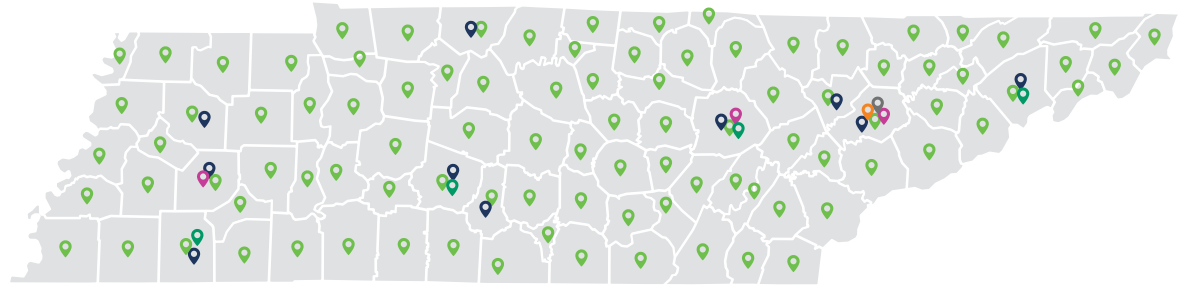
Greetings from the University of Tennessee Institute of Agriculture

On behalf of the 2,200 employees spread across our great state of Tennessee, I welcome you to learn more about the institute and how we provide Real. Life. Solutions. That is a brand promise we take to heart. Our researchers, UT Extension agents, faculty, staff, and students believe in what we do, and we see the impact every day. I feel fortunate to have been named the leader of the institute in March 2023, and am amazed during every visit, meeting, and phone call to see the impact of our people and their work. I hope you will take time to learn more by reading this annual report and, more importantly, by attending our field days and events, visiting our offices, classrooms, and laboratories. You can also learn more at utia.tennessee.edu.

Thank you for your support of the UT Institute of Agriculture.

A handwritten signature in black ink, reading "Keith Carver, PhD". The signature is fluid and cursive, with the first name "Keith" being the most prominent.

Keith Carver, PhD
UTIA Senior Vice Chancellor and Senior Vice President



📍 UT Extension Office 📍 UT AgResearch and Education Center 📍 UT Gardens 📍 Herbert College of Agriculture 📍 College of Veterinary Medicine 📍 4-H and Youth Development Center

Our Statewide Institute

The University of Tennessee Institute of Agriculture (UTIA) has a presence in all ninety-five counties in Tennessee to provide Real. Life. Solutions. through its land-grant mission of research, teaching, and outreach, including extension. UTIA is one of only a handful of agricultural institutes across the US. This designation as an institute demonstrates the importance of agriculture and its partnering industries in Tennessee. Our units include the Herbert College of Agriculture, UT College of Veterinary Medicine, UT Extension, and UT AgResearch. UTIA is also home to the UT Gardens, designated as the State Botanical Garden of Tennessee.

UT AgRESEARCH

\$104 million in competitive research grants and contracts, a **228 percent increase** from the year before

\$50 million from the state in funding from the American Rescue Plan used to upgrade infrastructure and purchase new equipment at the ten UT AgResearch and Education Centers

15,845 people attended field days in 2023

UT EXTENSION

Nearly **200,000** onsite visits
27 million digital contacts
152,000 4-H club members

\$1 public funds invested = **\$8.29 returned** to people of Tennessee through UT Extension

UT GARDENS

Locations in **Knoxville, Crossville, and Jackson**

100,000+ visitors each year

HERBERT COLLEGE OF AGRICULTURE

1,600 undergraduates
245 master's students
109 PhD students

439 undergraduate and graduate degrees awarded in 2022-23

COLLEGE OF VETERINARY MEDICINE

338 DVM students
14 master's students
39 PhD students

Patient caseload: **22,000** small, **2,000** exotic, **3,400** large, and **9,500** field service animals

A man in a forest wearing an orange vest and a cap, looking up and shielding his eyes from the sun. The background is a dense forest with many trees and green foliage. The man is standing on a path covered with dry leaves and twigs. The overall scene is bright and sunny, with dappled light filtering through the trees.

Teaching

The Department of Forestry, Wildlife and Fisheries celebrated 2023 with a new designation: the UTIA School of Natural Resources. Originally established in 1964 as the Department of Forestry, then later renamed and expanded in 1977, the new school offers bachelor's and master's degrees in forestry or wildlife and fisheries and a doctoral degree in natural resources

through the Herbert College of Agriculture. The faculty and staff specialize in several natural resource areas including wildlife health, native warm-season grasses, climate-smart forestry, and bioenergy and bioproducts through the Center for Renewable Carbon. The school will offer programs unique to a region in which the forest industry is dominated by hardwoods rather than pine.



UTCVM Teaching and Learning Center Opens

The College of Veterinary Medicine opened the doors of its first major expansion of instructional space in its history. The new 20,000-square-foot Teaching and Learning Center greets visitors entering campus from Neyland Drive. The building has a 130-seat lecture hall, named for UT alumni and benefactors Ann and John Tickle, with a clinical skills simulation center and a modular 70-seat teaching lab on either side. It offers a welcoming environment for students with space to eat lunch, study, hold club meetings, and interact with peers.

Veterinary and Social Work Come Together

The Center for Veterinary Social Work, established in June 2023, is the culmination of many years of collaboration between the UT College of Social Work and the College of Veterinary Medicine. The center, headed by Elizabeth Strand, who started the groundbreaking discipline in 2002, focuses on the welfare of all species through excellence in global interprofessional practice. Veterinary social work tends to grief and pet loss, animal-assisted interaction, the link between human and animal violence, and intentional well-being.

PhD Student's Potato Phytosensor

Rob Sears engineered a potato plant that can detect gamma radiation, which could be helpful as demand increases for effective and easily accessible ways to monitor radiation sources. The plant is a phytosensor and indicates high levels of radiation by changing its leaves to glow green. Since potatoes are grown throughout the world, they are an ideal plant for this purpose. Sears, who graduated from the Herbert College of Agriculture in December 2023, worked with professors Neal Stewart in the Department of Plant Sciences and Scott Lenaghan in the Department of Food Science. The research was funded by the Defense Advanced Research Projects Agency.



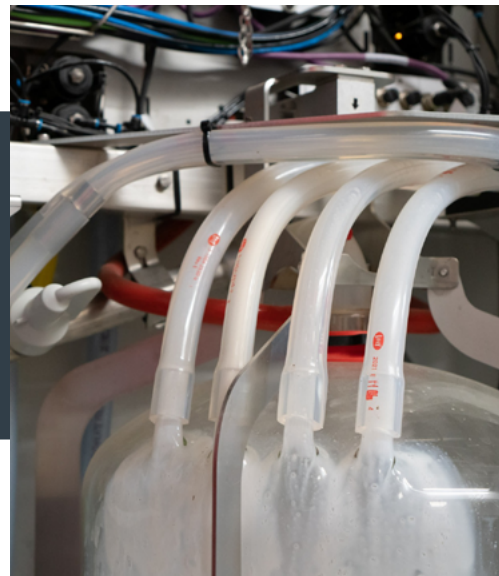
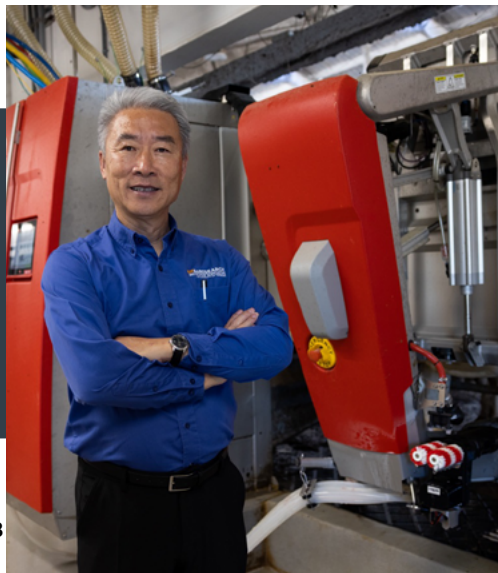
Rob Sears working with his phytosensor project.

Research

UT AgResearch's 700 faculty and students conduct both basic and applied research in partnership with UT Knoxville and Oak Ridge National Laboratory as well as at UT AgResearch's ten research and education centers across the state.

Robotic Milkers Installed

New robotic milking technology installed in 2023 at the East Tennessee AgResearch and Education Center's Little River Animal and Environmental Unit exemplifies the thinking behind precision livestock farming. Using the new system, cows are trained to walk to the milker, where a sensor reads the identification collars and begins the milking process. The system knows how much feed to give the cow based on the data collected, and it records and observes milk production, feeding, and comfort. About 120 cows can be milked on the system.



Turfgrass Facility Tests Safety

The UT Center for Athletic Field Safety added a 4,000-square-foot climate-controlled building for research to support the 2026 FIFA World Cup. The facility includes grow lights for turfgrass research and surfaces to test the response of grasses to shoes, equipment, maintenance, and more. John Sorochan, distinguished professor of turfgrass science and management, is leading a team of experts who will develop and maintain all sixteen fields in the worldwide tournament.

National Directors Visit Tennessee

Representatives from agricultural institutions across the US visited UT AgResearch and Education Centers as part of the fall meeting of the Research Center Administrators Society. UTIA's ten centers continue to set the precedent for innovative agricultural development statewide and beyond.

UTIA Hosts National and International Groups

The annual National Extension and Research Administrative Officers Conference (NEROAC) was held in Nashville and co-hosted by UTIA, Tennessee State University's College of Agriculture, and USDA's National Institute of Food and Agriculture. UT Extension and UT AgResearch staff joined counterparts from across the country to share best practices and discuss policy and issues for land-grant institutions. In addition, UT AgResearch hosted more than 200 attendees from twenty-two countries and thirty-two states at the second US Precision Livestock Farming Conference. Researchers, representatives from government and industry, and producers discussed ways to increase field adoption of precision technologies.

Left page: UT AgResearch Dean Hongwei Xin shows off new robotic milking equipment.

Right: UT AgResearch and Education Center directors Scott Stewart (left), Rob Ellis (second from right), and Walt Hitch (right), host a wagon tour of the Plateau AgResearch and Education Center for attendees of the national Research Center Administrators Society (RCAS) in September.



A person is kayaking on a calm river, with mist rising from the water. In the background, there are forested hills. The scene is peaceful and scenic.

Outreach and Extension

UT Extension has an office in every county and 840 employees throughout the state, including 295 agents with specialties in agriculture and natural resources, family and consumer sciences, 4-H and Youth Development, and community and economic development.

Tennessee RiverLine Joins UTIA

This ambitious initiative promotes the Tennessee River as a driver of the outdoor economy by holding recreation and stewardship events, launching resources for river use, and supporting the construction and planning of riverfront parks, trails and other amenities along its 652 miles through four states. Tennessee RiverLine, started as a student project in 2016, is a partnership between UT Extension, UT Knoxville, and the Tennessee Valley Authority.

Lone Oaks Farm Grows

UT Extension officially opened the new 4-H and Youth Development Center at Lone Oaks Farm in Middleton, Tennessee. UT System President Randy Boyd, along with UT leadership and members of the state legislature and local government, assisted in cutting the ribbon to celebrate the opening. The state-of-the-art facility is designed to provide interactive learning opportunities for students through advanced on-site STEM education, leadership development, and agriculture programs not available in traditional classrooms. Jeremy Burnett is the new director and will oversee the 4-H center, the working cattle and hay farm, and the Clays youth and adult shooting sports facility.

Dedicated to 4-H and Youth Development

Tennessee's 4-H program is fully staffed in all ninety-five counties, thanks to a \$2.2 million increase in legislative funding approved in 2021. UT Extension hired new agents or shifted duties of existing agents in thirty-two counties to dedicate all their time to 4-H. The hundred-year-old program is the largest youth organization in Tennessee with 152,000 youth participants in grades fourth through twelfth, and Tennessee's 4-H is one of the largest 4-H programs in the United States.

One Hundred Years of Roundup

Tennessee 4-H celebrated its one hundredth Roundup in 2023 when 350 youth and adult volunteers from all ninety-five counties gathered in Knoxville. At the first Roundup in 1923, then called the State 4-H Club Camp, there were about half that many attendees from only sixteen counties.



Professor Juan Luis Jurat-Fuentes works with a student.

Farmer to Farmer Grant in Asia

The Smith Center for International Sustainable Agriculture leads the Agriculture Leaders of Tomorrow regional farmer-to-farmer program in Cambodia, Philippines, and Vietnam. An initial grant of \$5 million, with potential for further funding of \$25 million, was awarded in 2023. The program provides technical assistance from US volunteers to farmers in foreign countries to promote sustainable improvements in food security and agricultural production, processing, and marketing. Specifically, UTIA faculty and staff work with youth-led and youth-serving organizations to educate and train the next generation of farmers.



Rob Holland, director of the Center for Profitable Agriculture, helps farmers and producers improve income with value-added enterprises.

Collaborations

Partnership Celebrates Twenty-five Years

The Center for Profitable Agriculture (CPA) has helped Tennessee farmers add new products or services to expand their income since 1998, and today it operates as a partnership between UT Extension and the Tennessee Farm Bureau. During the last twenty-five years, “buy local” programs, agritourism, and other value-added products have grown in demand as has the need for CPA specialists and their knowledge and expertise.

Land-Grant Researchers Meet

Leaders and researchers from Tennessee's two land-grant institutions met to exchange ideas in Knoxville, and another research summit for UTIA and Tennessee State University faculty is being planned for Nashville. During the summit, sixteen faculty in animal science and food science discussed current collaborations. UT and TSU faculty have worked together on \$40 million of funded research in the past five years.



Broadband Access and Digital Literacy

UT Extension works with governments, universities, public libraries, corporations and businesses, such as AT&T, to help expand broadband internet access and literacy across Tennessee, one of the UT System's grand challenges. Sreedhar Upendram, associate professor in agricultural and resource economics, helps cities and counties find ways to increase access, particularly in rural areas, where infrastructure is not yet in place for direct wiring. In Giles County, the public library offers hotspots that residents borrow to use at home. Students are also helping teach digital skills to senior citizens.



UT Extension's Sreedhar Upendram works with Giles County Public Library Director Cindy Nesbitt to increase internet access.

National Precision Livestock Conference

UTIA hosted the second US Precision Livestock Conference, bringing together farmers, producers and researchers from across the country to Knoxville last spring. Precision livestock farming uses real-time monitoring to improve animal health and well-being within a herd or flock. In addition to exchanging research discoveries, attendees toured two units of the East Tennessee AgResearch and Education Center, Johnson Research and Teaching Unit and Little River Animal and Environmental Unit, home to the new robotic milking system.



US Precision Livestock Conference attendees toured UTIA facilities.

UT Gardens Hosts Nationwide Educators

Educators from around the country attended the 2023 National Children and Youth Garden Symposium hosted by the UT Gardens, Knoxville, and the American Horticultural Society. The professional development event for those who work in youth gardening programs and green spaces focused on curriculum and garden design and maintenance.



Children enjoy playing and learning at the UT Gardens, Knoxville.



A Perfectly Aged Partnership

Here's a toast to twenty-five years of partnership between the world-famous Jack Daniel Distillery in Lynchburg and the UT Tree Improvement Program, which is housed in the School of Natural Resources. In 1998, the distillery contacted experts at UTIA to make a long-range plan to care for and grow local sugar maples, which are integral to the charcoal mellowing process. The result was the development of a sugar maple seed orchard, which has been expanded to include many other species and is the oldest distillery orchard.

UTIA Senior Vice Chancellor and Senior Vice President Keith Carver, UT Tree Improvement Program Director Scott Schlarbaum, retired Jack Daniel Distillery Senior Vice President and General Manager Tommy Beam, and current General Manager Melvin Keebler marked the 25-year partnership between the Tree Improvement Program and Jack Daniel Distillery in Lynchburg.



Students enjoy ice cream at the UT Creamery (left) while Cowgirl Creamery founders and UT alumnae Peg Smith and Sue Conley celebrate the opening with UTIA Senior Vice Chancellor and Senior Vice President Keith Carver.

A Scoop of Tradition

The UT Creamery opened its doors in 2023, offering a nostalgic ice cream parlor atmosphere for customers and a chance for students to scoop up some experience creating the frozen treats and selling them. The creamery, located in the former Visitors Center on Neyland Drive, is a collaboration between students in the Herbert College of Agriculture and the College of Education, Health and Human Sciences. The doors opened thanks to the generous support of Cowgirl Creamery founders Peg Smith and Sue Conley, two UT alumnae.

UTIA Recognitions



Nematologist Honored as Institute Professor

Ernest Bernard, a professor in the Department of Entomology and Plant Pathology, has dedicated forty-six years of service to the institute and was honored in 2023 as the UTIA Institute Professor. He is renowned for his research on nematology diversity and serves as a leader and mentor in the field for UTIA and beyond.



Fulbright Scholars Study in Nepal and Finland

Two professors in the School of Natural Resources were among five from UT Knoxville selected as Fulbright Scholars for the 2022-23 academic year. Through the US Department of State, scholars receive funding to teach and conduct research abroad. Neelam Poudyal used his award for research in Nepal to explore how social, economic, and cultural factors impact behavior for conservation and management of natural resources. Adam Taylor completed his Fulbright in Finland, researching how forest management and decisions about forest product manufacturing and utilization can mitigate climate change.



UT AgResearch Dean Honored

The Egg Industry Center recognized Hongwei Xin with the 2023 LeggACY Maker Award for his commitment and achievements in advancing the egg industry and the mission of the center. Xin, who was the founding director of the center, has been dean of UT AgResearch since 2019 and has prioritized the modernization of infrastructure and equipment at the ten UT AgResearch and Education Centers across the state.



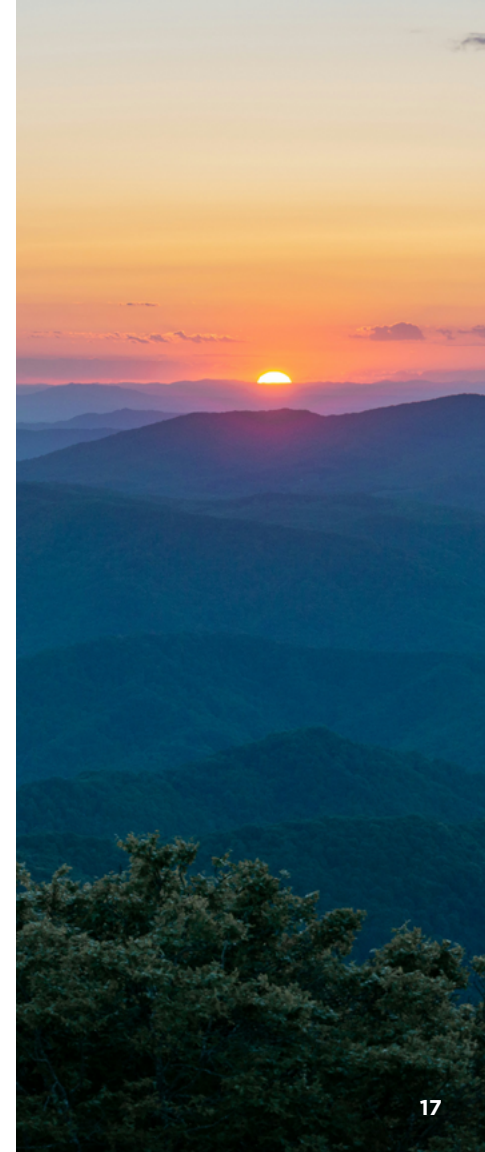
UT Extension Named Top Employer

The International Association of Administrative Professionals awarded UT Extension its 2023 Employer of the Year honor. The award recognizes an excellent work culture for administrative professionals that encourages their professional and personal growth. UT Extension has a strong mentoring program and helps administrative professionals attain certifications through the association.



UTCVM Dean Retires

Jim Thompson, who led the UT College of Veterinary Medicine for fifteen years, retired at the end of 2023. He successfully navigated several challenges during his time by making significant facility upgrades and growing the quality of the teaching, research and outreach programs. The college's next leader will be positioned to expand enrollment and create an undergraduate degree program for veterinary nurses.



Looking Ahead in 2024

Opening of New Landmark Building

The new 157,000-square-foot Agriculture and Natural Resources Building is projected to open for the 2024-25 school year and will provide a state-of-the-art focal point on the agricultural campus in Knoxville. The building contains research labs, a 500-seat auditorium, and a new commons area with food service for faculty, staff, and students.

Implementation of Strategic Plan

UTIA faculty, staff, students, and stakeholders began work on the new strategic plan in fall 2023 with listening sessions held across the state. This information and feedback will help form a course for the future of the institute. The full plan will be released later in 2024.

A rendering of the new Agriculture and Natural Resources Building set to open in 2024.





The new UTCVM Teaching and Learning Center welcomes visitors, clients, and patients to the ag campus.



UTCVM Marks Fifty Years

The UT College of Veterinary Medicine was established in 1974 by legislation passed in the General Assembly and signed into law by Governor Winfield Dunn. Events will be held throughout 2024 to celebrate the golden milestone. Each month, the Veterinary Medical Center cares for about 3,000 animals, ranging from small companion pets to large livestock.

Planning for New Protein Center

The Center for Protein Innovation, located at the East Tennessee AgResearch and Education Center, will support industry producers and operators, train current and future leaders, and impact consumers across Tennessee and beyond. The center will provide teaching, research, and outreach opportunities to help grow and innovate the livestock product and processing industry. Planning for the construction of the facility continues in 2024.



To learn more about the “Everywhere
You Look, UT” campaign and to see more
murals, visit **everywhere.tennessee.edu**

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