



ASSOCIATION OF 1890 RESEARCH DIRECTORS

May 2025, Vol. 16, Issue 5

1890s plan 135th celebration; join in

“135 Years Strong... Celebrating the Enduring Legacy, Growing Opportunities, Inspiring Innovation and Uplifting Communities”

The **Second Morrill Act of 1890** is a defining milestone in the history of American higher education. This landmark legislation established the foundation for the 1890 land-grant universities. These institutions were created to ensure educational access and opportunity—especially for African Americans in the post-Reconstruction South—and have since become pillars of academic excellence, agricultural progress and economic development.

Over the last 135 years, the 1890 land-grant universities have been at the forefront of transformative change. Together, they have expanded access to higher education, led cutting-edge research in agriculture and STEM and fueled

innovation that empowers both rural and urban communities across the nation and beyond.

This anniversary is more than a historical reflection—it is a celebration of impact, growth, and promise. Through generations of scholars, leaders, and changemakers, the legacy of the 1890s continues to thrive, proving that access to education is a catalyst for progress.

Join the Washington, D.C. Celebration

In addition to campus observances on each of the 19 1890 campuses, we invite you to be part of a national celebration in our nation’s capital. On **Sept. 10**, The 1890 Universities Foundation, in partnership with the 1890 Council of Presidents, Deans and Directors, will host a special commemorative event at the **Library of Congress – James Madison**

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Message from the Chair / DR. WESLEY WHITTAKER



DR. W. WHITTAKER

Dear Friends and Colleagues:

As I continue to reflect on the continued “pausing” or freezing of federal grant funds—along with the termination of active research projects that jeopardize long-term research and Extension efforts—I’m reminded that challenging times are often the very moments when strong leadership is most needed.

In the face of uncertainty, a few key leadership principles for navigating uncertainty rise to the surface:

- **Adjust your Sails:** A common and impactful quote—“You can’t control the wind, but you can adjust your sails.” This phrase emphasizes adaptability and the ability to overcome challenges by changing your approach rather than resisting the inevitable. It’s often used in the context of overcoming adversity or navigating change.
- **Control the Controllable:** We may not set the weather, but we steer the ship. Focus on the things that are truly

within reach.

- **Anchor in Core Values:** When everything else is shifting, values are your anchor. Make decisions rooted in your organization’s core beliefs, and you’ll weather any storm with integrity.
- **Growth through Friction:** Pressure doesn’t only test us—it shapes us. Let setbacks spark innovation rather than stall progress.
- **Purpose over Panic:** A clear sense of direction helps us move with confidence, even when the destination feels distant.
- **Lead with Light:** Recognize the quiet work being done across our organizations. Shine a light on others, and it will help us all see better.
- **Empower at Every Level:** Leadership isn’t about hierarchy—it’s about impact. Equip others to lead from where they are. Empowerment multiplies your influence far beyond your position.

I encourage my land-grant colleagues to remain steady, stay encouraged and continue leading with purpose—one thoughtful

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Congress approved the Evans-Allen Act of 1977 to provide capacity funding for food and agricultural research at the 1890 land-grant universities and Tuskegee University (the 1890 Institutions) similar to that provided to the 1862 universities under the Hatch Act of 1887. Research conducted under the Evans-Allen Program has led to hundreds of scientific breakthroughs of benefit to both the unique stakeholders of the 1890 institutions and the nation as a whole. The Evans-Allen Program has been extremely important in allowing the 1890 institutions to attract top-notch scientists to their campuses, conduct high-quality and innovative research and become more fully integrated within the land-grant system.

This edition, includes impacts from the 1890 research program submitted by scientists at Fort Valley and Central State universities.

Fort Valley uses UV light to improve peanut safety

Tree nuts, like Georgia's pecans, are economically important food products worldwide.

According to a 2024 report from USDA's Economic Research Service, the global tree nut market has grown expo-

quality.

"The popularity of nuts as heart-healthy snack foods is growing," Mahapatra said. "It is important that they are handled safely and free from harmful microorganisms before consumption."

However, originally considered microbiologically safe, nuts and nut-based products have been consistently contaminated with foodborne pathogens. As a result, food safety is becoming a serious concern in the nut processing industry. *Salmonella* is the primary pathogen of concern.

The FVSU scientists found that pulsed UV light reduced the decontamination of pecans to 99.9% within 40 seconds.

"Nonthermal processing technologies can be used to enhance the safety and quality of nuts while keeping the loss of product quality to a minimum," Mahapatra explained.

The increasing demand for nonthermal processing, energy-based technology, he said, will be a promising way to reduce microbial load without leaving toxic chemical residue.

"Pulsed UV light is a highly intense pulse and kills bacteria within seconds. Also, it doesn't need water and doesn't leave any residue. So, it's environmentally safe," Gyawali added. "The installation cost for producers may be high, but it will ultimately save them money and make food safer and cheaper for consumers."

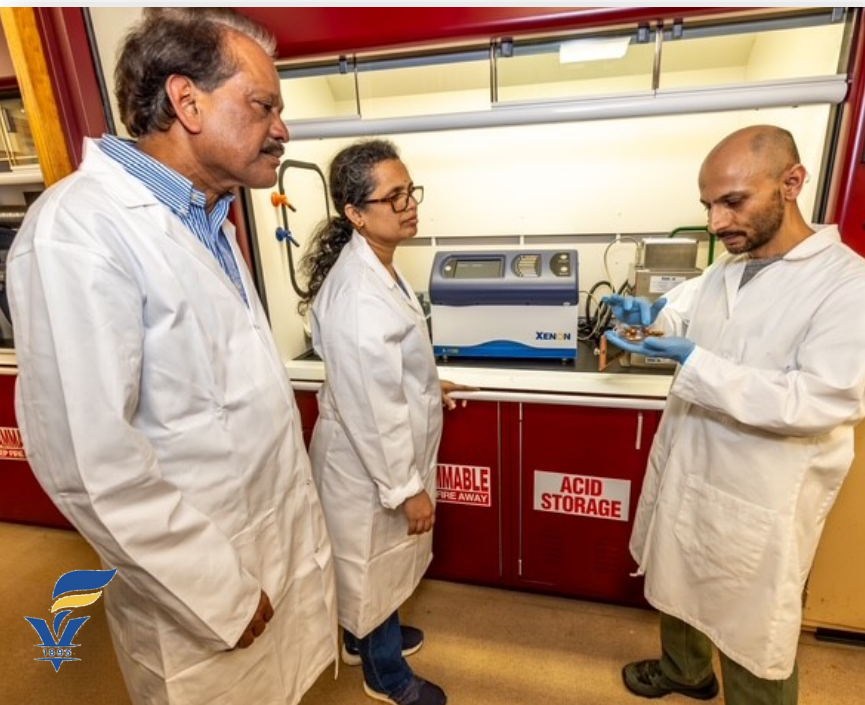
To further this research, Mahapatra and Gyawali collaborated with Cameron Bardsley, Ph.D., research food technologist; Kaicie Chasteen-Ko, food technologist; and Samantha Sherman, plant physiologist and FVSU alumna. The three partners are with the Southeastern Fruit and Tree Nut Research Station of USDA's Agricultural Research Service in Byron, Georgia.

Their research focuses on identifying potential alternatives for food safety and pecan shelling facilities, Bardsley said.

"We want to make sure that we find alternative processes that also maintain quality so that it's not going to impact spoilage, color, or shelf-life," Bardsley said.

The USDA ARS Byron Food Safety Lab works with cold plasma, which is a low-cost and efficient non-thermal method, Bardsley noted.

"I think it's important to explore novel technolo-



Fort Valley scientists in the lab checking on peanut project.

mentally in the last 20 years. The United States exported more tree nuts than any other major producer, with almonds taking the lead.

Researchers at **Fort Valley State University** are contributing to sustaining this thriving industry for the safety of consumers.

Ajit Mahapatra, Ph.D., professor of food engineering, and Rabin Gyawali, Ph.D., food scientist, use non-thermal technologies like intense pulsed UV light and essential oils in the FVSU Food Engineering Laboratory to study the effectiveness of pulsed UV light in killing *E. coli* on pecans. They are aided by research assistant Hema Degala.

The FVSU duo reports that an increase in foodborne illnesses associated with low-moisture foods has led to growing concerns regarding the safety of nuts and nut-based products. Nonthermal techniques, antimicrobial agents and different packaging solutions provide an alternative to thermal processing that can achieve microbial safety and preserve nut



Central State uses robotics to help farmers with weeding and irrigating



Central State researchers demonstrate the robot that helps farmers with labor intensive tasks like weeding and irrigating.

Relevance

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. Manually mowing the grass between the raspberry rows and manually controlled drip irrigation requires persistent and repetitive labor to mow and to control the irrigation, which adds to the input cost.

Response

Researchers at Central State University, including undergraduate students from minority backgrounds, developed robotic solutions for small-scale raspberry farms to automate labor-intensive tasks such as mowing and irrigation management. A low-cost robotic mower-assisted smart drip irrigation system was developed, tested and demonstrated.

The robot reduced manual labor by automatically mowing the grass between the raspberry rows and collecting soil moisture data from the raspberry rows to automate the irrigation.

Results

The robot was tested for the 2023 and 2024 seasons in field conditions. Soil moisture data, manual labor hours saved and water usage data were collected.

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.

Public Value Statement

Agriculture has seen a lot of technological advancements in the last few decades. These advancements have not always been an economically viable option for small- or medium-farm operations, which produce one-third of the world's food from 24% of gross agricultural land.

The Precision Agriculture Lab at Central State University focuses on developing and infusing emergent technologies in agricultural systems with a special focus on developing low-cost technological solutions that can make small-scale farming more efficient and profitable.

For more information, please contact [Dr. Rajveer Dhillon](#).

Developing a more cold-tolerant sweet potato for Ohio farmers

Relevance

Crop diversification helps Ohio agricultural operations by allowing product divergence and offsetting commodity market swings. Yet, agricultural dynamics over the past decades in Ohio show an increasing shift toward larger farms under monocropping systems. While this has increased crop productivity, adverse effects such as exposure and susceptibility to risks, environmental issues and the consolidation of small-scale production are being observed.

The Ohio Department of Agriculture, under Governor Mike DeWine, has been promoting specialty crop production in the state through programs like the Specialty Crop Block Grant Program, among other initiatives targeting the agricultural sector. Specialty crops generally have positive impacts on issues related to food security, rural development, and public health.

Response

While northern weather isn't ideal for large-scale

See Sweet potatoes on Page 6

ARD UPDATES/MAY 2025

Consider: Two eggs might cure all that ails you

Imagine preparing a few eggs for breakfast in the morning, and that's your medicine for the day.

Granted, these are no ordinary eggs. These eggs are the creation of Shengmin Sang and his research team at N.C. A&T's Center for Excellence in Post-Harvest Technologies at the North Carolina Research Campus in Kannapolis.

These eggs — rich in polyphenols known to be

“As we know, most drugs have side effects. They can cause damage to your body, plus many are quite expensive. Additionally, many chronic diseases are preventable, as they take time to develop,” he said. “Eggs are a staple food. And eggs are a big market. Using food as medicine to prevent disease instead of treating disease is a perfect strategy.”

A prolific researcher who holds several patents,

Sang began studying herbal medicine 20 years ago in China, where he received his doctorate in organic chemistry from the Shanghai Institute of Materia Medica, Chinese Academy of Sciences. He then completed his postdoctoral training studying food bioactives at Rutgers University in New Jersey.

“I was trained as a natural product chemist to identify bioactive compounds in herbal medicines. We’ve used these medicines in China for thousands of years to treat different diseases, before we got Western medicine,” he said.

“At Rutgers, I started to look at active compounds in foods. We call them ‘functional foods’ because they serve the function of providing some health benefit, beyond the basic nutrients.”

Sang embarked on his current project — “Using special feeding techniques to develop polyphenol-rich functional eggs” — after achieving promising results in a pilot study that added different doses of gingerol-rich ginger extract to the feed

strong antioxidants and anti-inflammatory agents — come from laying hens at the N.C. A&T University Farm, that have been fed a special diet containing apple and orange peels.

Eggs like these could help prevent the development of cardiovascular disease, cancer, diabetes, obesity and even age-related diseases like Alzheimer’s.

And, if Sang has his way, eggs like these could one day be available at your neighborhood grocery store.

“The research focus of my lab is to provide scientific evidence to support food as medicine, which is a cost-effective strategy to reduce the health-care burden,” said Sang, Ph.D., a distinguished professor of functional foods and human health. “We focus on gut health and the prevention of metabolic diseases.

“Our goal is to use a ‘precision nutrition’ approach to identify the right food for the right populations at the right time. Whether we are healthy or ill, whether we are young or old, our nutritional needs vary, and precision nutrition can help address these unique requirements.”

Sang views his quest to enhance one of America’s favorite breakfast foods as a common-sense approach to improving the current health-care system.

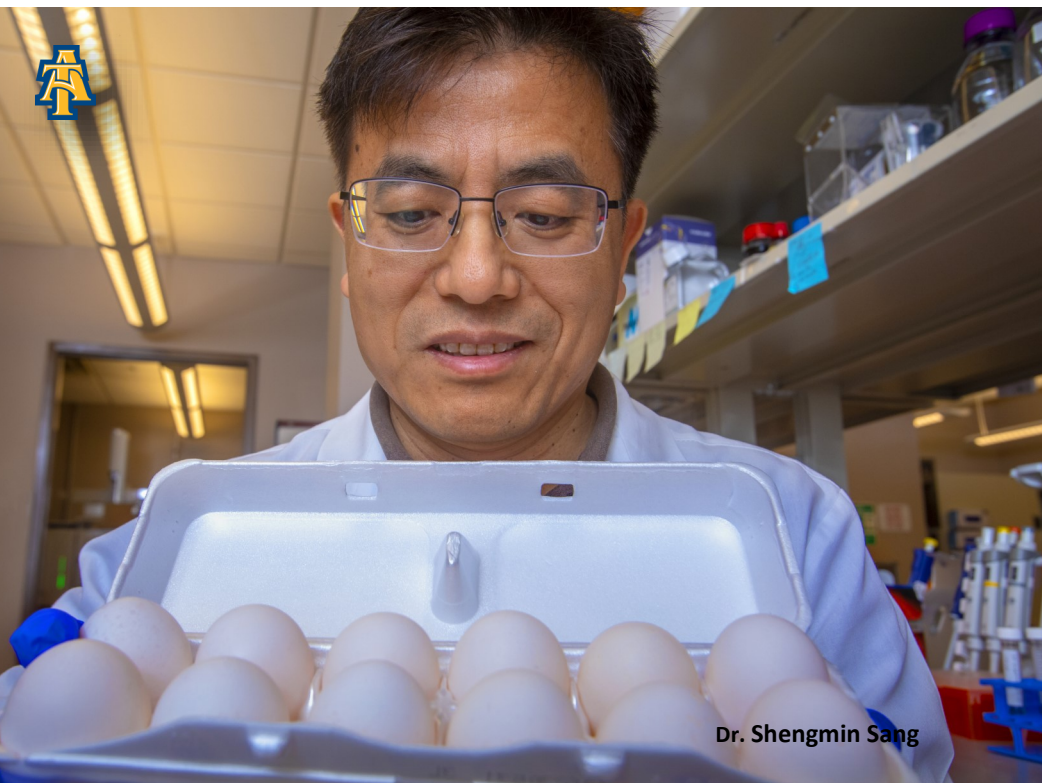
of laying hens. Sang’s team, managed by Research Associate Shuwei Zhang, Ph.D., collected eggs daily for four weeks and developed methods to quantify the concentrations of gingerols, shogaols and their major metabolites in the egg whites and yolks.

“We were able to detect these active compounds in the egg. That proved our idea is feasible,” Sang explained. The results also suggested that the bioavailability of polyphenols is a critical factor for developing polyphenol-rich functional eggs.

With a three-year, \$800,000 USDA grant from the Evans Allen Research Program, Sang is now studying whether other major dietary polyphenols are bioavailable in eggs and whether the special feed actually may improve the performance of the laying hens and egg quality.

“We may also be able to reduce the cholesterol level in the eggs, because polyphenols can reduce cholesterol levels in humans,” Sang said.

Co-principal investigator Yewande Fasina, Ph.D., associate professor in the Department of Animal Science at A&T, is assisting with the laying hen trials. Co-PI Jianmei Yu,



Dr. Shengmin Sang



McMeans wins alumni award

Orlando F. McMeans, Ph.D., chancellor-dean of the Southern University Ag Center and the College of Agricultural, Human and Environmental Sciences, has been named one of three 2025 University of Illinois Urbana-Champaign's College of Agricultural, Consumer and Environmental Sciences (ACES) Career Achievement Award recipients.

The award is presented to alumni who have demonstrated exceptional professional achievements and/or made extraordinary humanitarian contributions resulting in meaningful or life-changing impacts on a significant population.

"I am honored to be named a recipient of the prestigious University of Illinois at Urbana-Champaign College of Agricultural, Consumer and Environmental Sciences Career Achievement Award," expressed Dr. McMeans.

[Read the full article.](#)

UV light . . . From Page 2

gies," Chasteen-Ko said. "The producers care about what can make their products reasonably safe, but they also want to be able to run their businesses."

Sherman, who earned her master's of science degree in biotechnology at FVSU in 2021 and worked as a research assistant, said FVSU prepared her to take on new challenges and be open to exploring new technologies.

"I've been very grateful to see what other research is out there being done," Sherman said. "I hope I can help farmers make more money, which in the end also makes the food that we eat more affordable."

In addition to Sherman, Vera Arthur, who also earned her master's degree in biotechnology at FVSU in 2024, gained experience working at the USDA ARS Byron Research Station. She conducted research on pecan safety under the supervision of Mahapatra. She will pursue a doctor-

ate in food science at the University of Arkansas in the spring of 2025.

Bardsley commended Arthur's work and emphasized the importance of connections.

"She helped progress our research, as well as the research here at Fort Valley," Bardsley said.

This \$432,000 research project, "Enhancing Food Safety in Pecan Processing," is supported by the USDA's Research Education and Economics (No. 440662). Recent studies on pecan safety have been **published in food science** journals by Elsevier.

For more information, please contact Ms. Latasha Ford, Research Communications manager, Fort Valley State University at fordl@fvsu.edu or 478.825.4307.

Whittaker . . . From Page 1

step at a time. When the landscape shifts, we adjust—not by abandoning our values, but by responding with agility, being flexible, resilient and having a proactive mindset in times of change.

Last month, students, research directors and associate research directors participated in two impactful AI conferences hosted by Mississippi State University and Delaware State University. These events focused on the intersection of artificial intelligence with agriculture, the environment and natural resources.

Under the theme "AI in Agriculture & Natural Resources," 18 participants from 12 of the 1890 land-grant institutions engaged in insightful discussions led by academicians, data scientists, government officials and industry experts. Topics included leveraging AI to enhance outreach, applying deep learning models, phenotyping and analytics, advancing autonomous agricultural systems, remote sensing, precision agriculture, crop management and addressing the socioeconomic implications of AI in agriculture.

The AI conference, "Capital One – Delaware State University Innovation Venture," was equally impressive. It brought together

hundreds of students from across the nation, including representatives from four 1890 institutions. These students presented groundbreaking ideas in agritech, showcasing innovative solutions to some of agriculture's most pressing challenges—such as farm management, sustainable practices, ecological resilience, healthcare and global hunger. Presentations also highlighted emerging technologies like GPS-guided tractors, sprayers, combines and drones—autonomous tools that collect vital data, helping farmers optimize their investments and enhance crop productivity.

Click the flag image on page 1 to access the press release about the conference.

Overall, these two conferences will be instrumental in advancing the development of the 1890 Universities' AI Integrated Blueprint. They will help identify key thrust areas where AI can have the greatest impact on the communities we serve across the 1890 region and beyond. Additionally, the conferences served as valuable platforms for strengthening collaboration with our 1862 partners, other institutions of higher education, industry and government—laying a strong foundation for the continued success of the 1890 research community.

Sweet potatoes . . . From Page 3

sweet potato production like regions further south, it's still possible to grow them. Research efforts at CSU are focused on finding suitable varieties and techniques for Ohio's conditions.

Ohio's climate, with its cooler temperatures and shorter growing season, presents challenges for sweet potato cultivation, which are typically tropical or subtropical crops. Development of varieties better suited to a cooler climate is needed.

As a 1890 land-grant university, CSU is assisting Ohio growers to test and develop suitable sweet potato varieties for northern production. This project explores and develops alternative sweet potato lines that will be adopted for agricultural production in Ohio. This project also represents a collaboration with other 1890 universities, the USDA-ARS-PGRU, and several local agricultural operations. Public response has shown great interest in this research and its potential for Ohio agriculture.

Results

The cold tolerance response of 10 sweet potato genotypes was investigated in a climate chamber, subjected to controlled shock treatments at 5°C. The photosynthetic activity of the plants after experiencing cold shock and recovery was analyzed as a potential indicator. Plants that were able to reconstitute their photosynthetic activity after experiencing a cold shock are expected to be more cold-hardy than those that did not. Six varie-

ties were identified that are expected to be cold hardy.

The study indicates variability in the stress response of sweet potato varieties to cold shock, showing the possibility of selecting for cold-tolerant varieties using in-vitro settings favorable for Ohio climatic conditions.

These findings provide cold hardiness data for more intensive studies on the overall viability of these candidates as new hardy varieties for northern agriculture. Field testing is ongoing with trials conducted on 20 sweet potato lines. Yields ranged from 0.20 to 3.94 kg/plant. Four test varieties were found to be comparable to the commercial cultivar (control) at 2.88 kg/plant. Three test varieties outperformed the control in terms of yield, potentially offering growers a higher return on investment.

Public Value Statement

Specialty crops contribute a substantial amount to the U.S. agriculture sector, in terms of farm-level production and cash receipts, with a farm-gate value of approximately \$60 billion.

Specialty crops are often high-value crops, meaning they generate a higher value per acre compared to traditional field crops. While some specialty crops are widely produced, others are highly regional or even local, making them crucial for local economies.

However, specialty crops are significant in international trade, with high export value for many products. They can also be further processed or packaged to increase their value, creating opportunities for value-added agricultural products.

Sweet potatoes represent a particularly interesting case, since they are nutrient-rich, have a high fiber content and exhibit a low glycemic index, making them a suitable food for individuals with diabetes. They are also highly storable and can be processed into an assortment of products.

For more information, please contact , [Dr. Marcus Nagle](#).

Eggs . . . From Page 4

Ph.D., a food and nutrition researcher in A&T's Department of Family and Consumer Sciences, is overseeing the egg's sensory testing.

Sang applied for a provisional patent for his functional egg idea and plans to submit a full patent application. Patented or not, his long-term goal is to make polyphenol-rich eggs commercially available in the future.

"We are looking for an industry partner who has the same interest so we can commercialize," Sang said. "The goal would be to make the polyphenol eggs available in the supermarket. We don't want to make the egg like gold — too expensive. By using industry waste, our goal is for you to get the eggs at an affordable price."

So are Sang's eggs as yummy as those found on the market today? So far, so good on that front, too.

Sara De la Cruz, a master's student in food and nutritional sciences at A&T who works in Sang's lab, helped oversee sensory testing on the first batch of eggs in April. Sixty panelists judged the hard-boiled eggs for color, taste, texture, smell and overall liking. The preliminary results are promising, she said.

"It was fun. People were trying to guess which were the samples treated with apple and orange peels, and which were the control samples," she said. "Basically, we didn't see any statistical differences, which is good."



Image by Freepik



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1890 Land Grant Universities

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ARD Updates is published monthly by the Association of Research Directors. To suggest articles, contact Dr. Alton Thompson at athompson1@ncat.edu

135th . . . From Page 1

Building.

“Call for Submissions” form



[CALL FOR SUBMISSIONS 135th Event Library of Congress.docx](#). Once this form is completed, please send it directly to Ms. Latasha Ford, *Research Communications manager, Fort Valley State University*, at fordk@fvsu.edu.

This event will spotlight the enduring impact of the Second Morrill Act and showcase the achievements and future vision of the 1890 land-grant system. Each university will contribute a curated exhibit honoring its unique history, ongoing

work and aspirations for the next generation.

Let us gather to honor the past, celebrate the present, and shape the future—**135 years strong and rising.**

For any inquiries, feedback, or suggestions, please contact: [John Parker III](#) or [Luwanda Jenkins](#).

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Celebration

JOB OPPORTUNITIES

LINCOLN UNIVERSITY, School Of Agriculture, Environmental and Human Sciences, [Associate Director for Cooperative Research](#)

SOUTHERN UNIVERSITY SYSTEM, Department of Agricultural Sciences and Technology, [Assistant/Associate Professor of Agricultural Economics](#).

UNIVERSITY OF MARYLAND EASTERN SHORE, School of Agricultural and Natural Sciences, Department of Agriculture, Food and Resource Sciences, [Associate Professor of Agricultural Economics and Associate/Assistant Professor of Agricultural Economics](#).

WEST VIRGINIA STATE UNIVERSITY, WVSU Research & Development Corporation, [Associate Dean/Associate Director for Research](#)

LINCOLN UNIVERSITY OF MISSOURI, [Director of Agricultural Communications](#). Contact the Search Committee Chair, [Dr. Douglas LaVergne](#) with questions.

PRAIRIE VIEW A&M UNIVERSITY, College of Agriculture, Food and Natural Resources, [Director, Center for Sustainable Farms and Urban Agriculture](#).

UNIVERSITY OF MARYLAND EASTERN SHORE, School of Veterinary Medicine, [Associate Dean for Research](#), School of Veterinary Medicine, [Associate Dean for Academic and Faculty Affairs](#).

ALCORN STATE UNIVERSITY, School of Agriculture and Applied Sciences, [Alcorn State University Employment Opportunities | Chairperson, Human Development and Family Science](#)

NEW APPOINTMENTS

DR. ANTHONY GRAHAM, chancellor, the University of Arkansas at Pine Bluff, effective July 1.

DR. RONALD M. HOWELL Jr., associate dean and associate research director, College of Agriculture, Virginia State University, effective April 25.

CALENDAR

[Southern Mini Land-Grant Meeting](#) | June 9 - 12, The Graduate Hotel, Fayetteville, Arkansas

[Association of Communications Excellence \(ACE\)](#) | June 16 - 18, Hyatt Regency Milwaukee, Wisconsin



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