19-Strong
1890 LAND GRANT UNIVERSITIES

THE 1890 Voice:

Empowering Communities, Elevating Futures

1890 LAND-GRANT UNIVERSITIES
135 Years of Service
1890 2025
THE SECOND MORRILL ACT

The 1890 Voice: Empowering Communities, Elevating Futures

The 1890 Land-grant Universities

stand as pillars of progress and empowerment within underserved and underrepresented communities. Established under the Second Morrill Act of 1890, these 19 historically Black universities, located across 18 states, primarily in the Southern United States and border states, are at the forefront of elevating futures through cutting-edge, research-driven programs. The mission is clear – to uplift students and communities, providing the tools and knowledge necessary for transformative change.

The Association of Extension Administrators, Association of 1890 Research Directors, Council of 1890 Deans of Agriculture and the U.S. Department of Agriculture (USDA)/1890 Task Force are key partners, working together to advance critical areas of Cooperative Extension, research and agricultural education.

With financial support from the USDA's National Institute of Food and Agriculture and additional funding from federal agencies, states and Congress, the 1890 Land-grant Universities continue to develop and expand programs that make a lasting impact on agriculture, youth development and community well-being.

This publication, curated annually by the 1890 Land-grant Communications Committee, highlights just a few of the countless ways the 1890s are making a tangible difference in the world. Each story featured here represents the ongoing dedication of the 1890s to empower, educate and inspire the next generation of leaders and changemakers.

To explore more about the incredible work being done, visit www.1890aea.org or wwwcp.umes.edu/ard.

1890 Land-grant Universities

- Alabama Agricultural and Mechanical University
- Alcorn State University
- Central State University
- Delaware State University
- Florida Agricultural and Mechanical University
- Fort Valley State University
- Kentucky State University
- Langston University
- Lincoln University
- North Carolina Agricultural and Technical State University
- Prairie View Agricultural and Mechanical University
- South Carolina State University
- Southern University and Agricultural and Mechanical College
- Tennessee State University
- Tuskegee University
- University of Arkansas Pine Bluff
- University of Maryland Eastern Shore
- Virginia State University
- West Virginia State University

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USDA
U.S. DEPARTMENT OF AGRICULTURE

Alabama Agricultural and Mechanical University

Katelyn Boyle: AAMU 1890 Scholar Success Story

Katelyn Boyle is pursuing a doctorate at Alabama A&M University.

Katelyn Boyle, a Warner Robins, Georgia, native, is now a doctoral student at Alabama A&M University (AAMU) in the Department of Food and Animal Sciences, majoring in food science with a nutritional biochemistry concentration. She enrolled at AAMU in the fall of 2020, following her family's footsteps at the age of 16.

Boyle received a Bachelor of Science in Food Science from AAMU in May 2022 and a Master of Science in Food Science in December 2023. She represents AAMU on the National Institute of Food Technologists Student Association (IFTSA) Board of Directors as vice president of chapter engagement. On campus, Boyle serves as president of AAMU's IFTSA chapter and as secretary of the AAMU Graduate Student Council. As a result of her educational experiences at AAMU, Boyle has secured two internships at Fortune 500 companies, which include the Coca-Cola Company and General Mills Inc. in scientific and regulatory affairs and as a research and development food scientist.

Her passion has always been for the well-being of children and adolescents, so she strives to continue researching chronic diseases that affect children, such as her current work on researching the potential anti-oxidative and anti-obesity on two functional food ingredients for the food industry: Spirulina and Bilberry. Boyle has had the honor to present her research on the regional and national levels, where she placed first at the Association of 1890 Research Directors (ARD) Research Symposium in April 2024 in the Graduate Research Poster Competition.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Scholarship Program

AGRICULTURAL SYSTEMS

Stepping to Good Health

The Centers for Disease Control and Prevention reports that 1 in 2 adults in the United States do not get enough physical activity. In Alabama, 30.1% of adults are inactive outside of routine work, which can contribute to a rise in chronic diseases. Nationally, such inactivity leads to more than $100 billion in health care costs annually. Just 30 minutes of physical activity, such as walking, can improve cardiovascular health, strengthen bones, reduce body weight and boost physical endurance.

To help Alabamians improve their health, Alabama Extension offers the Walking Like a CHAMPION (WLAC) campaign, which includes the popular stepping dance classes as an alternative way to exercise. WLAC encourages residents to improve their overall health by eating the right foods and adding physical activity outside their work environment to their daily routines. Stepping dance classes are a great way for people of all ages to engage in physical activity.

Last year, 508 WLAC participants logged 5,155,904 steps or 2,132 miles. A post-delayed assessment among 97 participants indicated they maintained physical activity and lost anywhere from 5 to 32 pounds.

Routine physical activity like step dancing helps people to manage health risks associated with chronic diseases.

To help Alabamians improve their health, Alabama Extension offers the Walking Like a CHAMPION (WLAC) campaign, which includes the popular stepping dance classes as an alternative way to exercise.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Extension Capacity Building Grant

NUTRITION & HEALTH

Urban agent Nkenge Hyter leads the Stepping with Extension activity on the Alabama A&M University Quad during Alabama Extension Week in 2024.

Strengthening Science Capacity to Deepen Ecological Understanding

Alabama A&M University researchers at the Paint Rock Forest Dynamics Plot.

The Alabama A&M University (AAMU) Paint Rock Forest Dynamics Plot has established a foundation of forest ecology research, collaborative relationships and training for the next generation of forest scientists. In 2024, the plot was officially integrated into the Forest Global Earth Observatory network that recognizes the importance of collaborating with local institutions to strengthen science capacity in an era of rapidly changing landscapes and weather patterns to understand and predict forest dynamics. These plots are integral to monitoring biodiversity through time and deepening ecological understanding. They also provide an opportunity to investigate how forests respond to weather-related changes, including shifts in growth patterns, carbon storage and resilience.

The Paint Rock Plot has 29,280 measured stems, representing 79 species from 35 families and an average above-ground biomass of 210.9 Mg/ha. These datasets have become the foundation of graduate and undergraduate research projects, a training ground for field forest measurement and a space to build collaboration. Over six years, 30 recent graduates were trained in forest measurement science and 20 undergraduates in forest science and data management, along with four graduate students developing research based on the site and available data.

By having a research site that is part of a global network, AAMU has also established collaborative partnerships with the Smithsonian Institution, the Nature Conservancy, the Jones Center, Oak Ridge (Department of Energy) University of New Hampshire, the University of Maine, the University of Vermont and other institutions.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture Evans-Allen No. 1024525 and Capacity Building Grant No. 006531; U.S. National Science Foundation RII Track 2 FEC: Leveraging Intelligent Informatics and Smart Data for Improved Understanding of Northern Forest Ecosystem Resiliency (INSPIRES) No. 1920908

ENVIRONMENTAL STEWARDSHIP

ALABAMA A&M UNIVERSITY

Alcorn State University

Alcorn State University Students Gain Hands-on Experience with Department of Defense

Three students from Alcorn State University's College of Agriculture and Applied Sciences (CAAS) are taking significant steps in their careers, gaining invaluable hands-on experience through a prestigious summer internship program at the U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi.

The students, trained in the university's Plant Tissue Culture and Genetic Transformation Laboratory, have made a meaningful impact through their research, and one of them, Tatyana Hollingbird, has been hired by ERDC, marking a major milestone in her professional journey.

Hollingbird, who graduated with a Master of Science in Agriculture in May 2024, is now employed at ERDC after completing her internship.

"Being hired by ERDC after my internship is a dream come true," Hollingbird shared. "It's an incredible opportunity to contribute to cutting-edge research that has real-world applications not only in agriculture but also in addressing national security and environmental challenges."

Hollingbird's thesis research focused on developing genetically enhanced sweet potatoes with increased protein content and resistance to viral infections. This work is critical for improving food security in the United States and abroad. At ERDC, she continues to apply innovative biotechnological methods to improve agricultural productivity. Her hiring by ERDC is a testament to the high caliber of talent coming out of Alcorn State University and the strong partnership between the university and Department of Defense research facilities.

Alcorn State University students intern at the U.S. Army Engineer Research and Development Center.

In addition to Hollingbird, two other CAAS students, Jacob Piazza and Alpha Jones, were also selected for the internship. Piazza recently graduated with a Bachelor of Science in Agriculture, and Jones is a senior undergraduate.

"It's amazing to see how our research can contribute to solving real-world problems that affect both farmers and consumers. Being at ERDC has helped me refine my skills and think about how my work can have a broader impact," Jones said.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture Compacity Building Grant No. 2022-38821-37359

AGRICULTURAL SYSTEMS

YOUTHS, FAMILIES & COMMUNITIES

Supporting Sustainable School Gardens: Empowering Teachers, Communities

School gardens are a valuable tool for hands-on learning, providing students with opportunities to engage in science, nutrition and environmental education. However, many teachers face significant obstacles in maintaining successful school gardens.

Limited resources, staff turnover and the pressures of full teaching schedules can cause even well-intentioned garden projects to fall into disrepair. To address these challenges, the Alcorn State University (ASU) Extension School Gardening Program is stepping in to provide the support and resources needed to ensure these gardens thrive.

In the 2023-24 academic year, the ASU Extension team, led by Claiborne, Adams, Jefferson and Hinds County Extension area educators, partnered with local schoolteachers to revitalize and sustain school gardens across the region. The program offered critical services, such as free gardening advice, soil testing, plant pathology diagnosis and general guidance for managing school gardens.

Alcorn State University (ASU) Extension School Gardening Program is stepping in to provide the support and resources needed to ensure school gardens thrive.

The results of these efforts have been far-reaching. Thanks to the hard work of nearly 385 volunteers and the support of ASU Extension, more than 300 families in the community have received fresh, nutritious vegetables from the school gardens. This not only provides access to healthy food but also translates into economic savings for these families. On average, each family saved $150 on grocery costs, totaling an economic impact of $45,000 in savings across the 300 families served.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture Grant No. 20243882142125

YOUTHS, FAMILIES & COMMUNITIES

Students engage in gardening activity.

Swine Nutrition Class Provides Hands-on Learning Experience for Future Careers in Animal Science

Students in the Swine Nutrition class at Alcorn State University (ASU), part of the College of Agriculture and Applied Sciences (CAAS), are gaining valuable hands-on experience that connects classroom theory with real-world application. This course, offered by the Department of Agriculture, focuses on the principles of developing and implementing effective swine feeding programs.

The curriculum covers a wide range of critical topics in the swine industry, including the fundamentals of feeding pigs, understanding the nutrients required at different growth stages and the factors that influence nutrient recommendations. Students explore feeding systems, management practices and the formulation of swine diets. The hands-on components of the class allow students to learn not only the science behind swine nutrition but also the practical aspects of working with pigs, which are vital for anyone aiming to enter the livestock industry.

A key highlight of the course is the opportunity for students to visit the CAAS swine units, where they can apply their knowledge in a real-world setting. During these visits, students engage in piglet processing, which includes tasks such as tail cutting and administering medications through injections.

Students learn the process of working with pigs.

In addition to nutrition and management, students are introduced to the competitive side of the swine industry, specifically concerning show pigs. The class covers the basics of handling show pigs, preparing them for competitions and understanding the standards of the U.S. swine market. By gaining experience with both commercial and show pig management, students acquire a well-rounded skill set that will serve them throughout their careers.

The swine science lab provides an invaluable resource for students, bridging the gap between theoretical knowledge and practical application. This hands-on training ensures that graduates from ASU are well-prepared to enter the swine industry, whether in research, production or management roles.

Funding: Department of Agriculture, Agricultural Science Program

NUTRITION & HEALTH

Alcorn State University

Central State University

2024 Central State University Student Internship Research Highlights

Central State University (CSU) students participated in research and internships under the guidance of professors and professionals, gaining practical experience and presenting personal lessons learned.

The 2024 cohort included students from various disciplines such as sustainable agriculture, environmental engineering, psychology, biology and computer science. Notable participants included Laverne Ambrister (exercise science), Joel Barhorst (sustainable agriculture), Ranicia Ferguson (psychology/criminal justice) and Danae Davis (environmental engineering), among others.

Students explored diverse topics, including:

- Ecohydrological changes at Vinton Furnace State Experimental Forest.
- Smoke regimes for hemp cigarette burn consistency.
- Soil organic carbon management in Midwest cropland.

Central State University student interns.

- Hydrogen in agriculture.
- Artificial intelligence applications for sustainable farming in Ohio.

These projects resulted in peer-reviewed articles co-authored with CSU faculty. The program prepared students for prestigious events, such as the 2024 Association of 1890 Research Directors (ARD) Research Symposium, where they presented competitive research. This experience enhanced their academic and professional trajectories, showcasing CSU's dedication to innovation in agricultural and environmental sciences.

By engaging in hands-on research and professional development, the 2024 CSU student cohort not only advanced their academic and career aspirations but also demonstrated the university's commitment to fostering innovation and excellence in agricultural, environmental and interdisciplinary sciences.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture Evans-Allen

AGRICULTURAL SYSTEMS

Workforce Development with Specialty Crop Farm Manager Certification

Many inmates find it difficult to find a job once released from prison. Prison work programs, however, set them up for greater success in finding meaningful employment after re-entering society.

The Specialty Crop Farm Manager Certificate program at Central State University is a prison work program that provides hands-on education and certification for inmates at the Richland Correctional Institute in Mansfield, Ohio, who are interested in growing and marketing fruits and vegetables.

The Specialty Crop Farm program is a collaboration between the Richland Correctional Institute, the North End Community Improvement Collaborative and Central State University Extension. It involves a series of 18 classes on crop production and farm business management, along with fulfilling an apprenticeship. The apprenticeship occurs on a farm adjacent to the facility, where fruits and vegetables are grown.

The Specialty Crop Farm Manager Certification focuses on developing skills for urban agriculture farm managers to build self-efficacy in contributing to local food systems.

"In 2023, there were six inmates in the program who grew more than 6,000 pounds of produce that was distributed to area food banks and through the Richland Gro-Op, a local food cooperative."

In 2023, there were six inmates in the program who grew more than 6,000 pounds of produce that was distributed to area food banks and through the Richland Gro-Op, a local food cooperative. In 2024, 10 more inmates became part of the program, and the growing area doubled. Additionally, the program provided job training and practical skills to find work post-release.

Transferable job skills included collaborating with a team, delegating tasks to meet collective goals, paying attention to details and following directives, monitoring crops and assessing plant health, and maintaining inventory records. Participants also increased their confidence to continue growing food and becoming part of a local food system.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Extension Capacity Building Grant

AGRICULTURAL SYSTEMS

ENVIRONMENTAL STEWARDSHIP

FOOD SECURITY

Robotic Solutions to Enhance Farming Operations

As a high-value specialty crop, raspberries provide crop alternatives for small to medium-sized farms and provide an entry into fruit production for beginning farmers. Most small-scale raspberry farm operations depend on manual labor for operations like soil preparation, weed management, crop care, harvest and irrigation management. Manual mowing of grass between the raspberry rows and manually controlled drip irrigation require persistent and repetitive labor to mow and control the irrigation, which adds to the input cost.

Researchers at Central State University, including undergraduate students from minority backgrounds, developed robotic solutions for small-scale raspberry farms to automate labor-intensive tasks of mowing and irrigation management. A low-cost robotic mower-assisted smart drip irrigation system was developed, tested and demonstrated. The robot was able to cut down manual labor by automatically mowing the grass between the raspberry rows, and it also collected soil moisture data from raspberry rows to automate the irrigation.

Low-cost multitasking robot for small-scale specialty crops.

The robot was tested for the 2023 and 2024 seasons in the field conditions. Soil moisture data, manual labor hours saved and water usage data were collected. It was demonstrated that the robot flawlessly closed the loop of soil moisture data collection from raspberry rows while mowing, wireless transmission of data to the irrigation controller, irrigation automation and irrigation management.

Moreover, soil moisture data was used in real time to make irrigation scheduling decisions.

Funding: Ohio Department of Agriculture

AGRICULTURAL SYSTEMS

CENTRAL STATE UNIVERSITY

Delaware State University

Farm School Project Transforms Delaware's Agricultural Landscape

Delaware State University Farm School participants at a hands-on training.

The Delaware State University (DSU) Farm School Project addresses systemic barriers that have historically limited access to agricultural opportunities for underserved and veteran populations.

By targeting Native Americans, veterans and other marginalized groups, the program ensures equitable access to agricultural education and resources, helping participants overcome challenges in starting and sustaining farm enterprises. This initiative directly supports efforts to diversify Delaware's agricultural landscape and improve food security in underserved communities.

The program provides a comprehensive approach to agricultural education through workshops, field days, personalized mentorship and technical assistance. Participants are trained in critical areas such as farm planning, marketing, financial management and alternative enterprises, including aquaponics, ethnic crops, poultry and meat goat production.

Outreach and training efforts have successfully engaged more than 140 participants since the program's inception, equipping them with the knowledge and resources to build sustainable farm operations. More than 15 new farms across Delaware have been established.

Additionally, the program has facilitated access to U.S. Department of Agriculture (USDA) programs, with 22 participants enrolling in initiatives like the Environmental Quality Incentives Program and Farm Service Agency loan programs, further enhancing their economic viability.

Dissemination of results through community events, digital platforms and partnerships has inspired broader participation and built a supportive network for aspiring farmers. The DSU Farm School Project's inclusive approach and innovative training model build individual success and create lasting benefits to ensure a more equitable and sustainable future for agriculture in Delaware.

Funding: U.S. Department of Agriculture SBFRP Grant

AGRICULTURAL SYSTEMS

FOOD SECURITY

Research Enhances Efficiency of Blueberry Breeding

Blueberries (Vaccinium Sp.) are an economically important small-fruit crop native to North America. More than 38 states, including many of the country's southern states, and several countries worldwide are cultivating blueberries as a commercial crop with an increased awareness of its benefits to human health.

However, weather extremes pose significant threats to blueberry production and quality. A new breeding approach can accelerate the harnessing of single nucleotide polymorphism (SNPs)-base markers for high-temperature stress tolerance and maintain high yields and quality.

Therefore, the small fruits research team at Delaware State University focused on developing marker-assisted breeding resources to enable rapid varietal development with enhanced tolerance to heat stress. This project focused on the development and validation of SNP-based markers – Kompetitive

Dr. Kalpalatha Melmaiee, principal investigator, conducts heat stress tolerance experiments on blueberries.

allele-specific (KASP) polymerase chain reaction and cleaved amplified polymorphic sequences (CAPS). These markers can enable the selection of plants early to avoid a two- to three-year waiting period for perineal plants like blueberries.

For developing KASP markers, researchers selected 100 SNPs significantly associated with 10 heat tolerance traits. These SNPs were screened on 384 blueberry plants (comprising popular cultivars and cross-progenies) to reveal allele patterns. The team selected 20 SNPs related to heat stress tolerance for CAPS marker development and used them in assay development. These markers were first developed on parental lines, and researchers are screening 200 blueberry genotypes. Simultaneously, they are phenotyping the cultivars and cross-progenies selected for validation. If these developed markers are robust, they can extend their use to other small fruits like grapes, blackberries and cranberries.

This project also trains two postdoctoral, five graduate students and seven undergraduate students in molecular breeding techniques. The research team is connecting with farmers and growers, as well as students in middle and high school and college, who will become the next cohort of potential plant breeding scientists.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 2018-38821-27744, 2018-67014-27622 and 2023-38821-39921

FOOD SECURITY

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DSU
It All Matters.

Florida A&M University

From FAMU to the Future: Kayla Braggs' Journey Toward Agricultural Leadership

Kayla Braggs' remarkable journey from Florida A&M University's (FAMU) College of Agriculture and Food Sciences (CAFS) to her pursuit of a Ph.D. exemplifies the transformative power of education, leadership and a passion for agricultural sustainability.

A native of Atlanta, Georgia, Braggs graduated summa cum laude from FAMU with a degree in food science and a minor in agribusiness. She later earned a Master of Science in Agricultural, Food and Resource Economics from Michigan State University with a concentration in food and agricultural economics. Braggs is now a first-year Ph.D. student at the University of Florida, where she studies agricultural communications. Her research focuses on producer-centered policy education for small- and medium-scale farmers, as well as the role of federal agricultural policy in agribusiness decisions.

During her time at FAMU, Braggs was an active leader, serving all four years in the Student Government Association as a senator. She was also a CAFS ambassador, FAMU presidential ambassador, historian for the Food Science Club and an Orange and Green tour guide. Braggs participated in undergraduate research through the Cultivating Undergraduate Research Scholars (CURS) Program, where she worked alongside CAFS faculty.

A dedicated member of Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS), Braggs held leadership roles and

Kayla Braggs is a graduate of Florida A&M University.

launched the MANRRS Pipeline Mentorship Program, which later evolved into the society-wide MANRRS LEAD Mentorship Program, sponsored by Smithfield Foods.

Braggs' leadership extended to Michigan State University, where she contributed to a National Institute of Food and Agriculture (NIFA) research project and served as an inclusive excellence representative. Beyond academics, she also remains committed to service.

Braggs aspires to work in Washington, D.C., in government relations or strategic policy communications for the agri-food industry. Her ultimate goal is to become the United States secretary of agriculture and create a sustainable ecosystem for all farmers and ranchers.

Funding: Florida A&M University's College of Agriculture and Food Sciences

ENVIRONMENTAL STEWARDSHIP

FOOD SECURITY

AGRICULTURAL SYSTEMS

Enhancing Access to Produce Safety: Remote Training Innovations for Small, Beginning, Underserved Farmers

Dr. Gilbert Queeley, Produce Safety Alliance training instructor, with a farmer and graduate of the training program.

Produce safety training programs are designed to educate farmers on practices to help identify and reduce risks of foodborne illness. These training courses are typically in-person and instructor-led, which cost time and money and prevent some beginning and underserved farmers from attending.

To minimize those barriers, Florida A&M University Cooperative Extension's Produce Safety Alliance (PSA) offered remote grower trainings to educate students and farmers in the target audiences.

Results from previous focus groups, workshop evaluations and surveys were used to guide the development of short Produce Safety in Minutes (PSM) videos and recorded instructor-led webinars and discussion-based case studies. Trained students and farmers were used as advisory board members for review of the PSM video series and participated in the instructor-led webinars.

To date, 19 farmers and six students have successfully participated and received certificates in the remote PSA trainings. PSA resources including 18 videos, eight instructor-led webinars and four case studies have been recorded in areas such as hand-washing, taking water samples, cleaning and sanitizing, and composting. The advisory board review indicated that the resources increased their knowledge, would be used as training tools in their operation, and represent the diverse groups of people working in the produce industry.

Farmers and students who participated in the PSA trainings are more prepared for the Produce Safety Rule Inspection or to pursue a career in the produce industry. Accessible remote videos made it more convenient to deliver produce safety information to small, beginning and minority farmers who may have encountered barriers when attending traditional training settings.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Capacity Building Grant

AGRICULTURAL SYSTEMS

19 farmers and six students have successfully participated and received certificates in FAMU's remote Produce Safety Alliance (PSA) training.

Advancing Smart Agriculture: Innovations at Florida A&M

Dr. G. Dale Wesson, dean of the College of Agriculture and Food Sciences at Florida A&M University, has a vision that builds on the land-grant component of the university's historic past and is decidedly focused on the future.

Wesson leads an array of programs that go beyond historic agricultural education to embrace and advance cutting-edge technologies to address the world's food supply challenges.

"Beyond traditional agriculture, we're attracting students who are technologically savvy," he says. "We're using artificial intelligence (AI) and other innovations to advance components of smart agriculture."

Dr. Jingqiu Chen and colleague working on an IoT sensor at Florida A&M University's Center for Viticulture and Small Fruits.

This work focuses on ways to use technology to increase crop production and resilience and to decrease or have even a less-than-zero impact on adverse weather events. Sometimes, this takes the form of scientific discovery and specialized research, and sometimes it's more fundamental, like testing the use of Ford F150 Lightning electric trucks on the college's two farms.

Dr. Jingqiu Chen, assistant professor in the Biological Systems Engineering program, is leading research on growing precision engineering systems for muscadine grape vineyards and water management, incorporating AI and machine-learning capacity for digital agriculture and plant phenotyping technologies research.

Chen's work also focuses on translating research findings into practical applications that can be adopted by farmers and agricultural stakeholders.

"We provide hands-on experiential learning experiences in digital agriculture, ensuring that students are well-equipped with the skills they need for careers in this rapidly evolving field," Chen says.

Dr. Lucy Ngatia, assistant professor in the Plant and Soil Sciences program, is focusing on the most sustainable production practices to reclaim downed trees and convert them to biochar, reducing carbon dioxide emissions and greenhouse gasses in the process.

"We have observed increased productivity after biochar soil amendment," Ngatia says. "Involvement of farmers, ranchers and other stakeholders in our work ensures the implementation of our findings. Soil organic amendment needs to be continuous, not a one-time process."

Funding: Florida A&M University's College of Agriculture and Food Sciences

AGRICULTURAL SYSTEMS

ENVIRONMENTAL STEWARDSHIP

FAMU FLORIDA AGRICULTURAL AND MECHANICAL UNIVERSITY

Fort Valley State University

From Service to Success: Alumnus Inspires Through Commitment

Casey Hunter lives by the motto, "We before me," which has set the tone for his rising success.

Hunter, a recipient of the Fort Valley State University (FVSU) 1890 Scholarship, graduated a semester early in December 2023 with an animal science degree and a job offer from Corteva AgriScience already under his belt.

Alumnus Casey Hunter explores a cocoa bean farm in Adzopé, Côte d'Ivoire.

Joining the Wildcat pack in 2020 during COVID-19 was an exciting but daunting adventure as he tried to adapt to a new environment, online learning and connecting with new people.

"Everything shifted right before I came to college, but there is always a blessing in the lessons," he said. "It prepared me for later down the road."

The Perry, Georgia, native has roots in southwest Georgia. He recalled growing up on his paternal grandparents' farm in Grady County, where he raised and showed pigs for Future Farmers of America as a youth.

Hunter wanted to experience diverse agriculture career options in college. Early on, he interned at Baldwin County High School, where he shadowed the agriculture teacher. He followed that internship up with time at the National Wildlife Federation, Perdue Farms and Syngenta.

"This experience and the knowledge I've gained have been so pivotal for me in wanting to become a change agent within the agricultural sector."

In 2022, Hunter joined six other FVSU students on a trip to West Africa to learn about cocoa and shea butter production.

"This experience and the knowledge I've gained have been so pivotal for me in wanting to become a change agent within the agricultural sector," he said.

Working toward this purpose, Hunter served as an Agriculture Future for America (AFA) Ambassador. His connection with AFA led to an interview with Corteva AgriScience. He is now an associate territory manager with the company. The only African American in his cohort, this is another reason why he wants to be in agriculture.

"There are perspectives to be heard and understood. I am glad I am leading the pathway," Hunter said.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Scholarship Program

FOOD SECURITY

Georgia Beef Cattle Farmers Thrive Through Marketing Efforts

Beef cattle are significant to the agriculture industry in Georgia. Although identified in every county, marketing opportunities may be limited for beef cattle farmers.

To help small and limited-resource beef cattle farmers improve their production and marketing efforts, Fort Valley State University's (FVSU) Cooperative Extension Program (CEP) partnered with organizations such as the AgriUnity Group. This organization of Black beef cattle farmers and ranchers in middle and south Georgia is led by rancher and founder Handy Kennedy Jr. Together, more profitable markets, including truckload sales of stocker calves, have been achieved. A truckload requires up to 83 heads of 600-700-pound calves, so animals are needed from multiple small-scale farmers.

Dr. Niki Whitley, Fort Valley State University animal science Extension specialist, and a client draw an injectable mineral supplement for use with calves.

To assist with economic barriers, FVSU and AgriUnity visited farms to discuss farmers' needs and goals. Training included multiple webinars, field days, farm tours and one-on-one demonstrations. It also involved visiting and purchasing new, high-quality purebred bulls from established breeders in Georgia. Other partners in this effort involved the University of Georgia's (UGA) College of Agriculture and Environmental Sciences, UGA's College of Veterinary Medicine, the U.S. Department of Agriculture (USDA) and several other agriculture organizations.

As a result, in 2024, 95% of farmers participating in intensive genetic selection training have improved the quality of their cattle, expanding market opportunities; 85% of participants have improved record keeping and herd management, including the removal of unproductive animals from their herd; 71% improved soil health for optimal fertilization, saving money by reduced nutrient inputs; and 82% planted winter forages to reduce hay and feed input costs.

The success of this collaboration has sparked the interest of more small farmers, small beef cattle producers and additional buyers and markets. Furthermore, some of the farmers' children decided to join AgriUnity and plan to attend FVSU to major in animal science.

Funding: Southern Sustainable Agriculture Research and Education (SARE) Program (LS21-358); Cargill Black Farmers Initiative; Natural Resources Conservation Service (NRCS) Grazing Lands Conservation Initiative

AGRICULTURAL SYSTEMS

Detecting Sericea Lespedeza with Artificial Intelligence

Farmers are seeking cost-effective ways to improve the health of their animals and increase overall productivity. A crop gaining popularity in many states among farmers with sheep and goats (small ruminants) is sericea lespedeza. This warm-season perennial legume has nutritional value and anthelmintic properties.

Because there is a high demand, Thomas Terrill, Ph.D., a Fort Valley State University (FVSU) professor of animal science, and Aftab Siddique, Ph.D., a post-doctoral researcher, are developing an app to benefit farmers growing this desired crop in Georgia and beyond. The FVSU duo's research involves artificial intelligence (AI) to manage invasive plant weed species through advanced image recognition technologies.

Terrill said farmers are interested in selling sericea lespedeza as nutraceutical hay. The farmers he works with in North Georgia and South Africa are seeing the benefits. Thus, he and Siddique are developing an app to give farmers a simple way to use their cell phones to take pictures and identify if a plant is a weed or sericea lespedeza.

This research aims to provide farmers with more access to the expertise they need, all in their hands through an app. This will subsequently save them money, time and effort.

Georgia farmer Hunter Jones of Cochran owns J1S Ranch. The Byron native purchased 65 acres in Cochran in 2021 but didn't know what to do with it. He purchased Boer goats, mostly in Georgia, and has been growing his herd ever since. He connected with FVSU in early 2024 about growing sericea lespedeza. About 8 acres of his land is dedicated to the nutraceutical crop.

Fort Valley State University researchers use a developing cell phone app to help farmers detect sericea lespedeza.

As a result, his goats appear healthier, and their coats are shiner. He also has not had any parasite issues. He said an app would be helpful. "Time is money, especially having a full-time job and trying to farm," Jones said.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Capacity Building Grant

AGRICULTURAL SYSTEMS

FORT VALLEY STATE UNIVERSITY
EMPOWER *the* POSSIBLE.

Kentucky State University

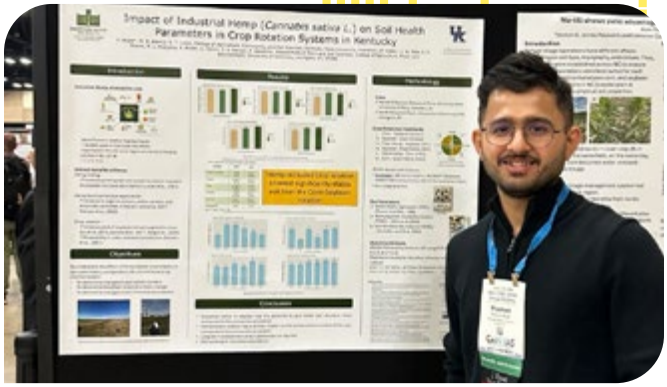
Kentucky State University Graduate Student Awarded for Research in Soil Health

Kentucky State University (KSU) graduate student Prashant Bhatt was awarded third place in the Graduate Student Oral Presentation, Soil Health Session, at the 2024 American Society of Agronomy, Crop Science Society of America and Soil Science Society of America International Annual Meeting in San Antonio, Texas.

Bhatt, who will graduate in May 2025 with a Master of Science in Environmental Science, presented his research titled "Integration of Industrial Hemp in Conventional Crop Rotation System and its Effect on Soil Health."

"It is a great experience to be in these kinds of conferences where we directly interact with our scientific community to get feedback or give our experiences to them," said Bhatt.

Under the guidance of advisors Drs. Shawn Lucas and Anuj Chiluwal, the project assessed the potential of industrial hemp to improve soil health under sustainable agriculture practices. Research was conducted over three and a half years by using industrial hemp as a rotational crop and comparing



Graduate student Prashant Bhatt receives third place award for his research on soil health.

results with corn-soybean rotation.

Research found that the inclusion of industrial hemp in crop rotation has significant potential to improve soil structural stability. However, in the case of active carbon of soil, it has shown similar effects compared with corn-soybean rotation. Analysis and research are still ongoing, but initial results can play a significant role in exploring the additional benefits of this crop.

Funding: U.S. Department of Agriculture

ENVIRONMENTAL STEWARDSHIP

Kentucky State University's 4-H Youth Development Program Hosts Annual Summer Transportation Institute

Celebrating 21 years and counting, the annual Summer Transportation Institute (STI 2024) took flight on Kentucky State University's (KSU) campus.

STI, facilitated by 4-H Youth Development, is a signature urban summer camp known for its innovative approach to fostering interest and expertise in transportation-related fields among youths. STI

goes beyond traditional classroom learning by immersing participants in real-world experiences.

KSU collaborated with the Kentucky Transportation Cabinet to provide hands-on learning experiences with flying drones, bridge design, computer science and geospatial information systems. Participants also engaged with industry leaders to learn more about new advances in science, technology, engineering and mathematics (STEM) and career opportunities in the transportation industry.

STI 2024 aligns perfectly with KSU's mission to reach underserved and underrepresented communities, ensuring that all youths have access to transformative opportunities that can shape their futures. Guided tours at Louisville Muhammad Ali International Airport and Frankfort's Capital City Airport enabled students to gain first-hand knowledge about the mechanics of airplanes, standard procedures and logistics, and all students had the opportunity to fly real airplanes. This hands-on experience expanded their understanding of transportation beyond the roads and onto the runways.

In addition to learning about aerospace, a key component of the program was a tour of the Toyota

KSU's mission to reach underserved and underrepresented communities, ensures that all youths have access to transformative opportunities that can shape their futures.

Manufacturing Plant in Georgetown, Kentucky. All the engineers were professionals of color, embodying potential career paths available to participants. This representation is vital as it provides relatable role models, demonstrating to the young attendees that successful careers in engineering and technology are within their reach.

The success of the Summer Transportation Institute underscores the importance of such programs, which open doors to new worlds for many participants. Over the past three years, 100% of participants rated 4-H as a place where they can be leaders, and 78% were more interested in learning about STEM careers after the camp.

Funding: Summer Transportation Institute Grant

YOUTHS, FAMILIES & COMMUNITIES

Summer Transportation Institute participants fly airplanes at Frankfort's Capital City Airport.

Urban Agriculture Project Feeds Community

A group of four graduate and three undergraduate students at Kentucky State University (KSU) conducted research on urban farming under the direction of Dr. Nzaramyimana Theoneste.

This research took place at the Dr. Harold R. Benson Research Farm and the Kentucky State University West Farm. Throughout three months, research associates seeded, transplanted, grew and harvested 15 different species of fruits and vegetables.

Research associates began by tilling the land and implementing plastic mulching to protect crops from weeds and pests. A drip irrigation system was also implemented. Seedlings were first grown in a greenhouse because it offered several advantages, including the ability to regulate temperature, humidity and light.

After transplanting the plants from the greenhouse, they easily adapted to their new environment and produced high yields of fresh produce in just a few months. Yellow summer squash, zucchini and pickling cucumbers produced the highest yields.

Research associates recognized the need to adjust their harvesting methods to ensure the quality of their produce. They also battled Phytophthora blight, which is a disease caused by the fungus-like organism Phytophthora capsica, also known as water mold. Although this disease can be caused by many factors, it was concluded that the crops developed this from overwatering.

Land management was another major challenge due to the overgrowth of weeds and watermelon plants. Frequent weeding was needed to ensure crops were not losing resources. The watermelon plants also threatened the collard plants and zucchini crops due to overgrowth. Pruning and/or the use of a trellis to control the watermelon plants is the proposed solution for this.

Overall, the project produced 7,127 pounds of crops that students donated to local community shelters, students, staff and faculty. Adjustments to management practices of cropland will be encouraged for future research.

Funding: U.S. Department of Agriculture 1890 Capacity Building Grant

AGRICULTURAL SYSTEMS

YOUTHS, FAMILIES & COMMUNITIES

Students work on the Urban Agriculture Project at Kentucky State University.

KENTUCKY STATE UNIVERSITY

Langston University

Sowing Success: 1890 Scholars Thrive in Summer Internships

Each semester, Langston University's Sherman Lewis School of Agriculture and Applied Sciences (LU-SL/SAAS) hosts a Welcome Back Workshop, celebrating students' academic journeys and showcasing transformative summer internships. These experiences connect classroom knowledge with real-world applications, preparing students for diverse careers in agriculture.

Azaria Brown, a senior majoring in animal science management from Bixby, Oklahoma, interned at FM 2693 in forestry conservation. Her work involved ground-truthing Eastex fiber installation proposals, tree marking and conducting post-disaster surveys in the Sam Houston National Forest. Brown gained hands-on experience using forestry tools, assisting with recreation area maintenance and participating in timber audits.

"From disaster recovery to conservation strategies, I gained invaluable insight into protecting natural resources," she said.

Agribusiness senior Arianna Griffin from Edmond, Oklahoma, interned at The Lynn Institute Community Garden Initiative. She worked in a 65-bed garden to plant, harvest and prepare produce for food distribution while mentoring teens through the Oklahoma County Juvenile Bureau.

"Connecting with the community and seeing their appreciation for fresh produce made the hard work worthwhile," Griffin said.

Fabian Bradford, an agribusiness senior from Bristow, Oklahoma, completed his third summer internship with the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) in Burlington, Kansas. Bradford worked extensively on the Conservation Reserve Program (CRP), conducting more than 100 spot checks and observing native vegetation restoration.

"CRP showed me how conservation benefits wildlife and farmers alike," he shared. Bradford also gained expertise in conservation planning, funding and technical assistance, preparing him for future endeavors.

Michael Prather, a senior agribusiness major from Dallas, Texas, interned with the USDA NRCS in Knoxville, Tennessee. He studied plant and wildlife identification while conducting field surveys.

"The internship expanded my understanding of agriculture's role in

Langston University students gain knowledge and skills in summer agricultural internships.

Langston University connects classroom knowledge with real-world applications, preparing students for diverse careers in agriculture.

environmental preservation," Prather said.

These students exemplify Langston University SL/SAAS's commitment to hands-on learning, preparing graduates to roar for agriculture's future.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Scholarship Program; U.S. Department of Agriculture's 1890 National Scholars Program

AGRICULTURAL SYSTEMS | FOOD SECURITY | YOUTHS, FAMILIES & COMMUNITIES | ENVIRONMENTAL STEWARDSHIP | NUTRITION & HEALTH | ENERGY & BIOPRODUCTS

Neighborhood Goat Meat Festival 2024: Culinary, Educational Triumph

In September 2024, the Sherman Lewis School of Agriculture and Applied Sciences at Langston University partnered with the JFK Neighborhood in Oklahoma City to present the highly anticipated JFK/PW Neighborhood Goat Meat Festival. The event attracted more than 150 participants, serving as a powerful demonstration of the growing interest in goat products and their potential to revolutionize local food systems.

The day began with a cheesemaking workshop led by Langston University Dairy Product Specialist Dr. Carlos Alvarado. Participants rolled up their sleeves and dove into the process of creating goat milk cheese, many experiencing the versatility of goat dairy for the first time.

Dr. Carlos Alvarado, dairy product specialist, displays soft goat cheese in a variety of flavors.

"I never realized how simple and rewarding it could be to make cheese," said one enthusiastic attendee. "This workshop opened my eyes to the possibilities of goat milk products."

The activity reflected Langston University's ongoing commitment to promoting goat product innovation and consumer education. The festival also featured dishes by four renowned Oklahoma City chefs, including stars Yvette Curry and Tori Beechum. For many attendees, this was their first experience savoring goat meat. The tasting highlighted the festival's core mission – to familiarize communities with goat products and encourage their integration into local diets.

Local goat producers also took center stage, presenting their products and sharing personal stories about their farming journeys. These conversations forged connections between consumers and producers, fostering a deeper understanding of the work behind goat farming and strengthening support for small agribusinesses.

Through the success of events like the Goat Meat Festival, Langston University continues to lead efforts to grow the goat products market. By merging education, culinary innovation and community engagement, the Langston University Sherman Lewis School of Agriculture & Applied Sciences is advancing sustainability, celebrating cultural diversity and driving economic growth in Oklahoma.

Funding: Evans-Allen Research

FOOD SECURITY | YOUTHS, FAMILIES & COMMUNITIES

Sustainable Production Practices for Specialty Crop Resilience

Langston University Sherman Lewis School of Agriculture and Applied Sciences (SL-SAAS) is advancing specialty crop production systems to support underserved communities and small-scale sustainable farmers.

The university has invested in critical infrastructure, including greenhouses and hoop houses, to address growers' research needs and develop alternative, profitable crop production systems. Among these efforts, high-value specialty crops like baby ginger, tomatoes and purple hull peas have been successfully cultivated using innovative and sustainable practices.

In the baby ginger experiment, high tunnels with shade cloth provided optimal growing conditions from mid-May to mid-November. Three cultivars of baby ginger produced promising yields, ranging from 23.36 ± 2.3 tons per hectare to 29.30 ± 3.9 tons per hectare. Similarly, the high tunnel tomato production study highlighted key benefits such as early planting in spring, season extension through summer and early fall, and improved fruit yield and quality compared to open-field cultivation.

High tunnels provided a warm environment for seedling establishment in spring and mitigated heat stress during the hot summer months, enhancing tomato growth and productivity. Purple hull peas, grown in the field under resilient agricultural practices, demonstrated their adaptability to sustainable farming methods while offering growers a profitable crop option.

To share these innovations with growers, Langston University SL/SAAS organized several outreach events. A field day demonstration at the Horticulture Education and Research Center in 2024 attracted more than 40 growers, including underserved and minority farmers. A session in Tulsa trained 20 growers in baby ginger, tomato and purple hull pea production techniques.

Additionally, the specialty crop production technologies were presented at the Small Farms Conference held in partnership with Oklahoma Black Historical Research Project Inc. in Oklahoma City, which was attended by more than 60 growers statewide. Langston University's initiatives exemplify its commitment to empowering growers with sustainable and profitable farming solutions.

Growers discuss tomato plant growth.

Funding: Evans-Allen; Southern Sustainable Agriculture Research and Education Program; New Technologies for Ag Extension

AGRICULTURAL SYSTEMS

FOOD SECURITY

LANGSTON UNIVERSITY

Lincoln University

Empowering Students in Agriculture: 1890 David Scott Scholarship

Agriculture is a critical sector for ensuring food security and environmental sustainability, but it faces challenges due to a shortage of skilled, diverse professionals. Additionally, high education costs and limited access to opportunities deter many students from pursuing careers in this essential field.

Lincoln University of Missouri is working to strengthen the agricultural workforce.

Lincoln University of Missouri is working to strengthen the agricultural workforce through the 1890 David Scott Scholarship. By offering full-ride scholarships to exceptional freshmen in food and agricultural sciences, the university makes higher education accessible for underrepresented students. This support eases financial burdens and opens doors to transformative academic and professional experiences, equipping students with skills for impactful careers in agriculture.

The scholarship has significantly improved student success and retention in agricultural sciences. Since its inception in 2021, participation has grown steadily from 28 scholars in the first year to 80 scholars in the 2024-25 academic year, representing over half of the university's agriculture students.

This spring, 24 scholars will graduate (the largest cohort to date), reflecting high retention and academic excellence. Alumni like Chyler Hughes are advancing their influence through graduate studies and internships with federal agencies, while current students such as Ciana Bruce are taking leadership roles and promoting workforce engagement. These achievements underscore the program's success in building a diverse pipeline of future leaders in agriculture.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Scholarship Program

YOUTHS, FAMILIES & COMMUNITIES

Scholar Chyler Hughes examines spreading hedge parsley during the Courtyard Cleanup event she led in the summer of 2024.

Promoting Sustainable Landscapes, Food Security Through Native Plants

Missouri communities face challenges like food security, biodiversity loss and ecological resilience. The Lincoln University Specialty Crops Program (SCP) addresses these challenges by promoting native plants such as specialty crops to provide sustainable agricultural solutions. SCP enhances local ecosystems and creates economic opportunities through education, research and community engagement.

SCP offers programs and events that inspire sustainable practices, including educational resources through the Urban Ag Learning Hub, which provides training in agriculture, conservation and entrepreneurship. It also offers Finca EcoFarm tours, festivals, workshops and other specialty crop projects involving youths and adults.

As a result of these efforts, the SCP helped to advance research on golden glow as a nutrient-rich specialty crop and participants were trained to sustain year-round gardens. In addition, 24 Finca EcoFarm tours were held, reaching approximately 360 participants; 15 apprentices were trained in sustainable agriculture; and collaborations with youth organizations produced more than 1,000 pounds of wild plum produce.

The Lincoln University Specialty Crops Program fosters sustainable agriculture and food security while promoting conservation and biodiversity. Through education, research and partnerships, SCP empowers communities to adopt sustainable practices, supporting healthier lives and ecosystems.

Participants at Finca Fest explore the flavors of sustainability during the Dining Wild exhibit.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture; Missouri Department of Agriculture

FOOD SECURITY

ENVIRONMENTAL STEWARDSHIP

NUTRITION & HEALTH

YOUTHS, FAMILIES & COMMUNITIES

AI-powered Pest Management for Sustainable Small Fruit Production

Artificial intelligence pest management team members are Dr. Maciej, Jonathan Jones, Sarah Turner, Dr. Waana Kaluwasha and Dr. Jianfeng Zhou.

Small fruit producers in Missouri and beyond face significant economic losses due to the invasive spotted wing drosophila (SWD). This fruit fly species infests a variety of soft fruits, such as elderberries, raspberries, blueberries and strawberries, causing rapid decay and reducing crop marketability.

Traditional pest management methods are labor-intensive and environmentally taxing, relying heavily on insecticides and time-consuming manual monitoring. There is an urgent need for efficient, sustainable and cost-effective solutions to manage SWD infestations.

Dr. Waana Kaluwasha, Lincoln University's assistant professor, leads an interdisciplinary team to combat SWD through an innovative project that integrates artificial intelligence (AI) and machine learning. The team is developing a cloud-based tool to automate SWD monitoring, reducing the burden on farmers.

Smart traps, equipped with lures and image-capturing technology, have been set up at six strategic locations across Missouri. These traps collect images of insects, which are analyzed to train AI models to distinguish SWD from non-target species. The research involves collaboration with experts from the University of Missouri and Missouri State University and engages graduate and undergraduate students in hands-on fieldwork. Outreach efforts include educational events at local agricultural fairs and interactive workshops planned for the project's later phases.

The AI-based system is expected to streamline pest management by automating insect detection and allowing farmers to make data-driven decisions on pesticide use. This technology aims to lower production costs by reducing reliance on chemicals and labor, ultimately enhancing the sustainability and profitability of small fruit operations.

Preliminary tests indicate promising accuracy in identifying SWD, with continued monitoring and AI model training underway. Additionally, the project has raised awareness about AI applications in agriculture and engaged youths in agricultural science, technology, engineering and mathematics (STEM) learning.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture Capacity Building Grant

FOOD SECURITY

AGRICULTURAL SYSTEMS

ENVIRONMENTAL STEWARDSHIP

LINCOLN UNIVERSITY

North Carolina A&T State University

New Program Promotes Opportunities in Agriculture, STEM Careers

How do we build an inclusive agricultural workforce for the future? One approach is to ensure that the people who work with students, particularly high school and middle school educators and guidance counselors, understand the variety of opportunities in agriculture and how to prepare their students with the skills needed for a rewarding agricultural sciences career.

Paula Faulkner, Ph.D., facilitates a workshop for the STEA(g)M program.

North Carolina A&T College of Agriculture and Environmental Sciences (CAES) faculty are taking that approach in the Ag and STEM Connect: Building Pathways to the STEA(g)M Profession program. Led by CAES faculty members Paula E. Faulkner, Ph.D., and Jennifer Beasley, Ph.D., STEAgM is one of six modules in N.C. A&T's SAPLINGS (System Approach to Promote Learning and Innovation for the Next Generations). It is a five-year $18.1 million project funded by the U.S. Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA) through its NextGen program.

During an inaugural workshop, 24 educators and school counselors from North and South Carolina, Pennsylvania and Tennessee learned about a variety of topics relevant to the agriculture sector today, including inclusive excellence, digital agriculture, education-based programs, family and consumer sciences, and college and career opportunities for students.

NCA&T College of Agriculture and Environmental Sciences (CAES) faculty are ensuring educators and guidance counselors, understand the variety of opportunities in agriculture.

As a result, participants gained the tools to communicate with their students about the importance of food, agriculture, natural resources and human sciences (FANH) and science, technology, engineering and mathematics (STEM) programs. They also became more aware of degree programs and career opportunities for their students, said Paula Faulkner,

Ph.D., workshop director and agricultural education professor.

Cynethia Mayhand, a family and consumer sciences teacher in North Carolina, said she was educated by the experience and understands that agriculture is much more than farming.

"It could be flying drones and monitoring the land remotely or other opportunities with technology, and it's something I can take back and teach my kids, my colleagues and my administrators," she said.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture

AGRICULTURAL SYSTEMS

YOUTHS, FAMILIES & COMMUNITIES

4-H Teams Flex Coding Muscles in Game of Drones

4-H teaches youths to be leaders, but few 4-H members earn the distinction of "Ruler of Earth and Sky." Two youth science, technology, engineering and mathematics (STEM) teams won that distinction at the spring competition Game of Drones.

The competition was offered by the 4-H program at Cooperative Extension at North Carolina A&T in partnership with STEMerald City LLC, a Fayetteville-based organization that provides STEM tutoring and hands-on learning.

While the teams consisting of middle and high school students did not ascend to the Iron Throne, they displayed their coding and drone piloting skills after months of preparation.

"It is vital that we provide opportunities for students that lack access to technology to participate and gain skills and exposure to concepts that will better prepare them for the future workforce," said Misty Blue-Terry, Ph.D., 4-H STEM specialist for Extension at A&T. "Coding will be one of the most sought-after skills as it cuts across so many different industries. This is a fun way to learn coding and see the immediate results of your work."

The program helps youths develop their creativity, teamwork and leadership skills and make new friends. However, its primary purpose is to introduce them to coding and its many uses, according to Blue-Terry.

Although the culmination of the program was the Game of Drones competition, all teams spent months preparing through training sessions and coding activities. 4-H agent and team coach Allison Walker said the program shows youths that agriculture is more than cows and plows and that technology will be key to feeding the world in the future. A video of the 2024 competition is available at https://www.youtube.com/watch?v=7Ymsyvr3_Fg&t=9s.

Funding: Cooperative Extension at North Carolina A&T; STEMerald City LLC

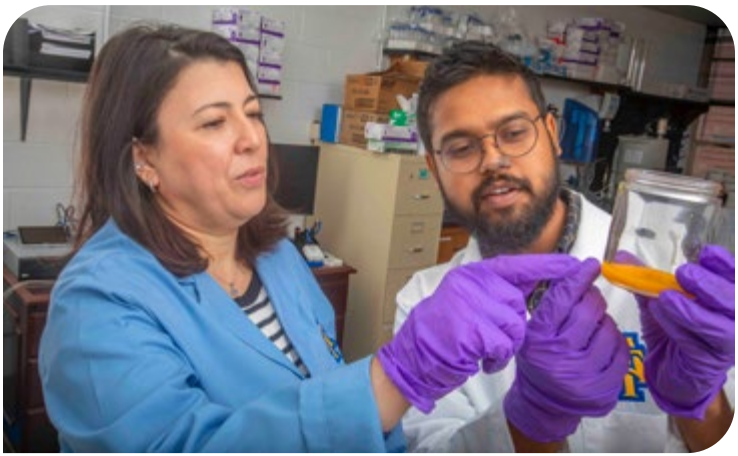
AGRICULTURAL SYSTEMS

YOUTHS, FAMILIES & COMMUNITIES

ENVIRONMENTAL STEWARDSHIP

Calvin Kinyon, Diamond Alexander and Courtney Dennis of the Vance County Victors show mixed emotions as they watch their drone landing.

Oleogel Delivery System: Improving Stability, Bioaccessibility of Bioactives



Roberta Claro da Silva, Ph.D., and student experiment in the North Carolina A&T lab.

The consumption of bioactive compounds has been associated with several health benefits to consumers. Bioactives are fat-soluble molecules naturally present in food sources. However, despite their natural occurrence in foods, bioactive compounds typically occur in limited amounts, too small to reach an effective concentration and provide these benefits.

To increase their beneficial effects and consequently improve consumers' health, a system to protect and stabilize these compounds in foods needs to be developed. Thus, North Carolina A&T researchers developed a natural, cost-effective and efficient encapsulation technology for delivering bioactive that can be incorporated into food products.

This study included the development of an innovative oleogel delivery system to carry the bioactive curcumin. Curcumin is a natural bioactive compound found in various medicinal herbs, particularly in turmeric.

Researchers developed stable oleogel using rice bran wax and carnauba wax. The curcumin was incorporated into the oleogels and the oxidative stability and antimicrobial effects of curcumin-loaded oleogel were tested.

The curcumin-loaded oleogels exhibited extended shelf life and excellent oxidative stability, ensuring the protection and delivery of curcumin within the food matrix. Also, the sensory evaluation revealed that cakes containing the oleogels have the same flavor, texture and appearance compared to control cakes made with traditional fats.

The oleogel could be a stable delivery system for bioactive compounds, which could be integrated into food products without negatively affecting consumer preferences, offering a healthier fat replacement alternative in baked foods.

The development and integration of oleogels into food products contribute to healthier dietary options, aligning with the American Heart Association guidelines by reducing the saturated fat content in foods. The project offers a valuable technological solution for the food industry that addresses current market demands for healthier, functional foods. Also, the successful formulation of oleogels opens new possibilities for integrating bioactive compounds into diverse food products.

Funding: Evans-Allen

FOOD SECURITY

NUTRITION & HEALTH

Prairie View A&M University

Mentoring with Purpose

The College of Agriculture, Food and Natural Resources (CAFNR) at Prairie View A&M University (PVAMU), with an enrollment of 432 students, plays a pivotal role in preparing professionals to meet the growing needs of Texas, the nation and the global community. Addressing the critical need to recruit, retain and graduate students in a timely manner is central to fulfilling this mission.

To support these efforts, CAFNR introduced Mentor Collective, a high-quality, structured mentoring program to enhance academic and personal development. Mentor Collective pairs students with dedicated mentors who provide guidance tailored to their educational pathways, career aspirations and personal challenges.

By fostering meaningful mentor-mentee relationships, the program addresses retention barriers, promotes a sense of belonging, and equips students with the skills and confidence to achieve their goals.

Students and mentors engage in one-on-one discussions during a meet and greet.

The first phase, Panther 2 Panther, is aimed at first-time freshmen and transfer students. The second phase, Panthers on the Move Career Program, provides mentors for upperclassmen and graduate-level students. This initiative supports PVAMU recruitment and retention strategies and aligns with the CAFNR commitment to preparing well-rounded professionals to serve diverse communities.

Over the last two years, the program recruited 92 mentees and 47 mentors in the first phase and 26 mentees and 15 mentors in the second phase. The mentors included upperclassmen, faculty, alumni and industry professionals. Mentor Collective monitors engagement in conversations logged, priority flags reported and peer-to-peer text message communication. Throughout the program, 304 conversations were logged, four priority flags were reported and resolved, and 1,404 peer-to-peer

The College of Agriculture, Food and Natural Resources at Prairie View A&M University plays a pivotal role in preparing professionals to meet the growing needs of Texas, the nation and the global community.

text messages were communicated.

Qualitative feedback from mentors and mentees indicates a strong sense of community and increased confidence among students in navigating academic and career challenges. These outputs demonstrate the role of the Mentor Collective as a critical component in fulfilling the CAFNR mission and addressing the needs of the PVAMU student body.

Funding: The 1890 Center of Excellence for Student Success and Workforce Development

YOUTHS, FAMILIES & COMMUNITIES

NUTRITION & HEALTH

AGRICULTURAL SYSTEMS

ENVIRONMENTAL STEWARDSHIP

FOOD SECURITY

ENERGY & BIOPRODUCTS

Training Addresses Digital Divide Gap in Texas Community

Hidalgo County's poverty rate of 27.9% in 2020, significantly higher than the national average, exacerbates the digital divide. Low-income residents lack access to essential digital resources, hindering their ability to participate fully in the digital age, particularly evident during the COVID-19 pandemic, affecting those in the business sector.

Enhancing digital literacy provides technical skills and fosters critical thinking and problem-solving, empowering residents to access opportunities in an increasingly digitized society. Prioritizing digital literacy initiatives tailored to Hidalgo County's demographic and socio-economic characteristics is essential for bridging the digital gap and ensuring equitable access to opportunities.

To tackle these challenges, Prairie View A&M University Extension offered three sessions on email basics, online buying and selling, and social media savvy to 25 participants (19 females).

Participants learned the importance of security measures, such as shopping on reputable websites, using strong passwords and verifying site security before making purchases. They also learned fundamental aspects of email usage, including sending, receiving, managing and securing messages. The session covered features like attachments, email addresses, folders and address books. Furthermore, participants learned about the benefits of social media for connectivity, promoting causes and knowledge-sharing.

Each participant received a laptop and handouts of the topics discussed during the sessions. Survey data revealed that 60% of the participants knew little about the topic before the session, 40% knew nothing about the topic before the session, and 100% rated they knew a lot after the session.

As a result, participants plan to connect with customers, find community activities and resources, express themselves through social media, access information, strengthen their businesses, and expand their networks.

Funding: Southern Rural Development Center; AT&T

YOUTHS, FAMILIES & COMMUNITIES

Group of program participants.

Hemp Fiber Phenotyping: Transforming Future of Sustainable Materials

Phenotyping is highly relevant in the contemporary world, where environmental sustainability and the search for renewable resources are paramount. Traditional materials like cotton and synthetic fibers have significant environmental impacts, including water consumption, chemical use and carbon emissions.

Prairie View A&M University researchers are addressing these challenges by focusing on hemp, a versatile and sustainable alternative that can significantly reduce the ecological footprint of various industries. To achieve its goals, a series of coordinated actions will be taken in research and development. Scientists will collaborate to refine and standardize phenotyping techniques specifically tailored to hemp fiber. This involves characterizing properties such as fiber length, strength, flexibility and moisture content.

The aim is to provide comprehensive data that can guide farmers in selecting the best hemp varieties and cultivation practices. Genetic improvement will follow when hemp varieties are optimized for fiber production. Through market-selective crop improvement, hemp's fiber quality, yield and resistance to pests and diseases will be enhanced.

Education and advocacy will additionally be extended within farming communities, promoting the benefits of hemp cultivation and sustainable agricultural practices. This action aims to incentivize more farmers to grow hemp for fiber, expanding the available supply. Industries involved in textiles, construction, automotive and other sectors will be encouraged to adopt hemp fibers as a sustainable material.

Potential tangible outcomes include standardized

Hemp variety grows in a greenhouse at Prairie View A&M University.

hemp phenotyping techniques and the creation of a comprehensive database of hemp fiber characteristics, along with standardized phenotyping tools and protocols that will assist in assessing and improving the quality of hemp fibers.

Environmental benefits can include reduced water usage, decreased chemical inputs and lower carbon emissions compared to traditional materials. Economic growth opportunities for farmers can stimulate job creation in the processing and manufacturing sectors.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture

AGRICULTURAL SYSTEMS

ENERGY & BIOPRODUCTS

ENVIRONMENTAL STEWARDSHIP

PRAIRIE VIEW A&M UNIVERSITY

South Carolina State University

Students Embark on Educational Journey to Kenya

Strengthening its commitment to providing South Carolina State University students with career opportunities, seven 1890 agriculture scholars traveled to Kenya, Africa, to gain exposure to international agriculture and careers from May 12-21.

Comprised of 1890 Ag Innovation Scholars and U.S. Department of Agriculture (USDA) 1890 National Scholars, the delegation of agriculture scholars gained insight into global production and distribution and supply chain management with visits to Van Den Burg Cut Flowers, one of the largest main-scale international rose growers, and KTDA Holdings, a private tea farm company that produces more than 60% of tea in Kenya.

"Meeting local farmers and ag entrepreneurs and learning about their innovative approaches to agriculture has inspired me to think creatively about my future career. I am grateful to SC State for providing this opportunity to engage with the world and deepen my commitment to making a positive impact in agriculture," said Jayvion Snow, junior agribusiness major.

In addition to visiting the two export companies, the trip included visits to the USDA's Foreign Agriculture Service (FAS) and the United States Embassy, where the scholars met with foreign government officials. Also, in preparation for the travel, the scholars took an abbreviated cultural immersion course and learned Swahili.

"Our scholars had an amazing experience in Kenya, as the trip allowed them to see first-hand that agriculture is truly a global industry that plays an important role in the world's economy," said Sydney Keith, 1890 Extension state program leader for education innovation and support. "We want to give our scholars more opportunities to travel abroad and spark their interest in seeking international career opportunities."

Senior agribusiness Randall Pickering receives a lesson on the art of tea picking at KTDA Holdings, a private tea farm company in Kenya.

Dr. Lamin Drammeh, vice president for SC State Public Service and Agriculture, added, "These experiences not only enhance their understanding of diverse agricultural industries but also empower our students to tackle the challenges faced within agriculture worldwide, like global food insecurity."

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture

AGRICULTURAL SYSTEMS

FOOD SECURITY

YOUTHS, FAMILIES & COMMUNITIES

Students Experience AgDiscovery

Students from across the nation, from California, Atlanta, Ohio and Maryland, traveled to South Carolina to participate in the nationally recognized AgDiscovery camp from June 9-21, 2024.

Youths participated in hands-on activities, including animal health emergency response and plant and soil science. They also participated in engaging and interactive field trips to agricultural and ag-related industry professionals, equipping youths with a first-hand look at career opportunities in the agriculture and ag-related industry.

As part of their field trip experiences, campers had the opportunity to visit Barefoot Farms, located on Saint Helena Island near Beaufort, South Carolina, where campers witnessed the cultivation of a seedless watermelon steeped in the Lowcountry's rich agricultural heritage. Another enlightening experience included visiting the historic Penn Center, where students gained insights into the intersection of education, agriculture and social justice, a powerful reminder of the enduring impact of community-driven initiatives.

Campers also visited Riverbanks Zoo and Gardens in Columbia, South Carolina, and spent a week on the Governor's School of Agriculture campus at John de la Howe in McCormick, South Carolina.

"We are excited about the camp experience our participants received during the AgDiscovery camp here at SC State," said Dr. Edoe Agbodjan, Extension administrator. "AgDiscovery provides our youths with the transformative opportunity for young minds to explore the ever-growing world of agriculture and science. We hoped the camp experience inspired, educated and sprouted the next generation of ag leaders."

AgDiscovery is a free summer outreach program to help teenagers explore careers in agricultural sciences. Students live on a college campus for two to four weeks and learn from university professors and U.S. Department of Agriculture (USDA) experts, including plant and animal scientists, biotechnologists, veterinarians, wildlife biologists and administrative professionals.

Funding: U.S. Department of Agriculture's Animal and Plant Health Inspection Service

ENERGY & BIOPRODUCTS
YOUTHS, FAMILIES & COMMUNITIES
ENVIRONMENTAL STEWARDSHIP
FOOD SECURITY
AGRICULTURAL SYSTEMS

AgDiscovery camper gains hands-on experience in environmental science at the Phinizy Center for Water Sciences in Augusta, Georgia.

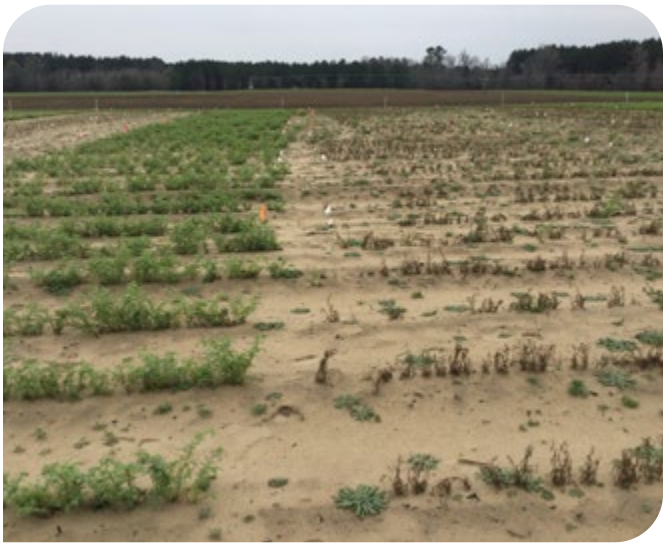
Chickpea Research to Boost Production in South Carolina

Researchers with South Carolina State University 1890 Research and Extension (SC State 1890) are evaluating the viability of chickpea production as a potential specialty crop for South Carolina agriculture.

The pea-size legume packs powerful nutrients, in addition to being gluten-free, making it a preferred global superfood. The crop's increasing demand in the United States among consumers sparked interest for the South Carolina Department of Agriculture to explore the market potential of chickpeas for small-scale producers and growers in South Carolina.

The state invested in the project "Examining the Growth and Yields of Chickpeas as a Specialty Crop in South Carolina" with a $100,000 grant award. As part of the outcomes, researchers hope the design of the project will reveal the potential growth and yield of two chickpea varieties, Kabuli and Desi. The project also provides research learning opportunities for SC State students.

The study is being conducted on an acre of land at the 200-acre SC State 1890 research and demonstration farm. Two trials were conducted using a randomized complete block design set up in a split-split plot. Researchers found that the Kabuli variety was unsuccessful and succumbed to colder temperatures in the winter, but the Desi variety survived the frost in December 2023 and January 2024. Planting earlier meant the crop would yield before the summer heat could scorch the pods.



Desi chickpea, which survived the December 2023 and January 2024 frost, and Kabuli chickpea, which died because of frost.

The Desi chickpea variety has the potential to be used in regenerative agriculture as a fall cover crop due to its biomass and nitrogen-fixing capability. This will help improve resilience to climate variability. Further, Desi chickpea variety can be used as a forage legume due to its nutritional quality and crude fiber (about 22%), as indicated by tissue analysis results. Chickpeas could be a contender for the state's large peanut industry, which generated $73 million in 2022.

Funding: South Carolina Department of Agriculture

FOOD SECURITY

NUTRITION & HEALTH

ENVIRONMENTAL STEWARDSHIP

AGRICULTURAL SYSTEMS

Southern University and A&M College

Excelling in Animal Science Through Support from 1890 JAG S.T.A.R.S. Scholarship

There is a need to increase the number of minorities studying food, agriculture, natural resources and human sciences. The Southern University College of Agricultural, Human and Environmental Sciences (CAHES) established the 1890 JAG Student Training in Academics, Research and Service (S.T.A.R.S.) Scholarship. This scholarship has assisted students like senior Madison Smith.

Smith is pursuing a degree in agricultural sciences with a concentration in animal science. With a passion for making a tangible impact in both conservation and community education, she is dedicated to advancing sustainable practices and inspiring future generations to engage with and protect our natural world.

Smith has contributed to the U.S. Fish and Wildlife Service's Office of Conservation Investment, where she was involved in projects that enhanced conservation strategies and promoted sustainable environmental practices. Her role in this office allowed her to engage with cutting-edge conservation initiatives, working to safeguard natural habitats and biodiversity.

She also gained valuable experience with the U.S. Fish and Wildlife Service's Office of Law Enforcement as a Directorate Fellows Program Fellow. Here, she supported efforts to uphold and enforce regulations that protect wildlife and learned about the intersection of law, policy and environmental stewardship.

Smith's commitment to conservation and education extends to her work with the Texas A&M AgriLife Extension 4-H Center. As part of her internship, she contributed to 4-H programs, which foster youth development through hands-on learning experiences in agriculture, science and environmental stewardship. Smith also serves as treasurer of the CAHES Animal Science/Pre-Vet Club.

Madison Smith, a senior agricultural sciences major, completes a fellowship with the U.S. Fish and Wildlife Service's Office of Law Enforcement in Valley Stream, New York.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Scholarship Program

ENVIRONMENTAL STEWARDSHIP

JAGcation: Experiential Agricultural Sciences Camp for Middle, Early High School Students

In urban areas, many youths are not exposed to educational and career opportunities in the field of agriculture. There is also a lack of affordable educational camps for young people during the summer in Baton Rouge and surrounding areas.

The Southern University Agricultural Research and Extension Center is igniting awareness and knowledge among youths about potential careers in the food, agricultural, natural resources and human sciences fields through its JAGcation Summer Camp.

The camp's objectives are to introduce and broaden middle and high school students' awareness of the vast educational and professional opportunities in the agricultural sector and to promote and encourage positive development in areas of physical, mental and social health. Now in its third year, the two-week camp provides hands-on experiential learning for youths in the areas of animal science, entomology, food science, nutrition, plant and soil sciences, and public health, among other topics.

Two sessions were held in the summer of 2024. Phase I was held for youths aged 9-11, and Phase II targeted youths aged 12-15. During the camp, the students worked with subject matter specialists, researchers and academicians. Campers also visited a local farm where they experienced hands-on learning activities such as milking goats, planting seeds and herding animals.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture Capacity Building Grant No. 2023-38821-39969

YOUTHS, FAMILIES & COMMUNITIES

The Southern University Agricultural Research and Extension Center is igniting awareness and knowledge among youths about potential careers in the food, agricultural, natural resources and human sciences fields

JAGcation campers learn to cook red cabbage coleslaw during the camp's nutrition segment.

Roselle Hibiscus: Healthy Source of Food

The Southern University Agricultural Research and Extension Center (SU Ag Center) has been conducting research on Roselle Hibiscus (Hibiscus sabdariffa L.) for more than two decades.

Roselle Hibiscus is a tropical plant that is non-native to the United States. Its leaves and fruits (calyces) are rich in antioxidants and total polyphenols. The plants possess various medicinal and nutritional properties. However, one of the major challenges in cultivating Roselle in Louisiana is a lack of suitable earlier maturing accessions adaptable for harvesting and the production of fruits within the growing season before a freeze in the fall.

Through support from the U.S. Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA) grants and collaborations with USDA's Agricultural Research Service (ARS) National Clonal Germplasm Repository, Rutgers University and West Virginia State University, researchers have grown and conducted trials in Louisiana from 38 Roselle accessions collected from around the world.

Several Roselle accessions, including FloriTed, M'sia Sim, Jamaican and ThaiRed, have been selected as suitable to grow under Louisiana weather conditions for consistent annual cultivation and production.

Through various community outreach programs, many Louisianans have gained awareness of the benefit of Roselle and the availability of seeds through the SU Ag Center. Roselle Hibiscus is currently grown by more than 60 small family farms as a functional food crop in 32 of the state's parishes.

The research team has been focusing on evaluating how the selected Roselle accessions could adapt to shifting weather events, such as enhanced UVB radiation, extreme drought and heat, implementing natural product development strategies, helping promote market enterprises for small and resource-limited farms, and developing a new product industry.

Roselle Hibiscus research and outreach efforts enhance student experiences for undergraduate and graduate students.

Entrepreneurs involved in Roselle Hibiscus-related products have begun to emerge in Louisiana, ranging from nursery plant sales and fresh fruit production to value-added products and tools for coring calyces.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture grants

NUTRITION & HEALTH

AGRICULTURAL SYSTEMS

SOUTHERN UNIVERSITY AND AGRICULTURAL & MECHANICAL COLLEGE

Tennessee State University

Tennessee State University Prepares Next Generation of Agricultural Workers

To ensure the U.S. Food, Agriculture, Natural Resources and Human Sciences (FANHS) system continues to thrive, it's imperative that the next generation of agricultural leaders and professionals reflects the demographic makeup of our nation.

Tennessee State University's (TSU) efforts to contribute to a more inclusive FANHS sector got a big boost thanks to the $18.1 million grant that Dr. John C. Ricketts and other colleagues in the College of Agriculture received in June 2023 from the U.S. Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA) NextGen program. The funding has enabled TSU to build a new framework for recruiting, retaining and engaging talented students and preparing them for successful careers in agriculture.

Today, 37 TSU agriculture students are receiving scholarships through the NextGen program. To better prepare them for career success, the program has facilitated several new undergraduate and graduate-level internships in the U.S. and other countries. It has also enabled a wealth of study-abroad opportunities. TSU students have had the chance to experience things like teaching safe canning techniques in Senegal, exploring immersive learning technologies in Australia and touring organic farms in India.

Tennessee State University NextGen program facilitates several new undergraduate and graduate-level internships in the United States and other countries.

TSU's NextGen project is also partnering with the Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) to provide programs that give TSU students and local high school students learning, enrichment and connection opportunities.

Beyond the in-person programs, NextGen has also made sure to meet the needs of this highly tech-savvy generation by developing an innovative app, SEED, to aid students in searching for scholarships, jobs and internships and to connect them with relevant podcasts, videos, events and articles.

In all these ways, TSU's NextGen program is helping to ensure that tomorrow's agricultural leaders are not only well-educated but also ready to use their gifts to change the world.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture

YOUTHS, FAMILIES & COMMUNITIES

Supporting Small Farmers

Small farmers play a vital role in the food system, but many need support to ensure their success. Tennessee State University (TSU) strives to support small farmers, and a notable example of this focus is its Tennessee Small Farm Expo and other activities.

Celebrating its 20th anniversary in 2024, the Small Farm Expo brings together small farmers, researchers, Extension agents, industry and government leaders, and students for a day of workshops, presentations, farm tours and the Small Farmer of the Year Luncheon.

The Tennessee New Farmer Academy is another way TSU supports small farmers. The Academy, which also marked a 10-year milestone anniversary in 2024, is a seven-month certificate program that provides new farmers with the information and hands-on experience they need to build solid, viable and successful agricultural businesses.

Tennessee State University strives to support small farmers.

Tennessee Small Farm Expo brings together small farmers, researchers, Extension agents, industry and government leaders, and students.

The New Farmer Academy has helped hundreds of people become agricultural entrepreneurs, growing from nine graduates in 2014 to 100 in 2024. Tennessee's commissioner of agriculture has called it "one of the best training programs for new farmers and beginning farmers in the U.S.; it's been so impactful."

Similarly, the Small Farm Expo is highly regarded for the opportunities it has provided small farmers to gain valuable insights, network with industry experts and peers, and learn about the latest agricultural innovations.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture

YOUTHS, FAMILIES & COMMUNITIES

AGRICULTURAL SYSTEMS

Researchers Lead Charge Against Emerging Threat of Vascular Streak Dieback

Vascular streak dieback (VSD) is a disease of woody ornamental plants that was first identified in 2019 in redbud trees in Tennessee. It has spread quickly, affecting more than 25 species and disrupting the nursery trade in at least 12 states.

Woody ornamentals, which include trees like redbud, dogwood, maple and crape myrtle, are a significant source of income for nurseries. VSD's rapid spread – and the gaps in understanding the disease – have left growers concerned about the future of their businesses and industry.

Soon after VSD was identified, Tennessee State University (TSU) researchers took the lead in responding to this emerging threat. Researchers adopted a multi-pronged approach to better understand the disease and help growers effectively manage it.

The TSU team has made several advances. They identified the likely cause of VSD (a fungus) and are developing a molecular diagnostic tool to accurately detect it. They collaborated with industry partners on trials that have identified fungicide treatments for growers and launched studies to identify VSD-tolerant species and cultivars. They conducted a multi-state survey to better understand and quantify the extent of the economic losses caused by VSD and a nationwide survey to gauge stakeholders' needs.

Vascular streaking on eastern redbud stem-horizontal cross-section.

TSU is now leading efforts to chart a course for the future. In October 2024, with the U.S. Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA) funding, TSU convened a workshop that brought together more than 80 stakeholders in person and online. This included growers, researchers, Extension professionals and representatives from the industry and government.

Together, attendees identified their top research and Extension priorities and made plans to collaborate on tackling the VSD challenge in a sustainable way for the benefit of growers, the nursery industry and all those who value what woody ornamentals contribute to landscapes public and private.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture

AGRICULTURAL SYSTEMS

TENNESSEE STATE UNIVERSITY

Tuskegee University

1890 Scholarship Program at Tuskegee Graduates First Cohorts

The U.S. Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA) 1890 Scholarship Program allows 1890 Land-grant Universities to offer more highly qualified high school students the funding to complete their college training and facilitate their entry into the food and agriculture workforce. Without such funds, many of these students could not complete their degrees and contribute to the food and agricultural industry.

The College of Agriculture, Environment and Nutrition Sciences administers the Tuskegee University Food and Agricultural Scholars (TUFAS) program. The goals of the program are to recruit, train and prepare underrepresented students to meet the needs of the workforce or pursue further studies in the food and agricultural sciences.

The program supports incoming first-year and transfer students who have demonstrated interest in food and agricultural careers and excellence in scholarship with a partial scholarship. In addition, in the TUFAS program, students are encouraged to participate in programs organized by the college to expose them to the food and agricultural industry. TUFAS incorporates mentoring, internships and experiential learning to support students' successful progress toward their career goals.

The College of Agriculture, Environment and Nutrition Sciences recruits, trains and prepares underrepresented students to meet the needs of the workforce or pursue further studies in the food and agricultural sciences.

Dr. Olga Bolden-Tiller with Tuskegee University students during the 2024 Association of 1890 Research Directors (ARD) Research Symposium in Tennessee.

The first cohort was selected in 2020 under former Associate Dean Dr. Ramble Ankumah (retired), where 30 students were supported. Twenty-three students of that first cohort have graduated or will graduate with a bachelor's degree in agribusiness, animal and veterinary sciences, environmental, natural resource, plant sciences or food and nutritional sciences. Many of these students are pursuing graduate or professional degrees.

More than a hundred students have been selected for the program in successive years. The 2024-25 academic year marks the fifth cohort of students in the TUFAS program.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Scholarship Program

AGRICULTURAL SYSTEMS
NUTRITION & HEALTH
ENVIRONMENTAL STEWARDSHIP
YOUTHS, FAMILIES & COMMUNITIES
FOOD SECURITY

Tuskegee Beef Cattle, Herd Health Initiative Empowers Local Farmers

Last year, Alabama cattle producers sold $501 million worth of cattle and calves. Cattle are produced in every county, representing a $2.5 billion industry in Alabama. The state's weather and land are ideally suited for growing forages and raising cattle. Yet, producers in Alabama's Black Belt face barriers that make them less successful in the marketplace.

Tuskegee University Cooperative Extension provided a Beef Cattle/Herd Health Initiative that addressed challenges faced by small, underserved livestock producers in Alabama's Black Belt, focusing on reproductive management, affordable supplementation, herd health and marketing strategies to ensure their sustainability and success.

Through in-person training, producers gained vital knowledge from experts in the field. Order buyers and stockyard owners provided insights into maximizing livestock sales profits. Key workshops included the

Tuskegee University veterinary students show farmers how to work with cattle.

Goat AI workshop, where 80% of participants intended to adopt new reproductive practices, and the Beef Artificial Insemination workshop, where 10% of attendees began integrating artificial insemination techniques. Events like Beef Cattle Day and Breakfast at the Stockyard offered practical strategies for winter forage planting and collaborative marketing, benefiting more than 40 producers.

As a result, 194 producers adopted new practices that reduced production costs and enhanced their operations' efficiency and profitability. These efforts improved herd health and increased marketability and greater resilience within the agricultural sector. The broader public benefited from a more sustainable and resilient agricultural community, contributing to food security, economic stability and community vitality.

Funding: U.S. Department of Agriculture

AGRICULTURAL SYSTEMS

FOOD SECURITY

YOUTHS, FAMILIES & COMMUNITIES

Getting Technology to Farmers

Artificial intelligence (AI) will be used to address critical challenges facing the world of agriculture. There will be an emphasis on technologies that impact production practices, developing an inclusive, technically skilled workforce in digital agriculture, and supporting small, women and minority farmers.

Tuskegee University (TU) and the University of Illinois Urbana-Champaign (UIUC) partnered to develop and support these new technologies. Part of the partnership will deploy autonomous robots to conduct crop health assessments among small-scale and minority farmers.

Through funding from the U.S. Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA), TU and the UIUC are using AI technologies to tackle these challenges by using small robots on UIUC's I-FARM testbeds to do plant phenotyping, weeding, disease scouting and harvesting.

Some of the outcomes of the collaboration were gathering agricultural data through enabled autonomous robots and delivering outreach and experiential learning initiatives on applying autonomous crop phenotyping robots. The dissemination of knowledge and providing hands-on experiences to farmers, producers, students, educators and others contributed to increased awareness and understanding that agricultural autonomous technologies are part of the outcomes of AI technology.

Participating farmers in Perry, Macon and Dallas counties within the Alabama Black Belt had soil sensors placed in their fields. The data collected by

Tuskegee University artificial intelligence team with I-FARM testbed.

the sensors were for agriculturally based biophysical products, including gravimetric soil moisture and soil temperature. These and other digital data will help farmers assess and make informed decisions relating to plant moisture stress, crop health and schedule of irrigation events. Several farmers expressed interest in installing these soil sensors to improve irrigation and nutrient management.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture

AGRICULTURAL SYSTEMS
ENERGY & BIOPRODUCTS
ENVIRONMENTAL STEWARDSHIP
FOOD SECURITY
YOUTHS, FAMILIES & COMMUNITIES

TUSKEGEE UNIVERSITY

University of Arkansas at Pine Bluff

UAPB Department of Aquaculture and Fisheries Recruits Next Generation to STEM Careers

The University of Arkansas at Pine Bluff (UAPB) is on a mission to recruit the next generation of aquaculture and fisheries professionals.

It is important to expose high school students to a wide range of opportunities in the field of aquaculture and fisheries. Unfortunately, some young people may first associate the field with ponds and dirty, wet boots, but that is just one part of the equation.

The University of Arkansas at Pine Bluff (UAPB) is on a mission to recruit the next generation of aquaculture and fisheries professionals. The Department of Aquaculture and Fisheries has been expanding its outreach efforts to middle and high school students, inviting classrooms from across the state to pay a visit to UAPB so they can check out the department and its research station facilities.

The Department of Aquaculture and Fisheries expands its outreach to middle and high school students, inviting classrooms to visit the research station facilities.

During tours, UAPB faculty, staff and students introduce visiting middle and high school students to UAPB's new interactive artificial intelligence (AI) lab. During hands-on exercises, students see how AI is being used to control and monitor the growth and health of commercially important fish and shrimp species.

This initiative increases the chance students will pursue a degree in aquaculture and fisheries, which will give them knowledge in molecular biology, pathology, water quality and fisheries technology.

Thanks to UAPB's practical-based curriculum, upon graduation, they are ready to start their career in roles such as junior scientist or quality assurance/quality control (QA/QC) laboratory manager in public and private organizations. Graduates often find lucrative opportunities in the food industry, animal food production, academics or research.

Funding: Public and private industry

AGRICULTURAL SYSTEMS

ENVIRONMENTAL STEWARDSHIP

NUTRITION & HEALTH

YOUTHS, FAMILIES & COMMUNITIES

Educational Centers to Train Students, Producers on Environmental Practices

The University of Arkansas at Pine Bluff (UAPB) is establishing educational centers related to sustainable production practices and aquaculture on campus and at UAPB's Lonoke Farm.

Arkansas Discovery Farms will collaborate with UAPB in the development of the UAPB Discovery Farm Educational Centers, which will be a means of attracting underserved undergraduate students and youths to careers in agriculture. The centers will be used to train students and local producers in water conservation and other environmental practices.

To fulfill the goal of contributing to the next generation of graduates in food, agriculture, natural resources and human (FANH) sciences, program leaders will connect partner organizations with local youths. The first step is building and fostering relationships with U.S. Department of Agriculture (USDA) agencies, public schools and local 4-H clubs to introduce youths to FANH and USDA careers at an early age.

Discovery Farm Educational Centers will help implement climate-smart practices on farmers' private land.

This will be accomplished through peer-to-peer mentoring, summer camps and field trips for students at public schools, sponsorship of clubs and organizations, and the promotion of the farm-to-school initiative. The educational centers will also provide domestic apprenticeships for undergraduate and graduate students to extend their knowledge of the wide range of career opportunities in FANH areas, especially in historically underserved communities.

UAPB will also establish an Urban Farmer Mentoring Program. It will connect local farmers with mentor farmers who will assist in implementing sustainable practices on farmers' private land and provide Extension and educational training on sustainable production practices on campus.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Capacity Building Grants, Smart Discovery Farm & Cultivating a Greener Tomorrow; Tyson Food: A Community Outreach and Workforce Development Initiative

ENVIRONMENTAL STEWARDSHIP

YOUTHS, FAMILIES & COMMUNITIES

AGRICULTURAL SYSTEMS

UAPB Research Investigates Weeds Causing Viruses in Sweet Potatoes

A researcher collects different weed species and tissue samples from a sweet potato field.

When it comes to sweet potato production, it is known that virus infection dramatically reduces the yield and quality of the roots produced. Virus infections are predominantly transmitted by whiteflies and aphids. However, weeds have also proven to be a destructive mechanism to the growth of this vital crop by serving as a host of sweet potato viruses.

The potential role of weeds as alternative hosts and virus reservoirs remains unclear. Therefore, understanding the spread of these viruses is critical for developing effective control measures.

The University of Arkansas at Pine Bluff (UAPB) started a project to investigate the role of weeds as alternative hosts for sweet potato viruses. The objective is to identify prevalent weed types coexisting with sweet potato plants. The weeds were collected in 2023 from sweet potato fields in different counties of Arkansas, Mississippi and California.

UAPB researchers observed that several dicot species are hosting the sweet potato viruses. Weed interference with the crop can cause significant yield reductions and inferior product quality. This necessitates the control of the weeds at critical stages throughout the growing season.

The study supports the hypothesis that weeds serve as reservoirs and inoculum sources for these viruses, potentially playing a significant role in their epidemiology. This finding is critical for managing viral diseases in sweet potatoes, as it underscores the need for comprehensive weed management strategies.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture Specialty Crop Research Initiative No. 1029242

AGRICULTURAL SYSTEMS

FOOD SECURITY

UNIVERSITY of ARKANSAS AT PINE BLUFF
1873 ™

University of Maryland Eastern Shore

UMES Celebrates Students' Achievements Through Land-grant Scholarship Program

According to a 2023 report from the United Negro College Fund, more than 70% of students attending historically Black colleges and universities (HBCUs) are Pell Grant-eligible, meaning they come from low-income backgrounds, and roughly 52% are first-generation college students. The average graduation rate for HBCUs is around 35%, lower than the national average of 62% for the year 2023.

The University of Maryland Eastern Shore's (UMES) School of Agricultural and Natural Sciences began the UMES Land-grant Scholarship Program in fall 2020. The program provides scholarships to support the recruitment, retention and educational success of undergraduate students, resulting in an increased number of graduates with baccalaureate degrees in the food and agricultural sciences and related fields. The program's first cohort had a 91% graduation rate within 4.5 years.

The University of Maryland Eastern Shore's School of Agricultural and Natural Sciences provides scholarships to support the recruitment, retention and educational success of undergraduate students.

Graduate Jasmine Pinchinat joins the Princeton Alliance for Collaborative Research and Innovation to continue her studies.

The first class of scholars graduated in spring 2023.

One of the graduates, Jasmine Pinchinat, said the scholarship allowed her to focus on her studies instead of finances, and she accomplished making the Dean's List. After graduating, Pinchinat joined the Princeton Alliance for Collaborative Research and Innovation to continue her studies and looked forward to enrolling as a graduate student.

In total, the scholarship program has allocated $2 million to cover the academic expenses of 110

students at UMES. Eighty-five students were being funded through the program during the fall 2024 semester.

Being inclusive in any workplace can improve productivity, creativity, reputation, marketing opportunities and cultural awareness. These improvements could empower the agricultural and natural sciences industries to develop more creative and innovative strategies to solve large societal problems, including access to fresh healthy foods and battling climate change.

Funding: U.S. Department of Agriculture's National Institute of Food and Agriculture 1890 Scholarships Program, 2021-38430-35530, 2021-70400-35529, 2022-38430-36995, 2022-70418-37728, 2023-38430-39319, 2023-70418-40438, 2024-70418-43148, 2024-38430-42212

YOUTHS, FAMILIES & COMMUNITIES

Alternative Crop Program Helps Farmers Turn Profit

In spring 2022, Kate Long, director of nutrition for the Maryland Food Bank, approached the University of Maryland Eastern Shore's (UMES) alternative crop specialist, Dr. Nadine Burton, with a proposal to compensate farmers for growing non-native crops for two food pantries on Maryland's Eastern Shore. Long's request was spurred by a needs assessment that showed a growing desire for more non-native vegetables.

In the program's first year, Burton and five collaborating farmers sold the food bank nearly 20,000 pounds of fresh produce. The need has only grown. In 2023, they sold nearly 100,000 pounds. UMES Extension holds regular workshops and learning opportunities for small-scale farmers, putting Burton in the perfect position to rally local producers to grow and sell alternative crops, opening a new revenue stream.

Burton recruited a group of 15 farmers, most of whom were new to the profession, and worked closely with them throughout the 2024 growing season. In addition to regularly held classes, Burton visited their farms and offered hands-on help and expertise, fielding phone calls from her students almost daily. She trained each farmer on what to grow and how to grow it and successfully get the crops to market.

Eleven of the original 15 participants completed the class.

Dr. Nadine Burton of the University of Maryland Eastern Shore Extension shows off a callaloo plant.

They have collectively sold more than 10,000 pounds of produce. Participant John Roduik, owner of Poppa Said Maybe Farm in Somerset County, Maryland, cultivated 80-100 pounds of jute, callaloo and scotch bonnet each week.

Also, participant Eugene Yarboro

owns Harvest2Health Organic Farming in Easton and Upper Marlboro, Maryland. Since he began growing alternative crops, including African eggplant, he strategically established relationships with restaurants catering to African dishes in the Washington, D.C., area. Those businesses are now part of his client base. He also qualified for more grant funding than before.

Funding: IFARMS2 grant; Nature Conservancy

FOOD SECURITY

Soil Health Research Aims to Protect Coastal Forests

Sea level rise is altering coastal forests, which provide habitat for an array of plants and wildlife, store carbon and buffer inland areas from coastal storms. When erosion and saltwater intrusion kill trees, a ghost forest is left behind that can further exacerbate saltwater intrusion in the surrounding area.

Student Shivani Patel, Dr. Behnam Khatabi, student Rhune Liverpool and Dr. Mozhgan Sepehri study the bacterial community in the Chesapeake Bay.

A University of Maryland Eastern Shore (UMES) team is researching how saltwater affects soil health as part of a project aimed at protecting the Chesapeake Bay watershed from the effects of extreme weather events.

Led by UMES Associate Professor Behnam Khatabi and UMES Soil Molecular Biologist Dr. Mozhgan Sepehri, the multidisciplinary group collects and analyzes soil in the Monie Bay in western Somerset County, Maryland, to see how host plants adapt to environmental stresses.

The team has generated extensive microbial genomic data to serve as a resource in identifying habitat-specific microbial interaction strategies.

"Our ultimate goal is to apply beneficial microorganisms as a natural way to help plants defend themselves and cope with hostile environmental stresses like saltwater intrusion," Sepehri said.

If left unchecked, saltwater intrusion has the potential to ruin farming fields and reduce the quantity of loblolly pine trees, which are extremely valuable for pulp, mulch and timber. Because forests play an important role in storing carbon dioxide, the growth of ghost forests may be associated with the speed of adverse weather events.

Funding: National Science Foundation Critical Zone Program; Historically Black Colleges and Universities Undergraduate Program, NSF ORE-CZ grant No. 2229056

ENVIRONMENTAL STEWARDSHIP

HBCU 1886
UNIVERSITY OF MARYLAND EASTERN SHORE

Virginia State University

Scholarship Helps Student Pursue Leadership, Community Impact

Tiquan Goode, a senior in the Virginia State University (VSU) College of Agriculture and an Experiential Learning and Leadership intern with Virginia Cooperative Extension, is dedicated to community empowerment and advancing opportunities in education and youth development.

Access to scholarships and experiential learning opportunities allows students to overcome financial barriers, gain valuable skills and build careers that benefit their communities. Goode's story illustrates how the Food and Agri-Science Scholarship at Virginia State University (VSU) has been instrumental in supporting his educational and professional growth.

Goode grew up in Brunswick County, Virginia, where his involvement in programs like 4-H sparked his interest in youth development and community empowerment. After initially attending George Mason University, he returned home, co-founded a grassroots organization and worked full-time before deciding to transfer to VSU. A chance meeting with President Makola Abdullah during a campus visit influenced his decision to enroll.

At VSU, Goode majors in family and consumer sciences, focusing on family, child and community development. The scholarship provided the foundation for him to engage in diverse opportunities, such as participating in the Lionheart Leadership Academy, competing in Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) public speaking competitions and serving as an intern with Virginia Cooperative Extension.

Goode's achievements include maintaining a 4.0 GPA, induction into the Honors College and contributing to media campaigns for VSU's College of Agriculture. The financial support from his scholarship enabled him to access internships, leadership programs and research opportunities that developed his skills in program development, digital storytelling and community engagement.

Student Tiquan Goode presents for Minorities in Agriculture, Natural Resources and Related Sciences.

Through his journey, Goode has inspired his younger brother and others in his community to consider higher education. His story demonstrates how scholarships and internships equip students with the resources to pursue their goals and make meaningful contributions to their communities.

Funding: Cooperative Extension; Virginia State University Food and Agri-Science Scholarship Program, authorized by the United States Congress in the 2018 Farm Bill

YOUTHS, FAMILIES & COMMUNITIES

Pasture Lambing Workshops Introduce Farmers to Techniques to Increase Dam, Lamb Survival

Hair sheep are the fastest growing segment of the United States sheep industry because they are well suited for sustainable, pasture-based production and novice producers. In Virginia, sheep populations increased by 8% from 2023 to 2024.

Pasture lambing helps establish the mother and lamb bond and reduces lamb losses and associated costs with indoor lambing. However, novice producers without lambing experience or skills may face stress during their first lambing seasons and are unaware that pasture lambing is a beneficial option.

Virginia State University (VSU) developed and implemented four hands-on workshops since 2019 to introduce Virginia's hair sheep producers to pasture lambing and provide knowledge and skills to reduce ewe and lamb loss. Participants learned the biology of pregnancy and lambing, how to prepare for lambing, needed supplies and how to manage complications and difficult lamb births with the assistance of a lamb simulator developed at VSU. Then, participants processed newborn lambs and developed skills in weighing, ear tagging, cleaning navels, evaluating udders, and mother and lamb bonding.

Participant at Virginia State University's pasture lambing workshop practices hands-on skills.

Workshops were limited to 16 participants to facilitate effective training and interactions with workshop leaders. Afterward, participants received resources like fact sheets, research results and data recording sheets.

As a result, 64 hair sheep producers learned how to incorporate pasture lambing into their operations. In the fall of 2024, VSU surveyed participants to gauge participant satisfaction, skills developed, and economic benefits realized from participating in the workshops.

VSU recorded 15 responses, where all indicated they are currently implementing skills they learned. Twelve respondents shared they have benefited economically with the largest percentage indicating they saved more than $300. Multiple participants shared they were able to intervene in difficult births and manually deliver the lambs, saving ewe and lamb.

Funding: 1890s Capacity Building Grant, 2018-38821-27767; Extension program funds

AGRICULTURAL SYSTEMS

FOOD SECURITY

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WVSU Helps Agriculture Workforce Grow Through NextGen Program

West Virginia State University (WVSU) Extension Agriculture and Natural Resources, supported by the U.S. Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA), has initiated the Next Generation of WV Agriculture Professionals (NextGen) program.

Participants of the NextGen program.

This endeavor aims to develop an inclusive and skilled workforce in the food and agriculture sectors. The program's strategy includes creating and disseminating a specialized agriculture curriculum for secondary education teachers throughout West Virginia, awarding scholarships to students in food, agriculture, natural resources and human (FANH) sciences at WVSU, and providing FANH internships in collaboration with the West Virginia Department of Agriculture. These initiatives are designed to educate, engage and retain future FANH professionals, thereby enhancing the agricultural sector in West Virginia through a well-trained and committed workforce.

To date, NextGen has backed 33 projects across 24 states, with the participation of more than 60 academic institutions. This collaborative effort has trained more than 20,000 aspiring leaders.

The program supports more than 36 disciplines, including management, agribusiness and industry, science and technology, and others supporting the food and agriculture sector. Each project is funded for five years, and the program has a total investment of $262.5 million. To learn more, visit www.nifa.usda.gov/grants/programs/nextgen.

Funding: No. 1849 NextGen WV Agriculture Professionals

AGRICULTURAL SYSTEMS

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West Virginia State University Extension Agriculture and Natural Resources is developing an inclusive and skilled workforce in the food and agriculture sectors.

Cultivating Success: Strategic Insights for Farmers

West Virginia State University (WVSU) Extension Agriculture and Natural Resources (ANR) offers the New Farmer Business Institute and the Understanding Heirs' Property Series. This free program provides a chance for aspiring and current farmers to expand their knowledge and skills in agriculture.

In this series, experts lead discussions on crucial topics, including evaluating farm operations, setting strategic goals and managing farm risks effectively. Participants can expect to gain valuable insights to help landowners and seasoned producers enhance their farming practices.

"Farming is a vital way of life for many individuals in West Virginia," said John David Johnson, WVSU ANR Extension specialist and leader of the workshop series. "Our farmers play a crucial role in ensuring food security for our state and the nation."

Agricultural work in action at the university's research site, Lakin Farm.

He added, "With limited legal protection for landowners in West Virginia, they need to take the initiative to educate themselves to safeguard their legacies. Knowledge is a powerful tool, and we are committed to empowering our community."

In addition, the series covers vital aspects of agriculture, such as tax preparation, market challenges and estate planning. Whether attendees are newcomers or looking to improve their existing methods, these sessions are designed to support producers at all stages of their journey.

Funding: No. 1931 Heirs' Property

AGRICULTURAL SYSTEMS

FOOD SECURITY

Leading Global Initiative to Combat Pine Bark Beetle Threat to Food Security

West Virginia State University (WVSU) and its international partners are actively addressing global food security challenges related to the pine bark beetle. This pest has caused extensive damage to forests in various regions in the United States, including the Southeast, West Coast and the Rocky Mountains, and countries like Mexico, Guatemala and Belize. The resulting ecological and economic impacts pose significant risks to food security.

The 1890 Center of Excellence for Global Food Security and Defense (CEGFSD) has focused on emerging plant and animal pests and diseases to tackle these challenges. Dr. Ayesha Sarker, an assistant research professor of food science at WVSU, leads a project titled "A Collaborative Network for Monitoring Emerging Plant and Animal Diseases for Food Security," highlighting the urgency of addressing the pine bark beetle.

A notable aspect of this initiative was the international workshop "Addressing New and Emerging Pests and Diseases: The Case of Pine Bark Beetle in Belize," held in conjunction with the University of Belize and the Forestry Department of Belize. This workshop brought together experts, students and local stakeholders for a five-day collaborative event at the Central Farm, University of Belize, where they engaged in presentations, discussions and field visits.

Sarker noted the workshop focused on providing technical support, including beetle identification training and Integrated Pest Management (IPM) strategies. By identifying key collaboration points and strengthening networks with institutions across Central America, WVSU and its partners are committed to developing sustainable solutions that contribute to global food security while addressing the impacts of the pine bark beetle.

Funding: No. 1920 Research FY23-Communications

FOOD SECURITY

Dr. Ayesha Sarker and her team of researchers study the pine bark beetle.

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