THE OFFICIAL MAGAZINE OF THE FAMU COLLEGE OF AGRICULTURE AND FOOD SCIENCES

CAFS MAGAZINE

SUMMER 2025

WEIGHING THE COST$

HOW PROPOSED TARIFFS COULD RESHAPE FLORIDA AGRICULTURE

HEALTH

- UNLOCKING THE GUT
- BOOSTING POWER OF MUSCADINE GRAPES

OUTREACH

- COMMUNITY GARDEN HOSTS VETERANS
- FOR HEALING AND CONNECTION

RESEARCH

- ARTIFICIAL INTELLIGENCE
- DIGITAL PLANT BREEDING

STUDENT SUCCESS

- 4-H STUDENTS IGNITE PASSIONS
- DISCOVER FUTURES IN WASHINGTON D.C.

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MESSAGE FROM THE dean

G. DALE WESSON, PH.D., PE

As we present the 2025 edition of CAFS Magazine, I am proud to reflect on the amazing work taking place within the College of Agriculture and Food Sciences at Florida A&M University. From groundbreaking research and community-focused extension to hands-on student engagement and academic excellence, this past year has been one of growth, impact and transformation.

At CAFS, we believe we put the A in FAMU—not just in name, but in action. Agriculture is the foundation of our college's mission and a vital part of Florida A&M University's land-grant legacy. Whether advancing climate-smart farming, food security, animal sciences or biotechnology, we are committed to solutions that serve both rural and urban communities in Florida and beyond.

Our faculty continue to lead with innovation and integrity, mentoring students while producing research that addresses some of the most pressing challenges of our time. CAFS students, in turn, are rising to the occasion—conducting fieldwork, contributing to global discussions and building careers rooted in service and science.

As Director of Land-grant Programs, I am especially proud of the work being done through our Cooperative Extension programs. This year, we expanded outreach efforts in youth development, nutrition education, sustainable agriculture and family wellness across the Big Bend region. These initiatives reflect our continued dedication to community-centered impact.

We are also growing globally building partnerships and exchange opportunities that broaden perspectives and equip our students with the tools to lead in a connected world. From international internships to regional innovation hubs, we are ensuring that CAFS remains at the forefront of agricultural education and leadership.

To our alumni, donors and industry partners: thank you for your unwavering support. You help make it possible for us to create meaningful opportunities for the next generation of agricultural professionals and change-makers.

G. Dale Wesson, Ph.D., PE
Dean and Director of Land-grant Programs
FAMU College of Agriculture and Food Sciences

FAMU COLLEGE OF AGRICULTURE + FOOD SCIENCES
FLORIDA AGRICULTURAL AND MECHANICAL UNIVERSITY

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featured

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WASHINGTON, D.C.

"The grant will permit me to study the use of more environmentally friendly and sustainable methods, such as biopesticides to control this pest, as the conventional methods use toxic chemicals, which can have a negative impact on our environment."

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EMPOWERING MINORITY STUDENTS IN PEST MANAGEMENT & FOOD SECURITY

It is no secret that there is a common stereotype among the youth regarding agriculture. Their current image is that of people working in the field, an old man dressed in overalls with a plow, a job done by poor people with a low level of education, or a combination of all of the above. As a matter-

more...

FAMU'S CAFS PARTNERS WITH ACUE

ENHANCING TEACHING AND STUDENT SUCCESS

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FAMU 4-H STUDENTS IGNITE PASSIONS

+ DISCOVER FUTURES IN WASHINGTON D.C.

By Sabrina Hayes Ph.D.

The energy in Washington D.C. during the Ignite by 4-H conference in March 2025 was palpable, a vibrant hum of teenage enthusiasm and the promise of discovery hanging in the air. For a special delegation of 4-H students from Florida, the journey to the nation's capital represented more than just a trip; it was an opportunity to spark their passions and envision their futures. These bright young minds hailed from diverse corners of the Sunshine State, representing Tallahassee Collegiate Academy, FAMU DRS (Florida A&M University Developmental Research School), and West Palm Beach, a testament to the widespread impact and appeal of FAMU 4-H. The Ignite by 4-H conference, a national summit, serves as a catalyst for teenagers, helping them uncover their "spark" in a variety of fields, including the ever-evolving worlds of STEM, the foundational principles of Agriscience, the importance of Healthy Living, and the practicalities of Career Readiness. The very notion of finding that inner drive, that unique interest that sets one alight, resonated deeply with these young Floridians as they embarked on this ultimate teen experience.

The Ignite by 4-H conference was a whirlwind of activity, a dynamic hub of inspiration and engagement held at the prestigious Westin Washington, DC Downtown Hotel. The atmosphere was electric, buzzing with the collective energy of teenagers from across the nation, all eager to learn and connect. Days were packed with a diverse array of opportunities designed to cater to a multitude of interests. Inspiring speakers took to the stage, sharing their journeys and insights, while hands-on workshops provided practical, immersive learning experiences. Beyond the confines of the hotel, attendees ventured out for off-site experiences, offering real-world perspectives and a chance to explore the vibrant D.C. area. For those contemplating their future paths, the conference offered valuable avenues for career exploration, providing glimpses into various industries and professions. Perhaps one of the most significant aspects of the event was the chance for these Florida students to connect and network with fellow 4-H members from every corner of the United States. This national interaction fostered a sense of community and allowed for the exchange of ideas and experiences, broadening their

horizons beyond their local clubs and schools. The entire summit was framed as a crucial step in the "beyond ready" journey, a concept that emphasizes the development of resilience, adaptability, and preparedness for whatever life may hold. This focus on future readiness underscores the core mission of 4-H, empowering young people to thrive in an ever-changing world.

Among the myriad of engaging workshops offered at Ignite, one in particular captured the attention and imagination of many: a deep dive into the fascinating field of forensic entomology. This specialized session, with its intriguing blend of science and investigation, offered a unique opportunity to explore the world of insects and their role in legal contexts. Leading this captivating workshop were: Dr. Hayes, Crystalgale Hunter, Thailer Jones, and Tavia Gordon. Their collective expertise promised an engaging and informative session for the young attendees. The workshop peeled back the layers of forensic entomology, revealing how the study of insects can provide crucial information in a variety of investigations. Participants delved into the intricate life cycles of various insects, understanding how their development and behavior are closely linked to the process of decomposition. This knowledge forms the bedrock of determining crucial details in legal cases. The learning went beyond theory, with hands-on demonstrations showcasing the practical techniques used to collect insect evidence at a scene. Understanding the proper methods for collecting and preserving these tiny clues is paramount in ensuring their scientific value. A key component of the workshop involved learning how to identify insects of forensic importance. Different species arrive at different times during decomposition, and the ability to accurately identify them is essential for drawing accurate conclusions. Furthermore, the workshop illuminated the specific information that insects can provide in investigations, such as estimating the time of death and potentially even indicating the location of an incident. This practical application of entomological knowledge highlighted the real-world significance of this field.

The expertise of the workshop leaders enriched the learning experience immensely. Dr. Sabrina Hayes serves as a 4-H Extension Agent and the club and volunteer coordinator at FAMU. Her role in developing an entomology curriculum for younger students and her involvement in FAMU's Entomology Insect Science Summer Camp underscore her dedication to making complex scientific concepts accessible and engaging for youth. Dr. Hayes also holds a Master of Science in Entomology from FAMU, with research focused on mosquitocidal bacteria , bringing a strong academic foundation to the workshop. Crystalgale Hunter, a 4-H Program Assistant, has actively guided students in entomology programs and has been involved in various FAMU 4-H initiatives. Her hands-on experience in program delivery likely provided valuable support during the workshop. Thailer Jones, listed as a Program Assistant at the FAMU booth during the Florida State Fair , demonstrates an active involvement in

FAMU Extension programs, suggesting a passion for youth development and outreach. Tavia Gordon, an Urban Extension Agent at FAMU , focuses on community programming that includes urban agriculture. Her background in Environmental Science and her involvement in entomology-related research, including receiving a FAMU entomology student scholarship and co-authoring publications in the field , provided a unique perspective to the workshop.

Beyond the enriching workshops, the Ignite by 4-H conference offered glimpses into the rich tapestry of Washington D.C.. These off-site experiences provided a valuable complement to the formal sessions, allowing the students to step outside the hotel and immerse themselves in the nation's capital. Visits to iconic national monuments, world-renowned museums, and other cultural landmarks likely broadened their understanding of history, civics, and the diverse fabric of American society. These explorations would have added another layer to their "ultimate teen experience," transforming the conference into a holistic journey of learning and discovery.

A significant component of the Ignite by 4-H summit is the "Lead to Change" campaign. This empowering initiative encourages young participants to identify issues within their own communities and develop innovative proposals to address them. The conference provides a platform for these budding changemakers to hone their leadership skills, foster civic responsibility, and cultivate a sense of agency. Students work individually or collaboratively, brainstorming solutions to real-world problems they observe in their hometowns. This process not only encourages critical thinking and problem-solving but also instills a sense of ownership and responsibility towards their communities. Adding a tangible incentive, the National 4-H Foundation offers the opportunity for students to apply for grants to help bring their "Lead to Change" projects to fruition. This potential for real-world impact transforms the conference experience from a passive learning opportunity into a launchpad for active community engagement.

The knowledge and skills acquired during this workshop, combined with the broader opportunities offered by the

Ignite summit, have undoubtedly broadened the horizons of these young Floridians. Programs like 4-H and the Ignite conference play a vital role in shaping the next generation of leaders, providing them with the tools, inspiration, and connections they need to thrive. As these students return to their communities, they carry with them not just memories of their time in the nation's capital, but also a renewed sense of purpose and the ignited spark of future possibilities, ready to make their own positive impact on the world. ■

ENGINEERING A SMARTER FUTURE

How Jingqiu Chen, Ph.D., is Using AI to Advance Climate-Smart Agriculture

By Janeil Jackson and Jingqui Chen,PhD.

At the intersection of cutting-edge technology and sustainable agriculture, **Jingqiu Chen, Ph.D.**, assistant professor of biological systems engineering at Florida A&M University, is planting seeds of innovation for the next generation of farmers, researchers and environmental stewards.

As climate change continues to challenge food production systems worldwide, Chen is leading efforts to develop practical, science-based solutions that help farmers adapt, optimize yields and reduce their environmental footprint—all while equipping students with the tools to lead in a rapidly evolving field.

"Climate-smart agriculture is about resilience, sustainability and innovation," Chen said. "We want to ensure that farming can continue to thrive—even as the climate shifts—by using the best technology available to support both productivity and the environment."

At the core of Chen's work is artificial intelligence (AI) and machine learning (ML), which she applies through a variety of research, teaching and extension programs. Her lab focuses on digital agriculture systems, hydrological modeling, and plant phenotyping technologies, often powered by IoT sensors, edge computing and remote sensing tools to collect near real-time data on crop health, water use and disease risks.

One of her most ambitious projects includes the development of the first precision engineering system for muscadine grape vineyards at the FAMU Center for Viticulture and Small Fruit Research. The system uses real-time data from AI-powered sensors to manage water resources and detect early signs of plant stress.

"These tools give us a better view of what's happening in the field so we can make smarter, faster decisions," Chen said. "That leads to better yields, more efficient resource use, and fewer inputs like water and chemicals—especially important in times of drought or disease pressure."

A COLLABORATIVE APPROACH TO INNOVATION

The viticulture partnership is central to the Center's mission. Violeta M. Tsolova, Ph.D., professor and director of the Center for Viticulture & Small Fruit Research, sees Chen's work as a leap forward for sustainable specialty crop management.

"Dr. Chen brings exceptional technological innovation to the vineyard," Tsolova said. "Her integration of precision systems into muscadine production helps us preserve resources, reduce losses and lead the industry in applying digital agriculture tools to specialty crops."

Chen's approach spans teaching, research and extension—hallmarks of FAMU's land-grant mission. In the classroom, she integrates real-world applications into courses on digital agriculture and natural resources conservation engineering, preparing students for careers in sustainable agriculture and ag-tech.

Climate-smart agriculture is about resilience, sustainability and innovation.

Jingqiu Chen, Ph.D.
Assistant Professor, FAMU CAFS

Her work is also fueled by major research grants from agencies like USDA and NSF, including a NSF-funded project called DAPPT, which focuses on developing talent pipelines and hands-on training for students in plant phenotyping and digital agriculture. Many of her student researchers come from underrepresented communities and two-year colleges, including Tallahassee State College.

"We're training the next generation of ag engineers—giving them real experience in a field where digital tools and data are reshaping how we feed the world," she said.

Through FAMU's extension programs, Chen connects her lab's innovations with local farmers, growers and agricultural businesses. She hosts workshops, field demonstrations, and community outreach events—including the university's grape harvest festival—making sure that her research reaches those who need it most.

SUPPORTING FAMU'S LAND-GRANT MISSION

G. Dale Wesson, Ph.D., dean of CAFS and director of land-grant programs, said Chen's work reflects the best of what FAMU aims to deliver as a leading 1890 land-grant institution.

"Dr. Chen's research embodies the power of combining innovation with impact," Wesson said. "She's advancing sustainability while empowering students with skills that are vital to the future of agriculture. That's the land-grant mission in action."

MEETING THE GOALS OF CLIMATE-SMART AGRICULTURE

Chen's work directly supports the three core goals of climate-smart agriculture:

- Increasing yields through precise monitoring and data-driven management
- Improving resilience to environmental variability with predictive modeling
- Reducing environmental impacts through smarter use of inputs and improved water conservation

By using AI and ML to process field data on grape canopy cover, soil moisture and disease stress, her team can generate real-time insights and automate decisions—cutting down on waste and protecting natural resources.

"AI lets us process massive amounts of data quickly, which is a game-changer," Chen said. "The more we understand what's happening in our crops, the better we can adapt to changing conditions."

EMPOWERING THE NEXT GENERATION

For Chen, the most rewarding part of her work isn't just the technology—it's the people. She's passionate about engaging students, especially those from underrepresented backgrounds, and building equity in the agriculture sector.

"Our work is rooted in education and access," she said. "We want our students—and our farmers—to feel empowered by this technology, not intimidated by it."

As climate challenges grow more complex, Dr. Chen's vision remains clear: connect innovation with impact, train the next generation of leaders, and ensure that agriculture continues to be a sustainable and inclusive force for good.

> **We're training the next generation of ag engineers—giving them real experience in a field where digital tools and data are reshaping how we feed the world.**

Jingqiu Chen, Ph.D.
Assistant Professor, FAMU CAFS

Building the Pipeline

EMPOWERING MINORITY STUDENTS Pest Management & Food Security

By Saundra Wheeler, FAMU Entomology NextGen Academic Programs Coordinator

At a time when global challenges in food security, pest control, and environmental sustainability demand innovative solutions, our mission is clear: to build a strong, diverse pipeline of future scientists and leaders in the field of entomology. Through targeted outreach, hands-on education, and powerful partnerships, we're creating pathways for minority students to discover, explore, and thrive in pest management and agricultural science.

CULTIVATING

Cultivating Interest Early: Insect Science Clubs and K-12 Engagement

We believe that early exposure to science sparks lifelong curiosity. That's why we launched Insect Science Clubs in K–12 schools across Leon County. These clubs engage students with fun, inquiry-based learning activities that introduce them to the fascinating world of insects and their critical role in agriculture and public health.

From observing insect life cycles to learning how pest management supports food security, students gain a foundation in entomological concepts long before they choose a college major—planting seeds for future STEM careers.

COMMUNITY

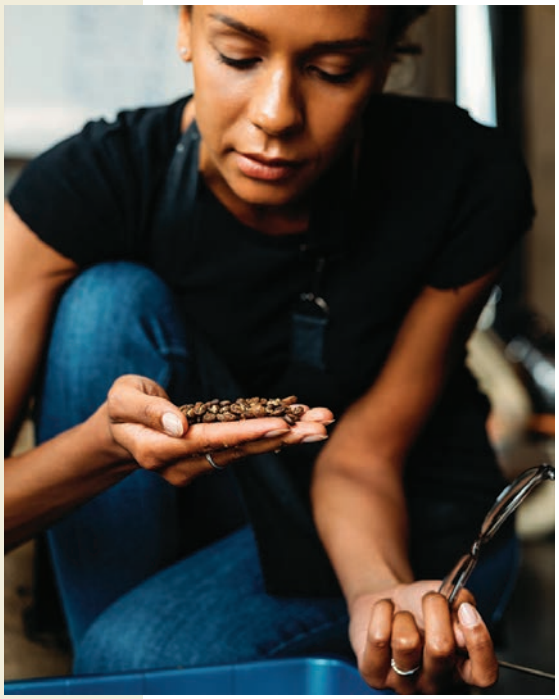
Community Connections Through Festivals and STEM Events

We brought insect science out of the lab and into the community through interactive displays and demonstrations at several high-profile events, including:

- Monarch Festival
- Tallahassee Science Festival
- Tallahassee Women in STEM Day
- FAMU STEM Day
- FAMU Earth Day
- FAMU Ag Day
- Gilchrist Elementary STEM Day
- FAMU Change of Major Fair

These events reached a broad audience—from elementary schoolers to undergraduates—giving participants a hands-on introduction to entomology through live insects, educational games, and displays about pest management, insect ecology, and career opportunities in the field.

STRENGTHENING



Strengthening Partnerships and Career Pathways

In collaboration with Rickards High School, FAMU DRS, and Tallahassee State College, we conducted Lunch and Learn Workshops that introduced high school and college students to entomology and agricultural science. These sessions focused not only on career pathways in pest management and food systems, but also on professional development, including resume building and research opportunities.

CELEBRATING

Celebrating Insect Science: Entomology Weeks

To deepen campus engagement, we hosted Fall and Spring Entomology/Insect Science Weeks. These special weeks featured live demonstrations and informational sessions that introduced the FAMU community to diverse areas of study, including:

- Medical and Veterinary Entomology
- Forensic Entomology
- Urban Entomology
- Aquatic Entomology
- Integrated Pest Management

Students interacted with live mosquito colonies, learned about our course offerings, and explored our current research projects—gaining a new appreciation for the complexity and importance of insect science.

“Passport to Entomology”: Interactive Exploration Through Collaboration

We also welcomed 47 students from FAMU DRS, Gilchrist Elementary, and Gadsden County High School for a special Entomology Open House and Screening, where they viewed a documentary highlighting insect behavior, biodiversity, and their impact on agriculture and ecosystems.

In partnership with FAMU 4-H, the FAMU Center for Biological Control, HomeTeam Pest Defense, and Leon County Mosquito Control, we hosted a unique educational event featuring 10 interactive learning stations. Students received an Entomology Passport and collected stamps at each station as they explored:

- Beekeeping practices
- Insect life cycles
- Mosquito identification and control
- Termite trap setups
- Graduate research projects
- Live insect interactions

These dynamic stations combined learning with fun, helping students connect science to real-world applications and giving them an empowering hands-on experience.

PASSPORT

SPOTLIGHT

Student Spotlight: A Scholar’s Success

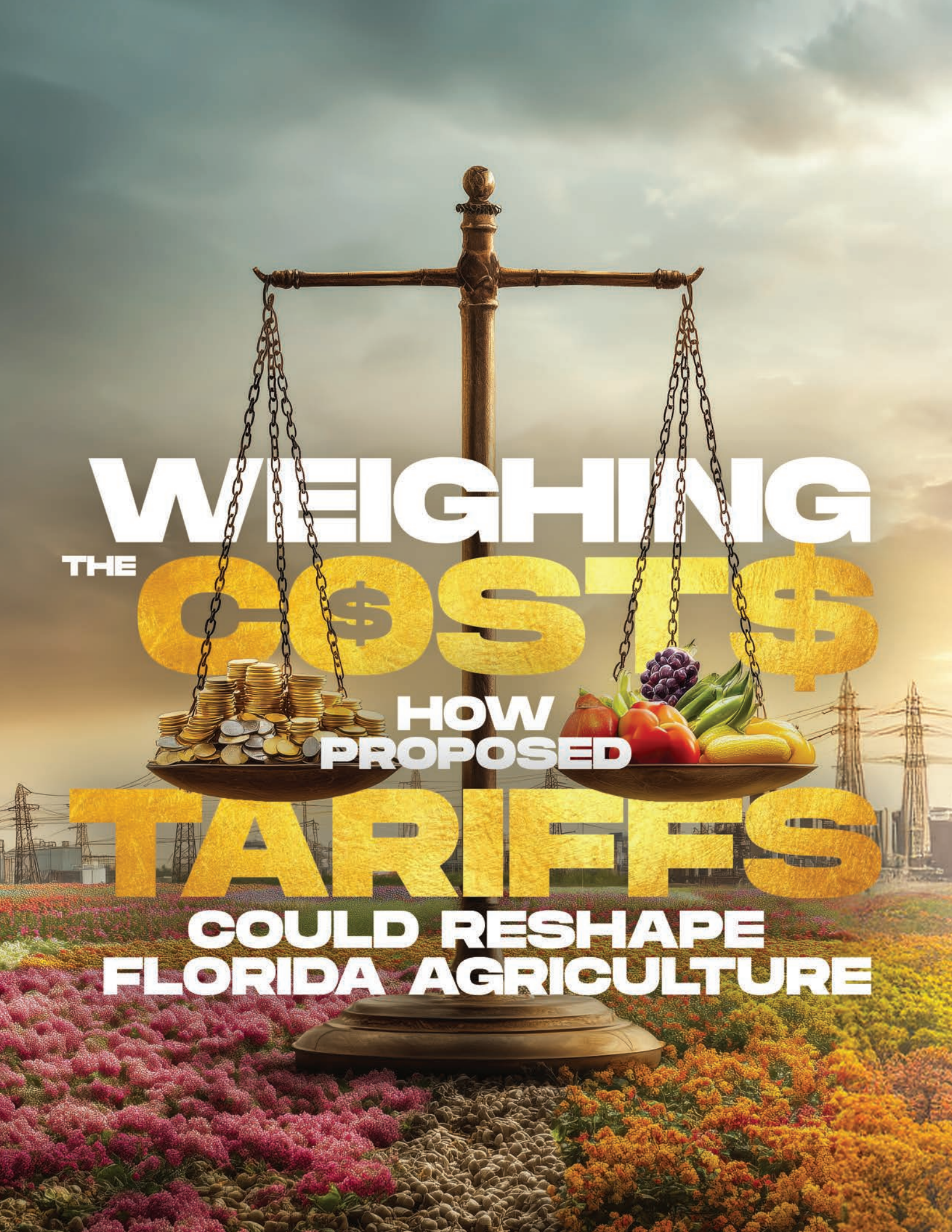
We are thrilled to celebrate one of our own—Ms. Skylar Jonyse Fletcher, a FAMU Entomology NextGen Scholar—who successfully defended her M.S. thesis titled “Packaging and Release Protocols to Enhance the Effectiveness of the Megamelus scutellaris Inundative Biological Control Program” on April 11th, 2025. She will proudly graduate in Spring 2025, exemplifying the excellence and promise we aim to foster through our programs.

THE FUTURE

The Future Is Crawling With Opportunity

Our commitment to education, engagement, and equity in STEM is more than a mission—it’s a movement. By cultivating early interest, providing enriching experiences, and building robust academic and professional pathways, we are not just filling the pipeline—we're redefining what it looks like.

Together with our partners and our passionate team of scholars, educators, and community leaders, we are ensuring that the future of pest management and food security is diverse, innovative, and inclusive.


WEIGHING
THE
CST
HOW
PROPOSED
TARIFFS
COULD RESHAPE
FLORIDA AGRICULTURE

By Janeil Jackson

As the federal government considers a new round of tariffs targeting agricultural imports and exports, Florida's farmers and agribusinesses are bracing for potential disruptions to a delicate economic ecosystem. While the intent of such tariffs is often to protect domestic producers and level the international playing field, the reality for many in Florida's agriculture sector—especially small and midsize operations—could be far more complex.

The College of Agriculture and Food Sciences (CAFS) at Florida A&M University is taking a close look at how these proposed changes may impact the state's producers, supply chains, and long-term food security.

TARIFFS AND TRADE:
The Stakes for Florida Agriculture

Florida is a national leader in the production of citrus, tomatoes, bell peppers, sugarcane, and ornamental plants. It is also one of the most trade-exposed agricultural states, relying heavily on both imports for supply chain inputs and exports for revenue.

"Florida's agricultural economy is incredibly diverse but also highly vulnerable to trade disruptions," said G. Dale Wesson, Ph.D., CAFS Dean and Director of Land-Grant Programs. "Tariffs could have a dual effect—raising the cost of imported equipment and fertilizers while also risking retaliatory tariffs on our exports."

These concerns are particularly acute for smallholder and minority-owned farms, which may lack the financial cushion to absorb sudden cost increases.

THE AGRIBUSINESS PERSPECTIVE:
Market Uncertainty and Cost Pass-Throughs

Daniel Solis, Ph.D., Associate Professor and Agribusiness Program Leader at FAMU, emphasized the economic challenges that tariffs introduce for producers and consumers alike.

"Tariffs function as a tax. While they may be designed to protect U.S. growers from foreign competition, they often result in higher prices for inputs like seeds, machinery, and packaging materials," said Dr. Solis. "Florida producers may have to pass these costs along to consumers, which can reduce demand, especially for price-sensitive crops like fresh fruits and vegetables."

Solis also noted that market uncertainty makes planning difficult for producers already contending with labor shortages and climate-related threats.

"Business decisions in agriculture are made months in advance. Uncertainty around trade policy complicates investment, planting, and harvest schedules," he added.

Environmental Impacts:
Tariffs and Sustainable Agriculture

Trade policies don't only affect economic outcomes—they also intersect with environmental priorities. Odemari Mbuya, Ph.D., Professor and Director of FAMU's Center for Water Resources, pointed out that tariffs could shift production practices in ways that affect water use and land sustainability.

"If tariffs make it more expensive to import certain sustainable farming materials or technologies, producers may revert to cheaper, less sustainable methods," said Mbuya. "This could have long-term consequences for soil health, water quality, and carbon emissions in Florida's farming communities."
He further noted that international collaboration in environmental research could be jeopardized if tariffs strain diplomatic relations and academic exchange agreements.

Looking Ahead:
The Role of Land-Grant Institutions

In the face of policy shifts, land-grant institutions like FAMU play a critical role in informing and supporting agricultural communities.

"Our Extension services are already engaging producers to help them understand and prepare for these possible changes," said Dean Wesson. "Through research, outreach, and education, CAFS remains committed to providing timely, science-based insights that help Florida's agriculture sector adapt and thrive."

CAFS is also convening a stakeholder roundtable this summer to bring together economists, environmental scientists, farmers, and policymakers for a deeper analysis of the proposed tariffs and their implications for the region.

CONCLUSION:
A Balancing Act

While tariffs are often framed in binary terms—protective versus punitive—their actual impact is far more nuanced. For Florida's agriculture sector, the outcomes will depend on how the policies are structured, the extent of international retaliation, and the ability of farmers to innovate in response.

"Trade policy is never just about trade—it touches food security, environmental stewardship, and the economic vitality of rural communities," said Dr. Solis. "Our job is to make sure Florida's farmers have the information and tools they need to navigate whatever comes next."

As the debate over tariffs continues to unfold, CAFS will remain at the forefront of research, advocacy, and education—ensuring that Florida's agricultural voice is heard, and its future is protected.

> **Our job is to make sure Florida's farmers have the information and tools they need to navigate whatever comes next.**

Daniel Solis, Ph.D.
Associate Professor and Agribusiness
Program Leader, FAMU CAFS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FAMU HOSTS Five International Women Researchers FOR USDA, FAS PROGRAM

By Janeil Jackson

TALLAHASSEE, Fla. — Florida A&M University's (FAMU) College of Agriculture and Food Sciences (CAFS) is opening its doors to five international researchers as part of the U.S. Department of Agriculture's Foreign Agricultural Service Scientific Exchange Program. This unique program is dedicated to improving sustainable food systems by empowering women scientists to embrace advances in science and technology. FAMU was selected as one of five participating institutions alongside the University of California, Davis; Texas A&M University; North Carolina State University; and the University of Missouri. FAMU is the only Historically Black College and University (HBCU) to be included.

The theme for this year, "Women in Sustainable Food Systems," has brought 28 female agricultural researchers and scientists from 21 countries across Africa, South Asia, Latin America, and the Caribbean to the United States. At FAMU, the five researchers are: Alhafizah Shafia Tehseen Gul, associate professor at the University of Agriculture in Faisalabad, Pakistan; Armin Bhuiya, senior scientific officer at the Bangladesh Rice Research Institute; Intan Nadhirah Binti Masri, senior research officer at the Malaysian Agricultural Research and Development Institute;

Othonpurev Sukhbaatar, head of the Chemistry Department at the Mongolian University of Life Science; and Patricia Tello Reategui, senior environmental coordinator at Technoservice Inc. in Peru.

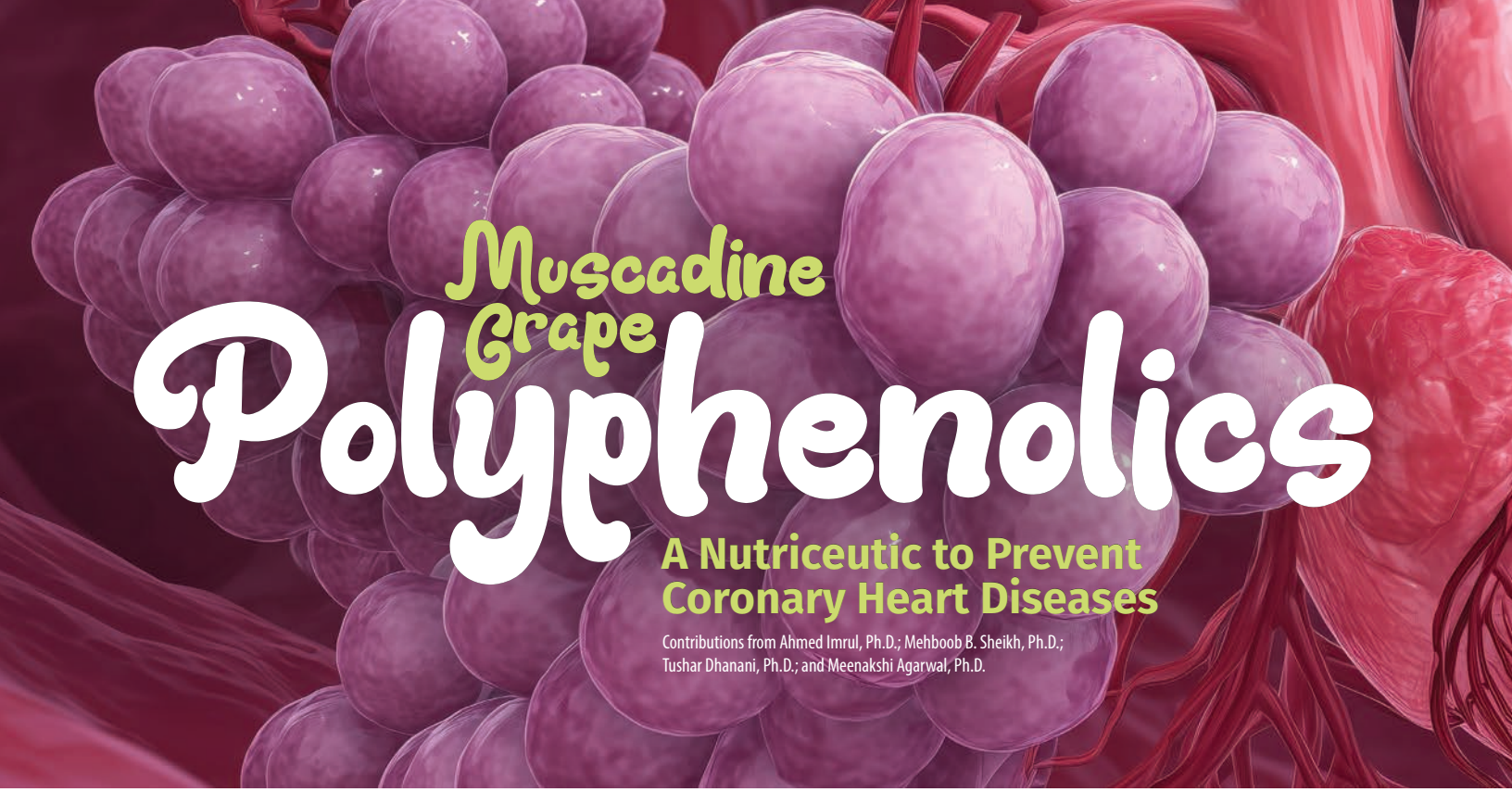
The fellows will spend 12 weeks, from Sept. 17 to Dec. 10, working closely with FAMU scientists, gaining hands-on experience in sustainable agricultural practices and research methods. Once they complete the program, they will return to their respective home countries to apply their new skills and knowledge into practice to sustain production systems and to impart training to the stakeholders and clientele. One year later, program mentors will visit each fellow in their home country to evaluate the outcomes of their training and offer further support as needed to develop new collaborative projects of mutual interests.

Ly Nguyen, Ph.D., Principal Investigator for the grant and assistant professor at FAMU, emphasized the significance of empowering women in agriculture. "These women are pioneers in their fields. By equipping them with advanced skills, we are fostering a network of leaders who will drive change and innovation in global food systems," she said.

"This program is a valuable opportunity for FAMU to build a global partnership and contribute to agricultural sustainability worldwide," said Muhammad Haseeb, Ph.D., associate professor of entomology and Co-Principal Investigator of the project. "We are not just sharing knowledge or soft skills but also learning from these exceptional researchers."

The USDA FAS Scientific Exchange Program aims to educate new generations of agricultural scientists to promote trade, trade policy, trade capacity building, and food security. Earlier, Ms. Harriet Paul, director of CAFS International Programs, has also played a role in in helping facilitate the visiting fellows across the globe.

G. Dale Wesson, Ph.D., dean of CAFS and director of land-grant programs at FAMU, expressed his pride in hosting the USDA, FAS fellows. "FAMU's participation emphasizes our commitment to advancing agricultural research and fostering a diverse scientific community. We are honored to support these accomplished women as they lead the charge for more sustainable and resilient food systems globally." ■



Muscadine Grape Polyphenolics

A Nutriceutic to Prevent Coronary Heart Diseases

Contributions from Ahmed Imrul, Ph.D.; Mehboob B. Sheikh, Ph.D.; Tushar Dhanani, Ph.D.; and Meenakshi Agarwal, Ph.D.

Cardiovascular diseases (CVDs) remain the leading cause of death worldwide, claiming an estimated 17.9 million lives annually, according to the World Health Organization. Among the key contributors to heart disease are hypertension, elevated cholesterol levels, and arterial inflammation—all of which are modifiable through diet and lifestyle. Increasingly, scientists are looking toward natural compounds known as polyphenols for their potential to support cardiovascular health.

Our recent research highlights the muscadine grape (Vitis rotundifolia) as a rich and promising source of these beneficial polyphenols, offering powerful support for heart health and the prevention of coronary artery disease.

Natural Defense Against Heart Disease

CVD encompasses a wide range of disorders affecting the heart and blood vessels, including atherosclerosis, hypertension, stroke, coronary artery disease and rheumatic heart disease. Elevated levels of low-density lipoprotein cholesterol (LDL-C), also known as "bad cholesterol," are closely linked to increased CVD risk, while high-density lipoprotein cholesterol (HDL-C), or "good cholesterol," offers a protective effect.

Numerous epidemiological and clinical studies have found that polyphenol-rich diets can significantly reduce the risk of cardiovascular events. These plant-based compounds have been shown to influence cholesterol metabolism, inhibit platelet aggregation, reduce inflammation and oxidative stress, and improve blood vessel function—all factors that play a central role in cardiovascular health.

The Grape Advantage

Grapes, particularly muscadine grapes, are nutritional powerhouses containing over 500 bioactive compounds, including anthocyanins, flavonols, flavanols, phenolic acids, procyanidins, vitamin E, and linoleic acid. These compounds are known for their antioxidant, anti-aging, anticancer and cardioprotective effects.

Muscadine grape polyphenols have demonstrated the ability to:

- Increase nitric oxide bioavailability
- Improve insulin sensitivity
- Enhance antioxidant defenses
- Reduce arterial blood pressure
- Promote endothelium-dependent relaxation

These findings gained momentum in the wake of the "French Paradox"—the observation that French populations experience low rates of heart disease despite diets high in saturated fat, attributed in part to their regular consumption of red wine rich in grape polyphenols.

A Multidisciplinary Approach

To build on this foundation, our team has employed a multidisciplinary, nutrigenomics-based approach to evaluate the cardiovascular benefits of muscadine grape phytochemicals. Using cutting-edge molecular, cellular and biochemical tools, we are exploring how these compounds influence cholesterol biosynthesis, transport and metabolism.

Our studies focus on:

- The regulation of LDL-C and HDL-C levels
- The expression of cholesterol-related genes
- The activity of LDL receptors
- The composition and uptake of cholesterol in cells
- The impact on redox enzymes and inflammatory pathways

Through this research, we aim to identify specific combinations of muscadine polyphenolics that can reduce or prevent known CVD risk factors.

Looking Ahead

Preliminary results indicate that muscadine grape polyphenolics may play a significant role in reducing cardiac risk by modulating cholesterol synthesis, improving lipid profiles and mitigating inflammation. These findings support the development of novel, grape-based therapeutics and functional foods targeting heart health.

As research continues, the goal is to provide a clearer understanding of how muscadine grapes interact with molecular pathways related to cardiovascular disease. This work may eventually lead to natural, effective solutions to prevent or manage CVD and improve overall well-being.

We extend our sincere gratitude to the Viticulture Advisory Council (VAC) for their continued support of this important research.

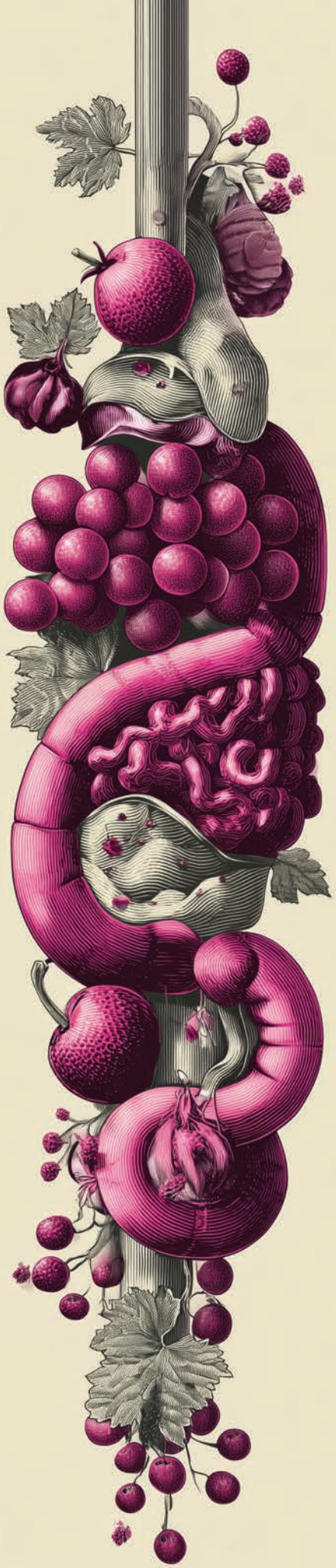
Muscadine (Red)

Muscadine (White)

Triglyceride, LDL-C and HDL-cholesterol quantification in Caco-2 cell in the four Muscadine genotypes. Error bars represent SD values (n=4). Note: decreased Triacylglycerol and LDL-C levels and increased HDL levels following muscadine berry extract treatment.

Unlocking the Gut–
Boosting Power of Muscadine Grapes: Meet the Microbial Allies Inside

By Meenakshi Agarwal, Ph.D. and Mehboob Sheikh, Ph.D.



Muscadine grapes (Vitis rotundifolia) have long been celebrated for their bold flavor, high antioxidant content and remarkable resilience in the vineyard. But beyond their thick skin and juicy pulp lies a microscopic world with major implications for both plant health—and potentially, human wellness.

In a recent study, we uncovered a surprisingly diverse community of **bacterial endophytes** living symbiotically inside muscadine grape berries. These microscopic allies may do more than help grapes thrive—they could also offer benefits for our own digestive health.

Tiny Tenants with Big Potential

Endophytes are beneficial bacteria that live inside plants without causing harm. In fact, many of them support plant growth by improving nutrient absorption, enhancing disease resistance and helping plants adapt to environmental stress.

What's even more exciting? Some of these same bacteria may survive the harsh conditions of the human digestive system—meaning they could offer **probiotic benefits** when consumed.

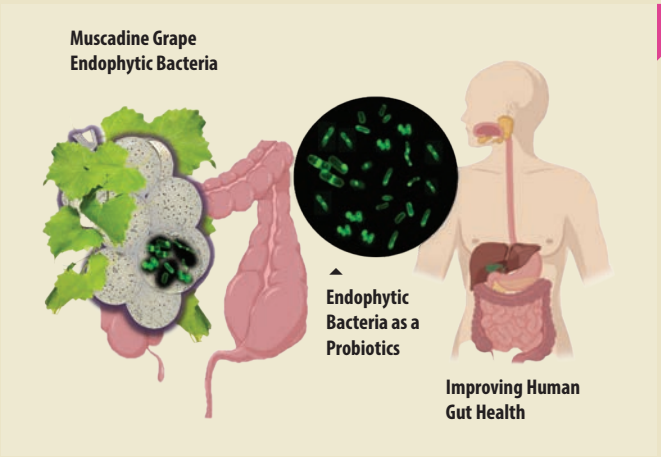


Figure:
Potential function of muscadine grape' endophytic bacteria as a probiotic and improving human gut health.

In our research, we isolated and identified six bacterial genera from muscadine grapes: **Bacillus, Staphylococcus, Paenibacillus, Calidifontibacillus, Curtobacterium and Tatumella.**

One strain stood out: ***Paenibacillus cineris.*** This bacterium not only showed no signs of harmful behavior, but also demonstrated an impressive ability to survive simulated gut conditions—making it a promising candidate for future probiotic development.

Nature's Probiotics, Grown on the Vine

The idea of sourcing probiotics directly from edible fruits like muscadines presents an exciting shift. While most traditional probiotics are derived from dairy, plant-based microbes may offer **distinct health benefits** and align more closely with sustainability and dietary diversity.

With more consumers seeking natural and functional foods to support gut health, these grape-dwelling microbes could shape the next wave of wellness innovations—from fermented grape drinks to functional snacks infused with native microbiota.

A New Frontier in Functional Foods

Our findings not only broaden our understanding of the **grape microbiome**, but also point toward a future where your favorite fruit could double as a source of **gut-friendly bacteria.**

As science continues to explore these endophytic communities, muscadine grapes—and their microbial companions—may soon have a starring role in both the vineyard and the supplement aisle.

Reference: Agarwal, M. and Sheikh, M.B., 2025. Isolation and Functional Characterization of Endophytic Bacteria from Muscadine Grape Berries: A Microbial Treasure Trove. Cells, 14(5), p.369.

FAMU's College of Agriculture and Food Sciences Partners with ACUE to Enhance Teaching and Student Success

By Janeil Jackson

Beginning in Spring 2024, the College of Agriculture and Food Sciences (CAFS) at Florida A&M University (FAMU) launched a partnership with the **Association of College and University Educators (ACUE)**, a leader in student success through effective instruction. This collaboration is designed to equip faculty with evidence-based practices that enhance student persistence, completion rates, and faculty confidence, all while supporting FAMU's strategic goals. Faculty who complete the comprehensive ACUE course will earn certification in the ACUE Effective Teaching Practices Framework, the only nationally recognized collegiate teaching certification endorsed by the American Council on Education (ACE).

"This partnership with ACUE underscores CAFS' dedication to advancing student success and academic excellence," said G. Dale Wesson, Ph.D., dean of the College of Agriculture and Food Sciences and director of land-grant programs. "By empowering our faculty with research-based teaching strategies, we are not only enriching the quality of our instruction but also ensuring our students have the resources to excel academically and professionally. This aligns directly with our goals to strengthen retention, increase student engagement, and enhance our overall institutional impact."

Neil James, associate dean of academic programs, added, "FAMU's College of Agriculture and Food Sciences is uniquely positioned to drive impactful educational outcomes. Through ACUE, our faculty are equipped to implement proven practices that foster an inclusive, supportive learning environment, which is critical for our students' success."

Participating faculty engage in a year-long program to develop eight core teaching competencies from ACUE's Effective Teaching Practices Framework, a model backed by over 30 years of research. Throughout the course, faculty members explore essential instructional principles, apply evidence-based strategies, reflect on their own practices, and fine-tune their teaching. Numerous independent studies demonstrate that students enrolled in classes taught by ACUE-certified faculty show greater academic success.

The course is made possible through a USDA Next Gen grant awarded to the college in June 2023. This collaborative award also includes other 1890 land-grant institutions: North Carolina A&T State University, Tuskegee University, Virginia State University, the University of Arkansas at Pine Bluff, and Florida A&M University. The first participants from N.C. A&T's College of Agriculture and Food Sciences include Vijay Chhetri, Ph.D.; Ayodeji Aderibigbe, Ph.D.; Amanika Sharma, Ph.D.; and Oluwaytoyin Sangokunle, Ph.D.

ACUE's curriculum incorporates over 200 evidence-based practices covering course design, productive learning environments, active learning techniques, the promotion of higher-order thinking, and the development of a strong sense of belonging for students on campus.


ACUE

SCIENCE

By Janeil Jackson and Lucy Ngatia, Ph.D.

With a shovel in one hand and a solar-powered sensor in the other, **Lucy Ngatia, Ph.D.**, is helping shape the future of farming. As an assistant professor of biological systems engineering at Florida A&M University, Ngatia is advancing climate-smart agriculture through research that blends traditional practices with emerging technologies—bringing real-world impact to Florida farms, forests and classrooms.

"Climate-smart agriculture is about building resilience from the ground up," Ngatia said. "It's about improving soil health, managing water wisely, and giving farmers tools they can trust in an unpredictable climate."

From biochar soil treatments to real-time water monitoring systems, Ngatia's work helps address the triple challenge of modern agriculture: improving yields, reducing greenhouse gas emissions and adapting to climate variability.

Science That Grows With the Land

Ngatia's field-based research focuses on evaluating sustainable land management techniques—such as cover cropping, biochar application, debris drum chopping and prescribed fire—that enhance soil organic matter and nutrient retention, particularly in Florida's sandy, drought-prone soils.

"Biochar has incredible potential," she said. "It acts like a sponge in the soil, helping hold nutrients and moisture longer—especially critical during dry spells."

In hurricane-affected forests, Ngatia collaborates with the USDA Forest Service to manage storm debris and restore tree cover. Rather than removing fallen wood, her team chops it and integrates it into the soil, seeding it with fire-adapted grasses and later using controlled burning to maintain long-term fertility.

Climate-Smart Tech in Action

At the same time, Ngatia is bringing high-tech tools to the field. Her team uses solar-powered sensors and telemetry systems to collect minute-by-minute data on soil moisture, temperature and other environmental factors. That data feeds into hydrological models to better understand how water moves through the landscape under different farming practices.

"Combining traditional methods with digital monitoring helps us make decisions based on actual data, not guesswork," she said.

Alejandro Bolques, Ph.D., director of the FAMU Research and Extension Center in Quincy, praised Ngatia's approach as both scientific and accessible.

"Dr. Ngatia's work is grounded in practical application," Bolques said. "She's not just researching new techniques—she's putting them into practice with farmers and students. That's the kind of leadership that transforms communities."

IN THE SOIL

DR. LUCY NGATIA CHAMPIONS CLIMATE-SMART AGRICULTURE AT FAMU

Educating the Next Generation

A key part of Ngatia's mission is training the next wave of agricultural scientists. Her students participate in field research, modeling, and outreach, gaining hands-on experience in sustainable land and water management. Many go on to careers in conservation, environmental science and agricultural engineering.

"Working with Dr. Ngatia showed me how engineering can directly improve people's lives and the environment," said one student researcher. "It made the science real."

Through workshops, field days and community partnerships, Ngatia also engages local farmers and ranchers, many from underserved or rural backgrounds, bringing them into the conversation about sustainable practices and climate resilience.

A Land-Grant Vision for Climate Resilience

For G. Dale Wesson, Ph.D., dean of the College of Agriculture and Food Sciences and director of land-grant programs, Ngatia's work reflects the college's broader mission.

"Dr. Ngatia is a shining example of how research, education and outreach come together to solve real challenges," Wesson said. "She's giving our students the tools they need to lead and helping farmers adopt sustainable solutions that work."

As climate pressures intensify, Ngatia believes the time for scalable, sustainable agriculture is now.

"Change starts with one farm, one field, one community," she said. "If we're going to protect our food systems and our environment, we need to make smart, science-based decisions—and we need to make them together."

FAMU CAFS

into Innovation Park with Collins Building Acquisition

Florida A&M University's College of Agriculture and Food Sciences (CAFS) is expanding its capacity for research, innovation and global engagement with the acquisition of the 22,000-square-foot Collins Building in Innovation Park, a strategic move that reflects the college's continued growth and forward-looking mission.

The new facility will house several major CAFS units, including the Biological Systems Engineering (BSE) program, three leading research centers—the Center for Water Resources, Center for Biological Control, and Center for Climate-Smart Agriculture—as well as the CAFS International Programs Office, the Office of Technology Transfer and Commercialization, and the FAMU-CAFS Insect Museum.

"This expansion represents a major milestone for CAFS and a strong investment in the future of agricultural and environmental innovation at FAMU," said G. Dale Wesson, Ph.D., dean of CAFS and director of land-grant programs. "The Collins Building gives us room to grow, collaborate and translate our research into real-world impact—locally and globally."

Situated in Tallahassee's Innovation Park, the Collins Building offers proximity to other research institutions, federal agencies, and technology-driven organizations. It will serve as a hub for interdisciplinary collaboration, applied research, and hands-on student engagement, further enhancing the college's land-grant mission of teaching, research and extension.

The Biological Systems Engineering program, which blends engineering with sustainable agriculture and environmental science, will benefit from expanded laboratory and instructional space. As a rapidly growing program, BSE plays a key role in preparing students for careers in water systems, energy, biotechnology and climate resilience.

The co-location of the college's three research centers will foster integrated approaches to solving urgent challenges such as water management, pest and disease control, and climate-smart food production. With these centers under one roof,

By Janeil Jackson

EXPANDS

CAFS researchers can build stronger partnerships, pursue larger funding opportunities, and drive impact across disciplines.

Also relocating is the FAMU-CAFS Insect Museum, home to thousands of curated insect specimens used in teaching, outreach and biological control research. Its presence in the Collins Building will support both academic instruction and public education efforts.

The Office of Technology Transfer and Commercialization will play a central role in helping faculty bring their innovations to market—supporting entrepreneurship, patents, licensing, and industry collaboration. Meanwhile, the CAFS International Programs Office will continue advancing global partnerships and student exchanges, connecting FAMU to agricultural development efforts around the world.

"By bringing these programs together in one dynamic space, we're creating a true innovation ecosystem," Wesson said. "The Collins Building will be a place where students, faculty and partners come together to solve problems that matter—from feeding communities to protecting natural resources."

The expansion positions CAFS at the forefront of research and innovation among the nation's 1890 land-grant institutions and signals FAMU's deepening role as a leader in sustainable agriculture, science and global impact.


FROM TRELLIS TO NEW
GEN GLOBAL
FOOD SYSTEMS
NETWORK

By Almando Morain Ph.D.

At the College of Agriculture and Food Sciences' (CAFS) Office of International Agriculture Programs (OIAPs), the mission remains clear: to invest in global experiences, inclusive knowledge networks, and student-centered capacity building. In line with this commitment and recognizing the need for adaptive approaches in a changing global context, the OIAP introduces a new initiative: the "New-Gen Global Food Systems Network".

The New-Gen Global Food Systems Network, hereafter referred to as the Network, emerged as an out-growth of the partnership between the Florida A&M University (FAMU) OIAP and the University of California-Davis Trellis Fund Fellowship Program (TFFP). "The Network is a committed group of scientists, social scientists, development professionals, and students in food, agriculture, and natural resources (FANR) who are dedicated to empowering our student scholars and young professionals to take on the challenges of our global food system", says Harriett Paul, the OIAP Director. "The Network engages in knowledge exchange, research collaborations, and professional networking to achieve its capacity building and engagement goals", states Paul.

"A Network for the Future"

The New-Gen Global Food Systems Network operates on four central pillars:

- Expertise Development: Enhance participants' subject matter knowledge retention and application by providing key learning takeaways from current research, structured discussions, and mentorship opportunities.
- Encouraging Innovation: Foster creative problem-solving by integrating interactive ideation sessions where students propose innovative solutions to current and future food security challenges.
- Knowledge Exchange & Peer Learning: Promote structured discussions, resource sharing, and collaborative learning through shared documents and assigned student contributions.
- Community Building & Networking: Strengthen professional connections through interactive networking activities, student spotlights, and engagement opportunities.

The global food system is at a critical juncture, facing persistent challenges such as resource constraints, ecological degradation, urgent need for sustainable transformation, food safety and security, and limited access to agricultural innovation and markets. Central to this global imperative is a fundamental question: how can we empower the next generation to rise to the challenge?

Members of the Network (faculty mentors, community partners, and students) work collaboratively to plan and participate in quarterly discussions, share insights on pressing issues in FANR, exchange research experiences, and explore career opportunities. The Network will engage 2024 TFFP Fellows, 2025 TFFP applicants, students in the Short-term Study in Kenya, West Africa Summer "A" Term AGG 4952 course, and others interested in expanding their knowledge of global food systems. "Participants will gain access to cutting-edge research, expert insights, and a shared repository of learning materials to further develop capacity and expertise, innovation, peer learning, and professional networking", states Dr. Garlen Dale Wesson, Dean and Director of Land-Grant Programs in CAFS.

The primary engagement hub of the Network is Microsoft Teams, where quarterly sessions on global food security will be conducted. The inaugural session, scheduled for late-April 2025, will cover Post-Harvest Management Strategies and Market Development, featuring presentations, breakouts, and actionable takeaways. Summer 2025 will include LinkedIn activities, online discussions, with quarterly meetings resuming in September 2025 for the 2025–2026 academic year.

“Global Support for a Global Vision”

The initiative has already received strong international support from former TFFP partners and Principal Investigators (PIs) in a global hub for horticultural research. “This adaptive initiative is highly welcomed; it will foster meaningful engagement among the next generation of global food system leaders,” said Dr. Atanda, a PI at Obafemi Awolowo University in Nigeria. From Guatemala, Dr. Martha Patricia Herrera Gonzalez and Dr. Rolando Cifuentes of the Universidad del Valle de Guatemala (UVG) echoed similar enthusiasm: “We are very interested in this initiative and could collaborate through research in Molecular Biology, Integrated Pest Management, Entomology, Food Science, Soil Science, and Agronomy”. Dr. Freda Asem, from the University of Ghana, noted that “the momentum from Trellis will continue. She looks forward to our continued collaboration in this new initiative”. Dr. Robert Kajobe, from Muni University in Uganda, and Rishikesh Dhakal, from FORWARD Nepal, both expressed their strong interest in engaging with New Gen Global Food Systems Network, viewing it as “an extension of their ongoing commitment to global agricultural education and research.”

“Empowering the Next Generation”

New-Gen Global Food Systems Network is starting as a virtual initiative that aims to cultivate a global community of young leaders in food systems and agricultural innovation from across our U.S. Land-Grant system. We hope to build on this initial framework and community of members to deliver hands-on services across our engagement regions. Beyond research and technical training, our Network is a space for cultivating values-based leadership and empowering students to drive change. “The achievement of these anticipated outcomes will support our delivering on the OIAP’s primary mission”, states Paul.
“These collaborative programs allow students to appreciate and understand how policies, cultural values, and local practices shape agricultural systems,” said Erasmus Kabu Adutey, a 2024 TFFP Fellow from the University of Maryland Eastern Shore.
Erasmus is set to make the first presentation in the Network’s onboarding session on Post-Harvest Management Strategies and Market Development, a fitting start to what promises to be a dynamic exchange of research, ideas, and global perspectives.

As OIAP leads this new chapter, it continues to affirm its global mission: to prepare students to lead with purpose, connect across cultures, and transform the future of food systems for the betterment of all.

Harriett A. Paul (front center), Director, Office of International Agriculture, with collaborating FANR faculty & students in CAFS, and Kenyan community partner International Center for Evaluation and Development in Kenya 2024, a USDA Center of Excellence in Global Food Security Program.

Director Harriett A. Paul (front center) with the 2024 TFFP Fellows attending the ARD Symposium 2024.

Kiara Ivy, graduate student in the CAFS Entomology program, conducting field sample collection and evaluation at the Altiplano Campus of Universidad del Valle de Guatemala in Sololá. Photo courtesy of Universidad del Valle de Guatemala.

Tseganesh Sete (center left), University of Maryland Eastern Shore graduate student and TFFP/OIAP/CAFS Fellow, participating in the post-harvest extension material development project in Uganda alongside the Vice-Chancellor of Muni University (center right) and research team leader Dr. Robert Kajobe and team member (far right and left

Beatrice Addah A. Obungu, graduate student in the CAFS Entomology program, participating in project activities related to the role of women smallholder farmers in horticultural decision-making at the International Centre for Evaluation and Development (ICED) in Kenya.

By Lauren Jackson

FUTURE AGRICULTURE

FAMU'S DR. ODEMARI MBUYA CO-AUTHORS NEW BOOK WITH INTERNATIONAL EXPERTS

"Future Agriculture," a new book by **Odemari Mbuya, Ph.D.,** professor and director of the Center for Water Resources at Florida A&M University, in collaboration with Kirit Shelat, Ph.D., Shrikant S. Kalamkar, Ph.D., and A.R. Pathak, Ph.D., tackles the critical threats facing agriculture in the 21st century. The book offers innovative solutions for climate-smart agriculture and maps a path toward sustainable farming.

“Collaboration is crucial,” said Dr. Mbuya. “Working with authors from India allows us to leverage diverse resources and learn from each other. Faculty collaboration and scholarly exchange lead to valuable work like this book... it’s a win for everyone.”

"Future Agriculture" introduces various socio-economic transformations driven by climate change and new technologies in the modern agri-food system. The authors offer practical solutions employing several years of research: how climate change is affecting agriculture and food systems, the effective usage of water resources, the prospects of food security, and ways to engage farmers as custodians of the environment.

The authors expand on the concepts presented in the previous volume, noting that agriculture practice has to increase the productivity of marginal lands to support a growing population and conserve the on-going loss of natural resources. The text is technologically oriented and covers topics like precision farming, biological engineering, and novel methods of water management.

“The climate is changing, and it’s a global phenomenon. Food security is one of the major issues we face,” Dr. Mbuya said. “The global population is about 7 billion, and by 2050, it’s expected to reach around 11 billion. We need to find ways to feed everyone. This book provides the formula.”
Dr. Mbuya also stresses the importance of global partnerships and knowledge exchange among researchers, policymakers, and farmers. His work underscores the value of integrating local farming knowledge with the latest science to create effective, tailored solutions.

“We are part of the global community and aim to collaborate with universities beyond Florida and the United States,” Dr. Mbuya said. “Our work with universities in India highlights that climate change and food safety are global issues.”

The co-authors—Dr. Shelat, Dr. Kalamkar, and Dr. Pathak—are specialists in agricultural economics, organized village systems, and crop science. They aim to bridge the gap between policy and practice, offering academic insights and practical recommendations for farmers, researchers, and policymakers worldwide.

“We need to educate policymakers, stakeholders, and farmers,” Dr. Mbuya said. “By working together globally, we can boost production without compromising food quality while preserving natural resources.”

The authors hope "Future Agriculture" will inspire a new generation of agricultural professionals eager to experiment and collaborate to meet global needs. They also hope governments and non-governmental organization will view sustainable agriculture as a vital investment in the future of food.

This important text, co-written by Dr. Mbuya, outlines Florida A&M University’s commitment to evolving agribusiness research, climate smart agriculture, and sustainability studies. FAMU is devoted to tackling some of the world's most pressing issues through its research and expertise.

> **“The climate is changing, and it’s a global phenomenon. Food security is one of the major issues we face.”**
>
> **Odemari Mbuya, Ph.D.**
> Professor and director of the Center for Water Resources, FAMU CAFS

A Day of Discovery in Entomology and Forestry

Inspiring the Next Generation

By Saundra Wheeler, FAMU Entomology NextGen Academic Programs Coordinator

In an inspiring display of partnership, education, and experiential learning, we recently sponsored a unique site visit that brought science to life for a group of eager young minds. Eleven participants—eight middle school students and three teachers—from Author Morgan Montessori School in Rock Hill, North Carolina, traveled to our campus for an immersive experience in agricultural sciences, with a special focus on entomology and forestry.

Our day began at the FAMU College of Agriculture and Food Sciences (CAFS), where students were welcomed by the College Dean, faculty, staff, and members of the Entomology NextGen Scholars program. The visitors attended an engaging lecture titled Entomology 101, which opened their eyes to the vital role insects play in ecosystems and agriculture. The session explored the diverse branches within entomology, from medical and veterinary fields to integrated pest management, and introduced students to exciting career paths in government agencies, agriculture companies, and even law enforcement.

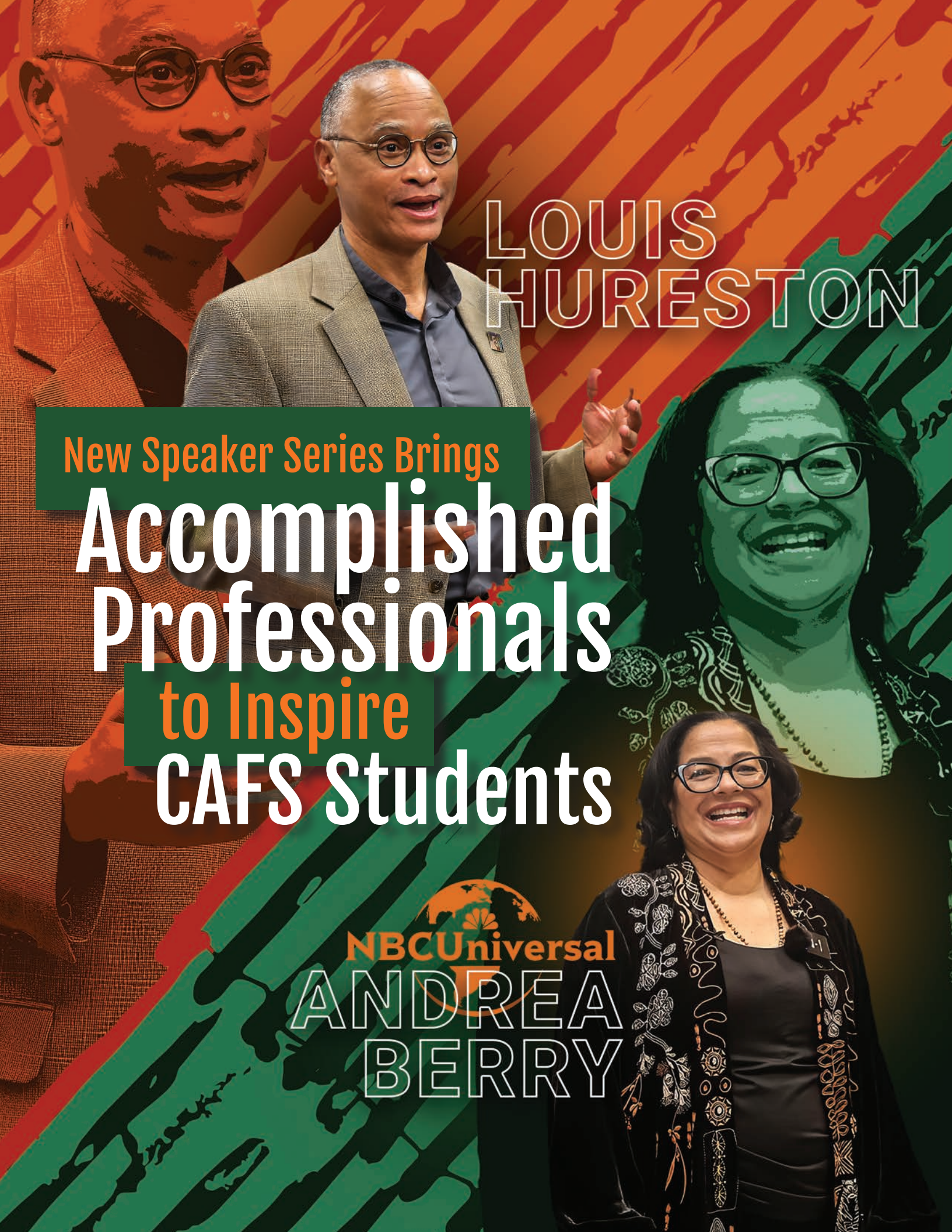
A standout highlight of the visit was meeting our guest, Dr. Lee Bushong, a renowned forensic entomologist and professor. His presentation gave students a fascinating glimpse into how insects help solve real-world crimes, blending science with investigative work in a way that captured everyone's imagination.

The tour continued with hands-on lab experiences, where students explored entomological equipment and techniques firsthand. They were especially excited to learn about insect life cycles and interact with live specimens—particularly the ever-popular Madagascar Hissing Cockroaches, which they bravely handled and observed up close. These tactile experiences turned abstract lessons into real, memorable moments of discovery.

The day's learning expanded beyond the lab through a meaningful collaboration with our valued external partner, Tall Timbers of Tallahassee, FL. The students and teachers took part in an outdoor, hands-on forestry lesson that introduced them to the importance of forest management and prescribed burns. Touring active burn plots, they learned how fire is used as a sustainable tool to maintain healthy ecosystems—an eye-opening experience for many who had never set foot in a working forest environment.

This collaborative initiative was more than a school field trip—it was an investment in the future of agricultural science. By opening our labs and engaging with partners like Tall Timbers, we created an enriching educational experience that blended academic exploration with real-world application.

For some students, it was their first time on a college campus. For others, it sparked new questions and dreams about their future. For all, it was a powerful and unforgettable day of learning—one that we hope will inspire the next generation of scientists, environmental stewards, and agricultural leaders.



New Speaker Series Brings

Accomplished Professionals to Inspire CAFS Students

By Janeil Jackson

Launched in spring 2025, The Dean's List: A Conversation with Friends has quickly become a signature speaker series at Florida A&M University's College of Agriculture and Food Sciences (CAFS), connecting students and faculty with accomplished professionals from across the country.

Created by Dr. G. Dale Wesson, dean of CAFS and director of land-grant programs, the series brings distinguished guests—"friends" of the dean—to campus for engaging conversations about life, leadership and career paths. In addition to speaking with CAFS students and faculty, the guests immerse themselves in the rich cultural and academic traditions of the HBCU experience.

"This series gives our students a chance to see themselves in careers they may have never imagined," Wesson said. "It shows them that success doesn't always follow a straight line. It's important for them to see how diverse and dynamic professional journeys can be."

TWO STANDOUT GUESTS HELPED LAUNCH THE SERIES THIS SPRING:

- **Louis Hureston**, a distinguished engineer, corporate leader and management consultant with decades of experience across sectors.
- **Andrea Berry**, executive vice president of operations and technology for NBCUniversal – Telemundo and Latin America.

Both speakers brought a wealth of insight to their conversations, touching on everything from innovation and leadership to adaptability and personal growth.

"I was deeply inspired by the students' curiosity and drive," Hureston said. "Visiting FAMU and sharing my story with these future leaders was an honor. The energy and excellence here are contagious."

For Berry, the experience was equally powerful.

"Connecting with students at an HBCU like FAMU reminded me of how important representation and access are," she said. "They asked smart questions, shared bold ideas, and reminded me that the future of our industries is in great hands."

The series, informal in tone but intentional in purpose, provides students with direct access to thought leaders who understand the value of mentorship and authenticity. Guests are selected not only for their professional accomplishments but for their willingness to speak candidly about their paths—including challenges, pivots and lessons learned.

In addition to the spring sessions, The Dean's List will continue into fall 2025 with more leaders from business, science, media, technology and public service scheduled to participate.

For Dean Wesson, the impact is already clear.

"Our students walk away not just motivated, but informed," he said. "They're seeing what's possible. And that's the spark we want to ignite."


USING
Artificiall
Intelligence
To Branch Out
FAMU RESEARCHER
ADVANCES DIGITAL PLANT
BREEDING

In a time when climate change, population growth, and food insecurity drive demand for agricultural innovation, a research team led by Dr. Wei Zhou at Florida A&M University is turning to artificial intelligence to transform plant breeding.

Zhou, an assistant professor in the College of Agriculture and Food Sciences, recently conducted a comparative study of 11 nonlinear regression models to improve phenotype prediction in soybeans. The research focused on soybean branching—an important trait for crop yield—and tested machine learning and deep learning models against genetic and phenotypic data from over 1,900 soybean accessions.

"The future of agriculture is data-driven," Zhou said. "This study highlights how artificial intelligence can empower breeders to make faster, more accurate decisions."

The research compared four deep learning models—including deep belief networks, autoencoders, and artificial neural networks—and seven machine learning models such as support vector regression (SVR), random forest, and XGBoost. Each was evaluated using metrics like R^2, mean absolute error (MAE), mean squared error (MSE), and mean absolute percentage error (MAPE).

The results showed SVR, autoencoder, and DBN models delivered the highest prediction accuracy, making them well suited for use in genomic selection and precision breeding. To further assess model performance, the team applied SHapley Additive exPlanations (SHAP) to identify the most influential genes—a key step in understanding both positive and negative gene effects.

Beyond modeling accuracy, the study also integrated gene ontology (GO) enrichment analysis, clustering 244 genes into meaningful biological categories such as cell differentiation, signal transduction, and membrane-bound organelles. These findings reinforced the relevance of selected features and confirmed the models' scientific validity.

"This research shows the power of AI not just to predict traits but to uncover biological mechanisms," Zhou added.
The method developed by Zhou's team has broad applicability in phenotype prediction, minor QTL mining, and AI-powered breeding systems. Ultimately, it moves agricultural science closer to smart breeding, where decisions are grounded in complex, integrated data rather than trial-and-error.

The study reflects FAMU's growing investment in innovation at the intersection of agriculture, technology, and genomics, preparing the next generation of researchers to meet global food and sustainability challenges head-on.

This research shows the power of AI not just to predict traits but to uncover biological mechanisms"

Omolola Betiku, Ph.D.
Assistant Professor, FAMU CAFS

Tavia Gordon Highlights FAMU Extension's Impact at BOLD Leadership Summit

Contributor: Tavia Gordon

West Palm Beach, FL – **Tavia Gordon**, Urban Agriculture Extension Agent for Florida A&M University (FAMU) Extension, played a key role as a featured speaker at the BOLD Leadership Summit: Partnership for Success in West Palm Beach. Representing FAMU Extension, Gordon showcased the organization's ongoing efforts in strengthening urban agriculture initiatives and fostering successful community partnerships in the region.

The workshop was titled "Cultivating Resilience: Empowering Communities Through Sustainable Urban Agriculture," underscored the vital role of urban agriculture in building resilient, self-sufficient communities. The session provided attendees—including community leaders, educators, students, and organizers—with practical strategies for launching and sustaining community-driven gardening initiatives.

Participants explored hands-on techniques in resource management, learned innovative solutions to combat urban food insecurity, and examined real-world examples of how urban agriculture promotes healthy living while strengthening community bonds.

KEY TAKEAWAYS

- The benefits of sustainable gardening for improving food access and community health.
- How urban agriculture serves as a powerful tool for environmental sustainability and social empowerment.

WORKSHOP OBJECTIVES

- Equip attendees with strategies to engage community members in gardening and food security efforts.
- Emphasize the broader impact of urban agriculture on community resilience and sustainability.

Through her presentation, Gordon reinforced FAMU Extension's commitment to advancing urban agriculture and empowering local communities, ensuring a lasting impact on food systems and sustainability efforts in West Palm Beach

FAMU Community Garden Hosts Veterans for Healing and Connection

Contributor: Linda Sapp

Veterans have played a crucial role in defending our nation, serving in conflicts such as World War II, the Vietnam War, the Persian Gulf War, the Iraq War, and the War in Afghanistan. While their contributions are invaluable, many have faced immense challenges during and after their service. As they transition to civilian life, finding avenues for healing, support, and community becomes essential.

The recent Building a Raised Bed workshop at the FAMU Community Garden provided a meaningful opportunity for veterans to connect, relieve stress, and engage in a hands-on, therapeutic activity. More than just a gardening project, the workshop symbolized resilience, growth, and renewal. With hammers in hand, participants worked together to construct a raised garden bed—channeling energy, overcoming obstacles, and sharing laughter in the process.

The materials for the raised bed were generously donated by a fellow veteran who deeply values the strength of those who have served. This act of giving reinforced the sense of camaraderie and mutual support that defined the event. For many, the experience offered a moment of peace, reflection, and the chance to bond with others who understand the unique journey of military service.

As part of the workshop, participants also received sensory herbs known for their calming and stress-relief properties. The soothing scents and textures of these plants serve as a natural aid for relaxation and emotional well-being. Engaging with nature through gardening has been widely recognized as a therapeutic practice, and these herbs provided a tangible way for veterans to embrace moments of tranquility in their daily lives.

The success of this event was made possible by the generosity and dedication of numerous supporters:

Sharon Brooks, Lester Gaskins, and Linda Sapp – Event coordination, snacks, sensory herb giveaway, and donation of wood and nails (Sharon Brooks).

Donna Arnold & Crystal Gale Hunter – Giveaways, rosemary, and aloe plant donations from Gadsden County Extension.

Native Nursery – Plant donation.

Jose Pardy and FAMU Farm staff – Provided tents and chairs.

Vonda Richardson, Director of FAMU Cooperative Extension Program – Approved the workshop.

The FAMU Community Garden continues to be a space of growth, healing, and empowerment, fostering meaningful connections through agriculture and wellness. Events like these remind us that healing can come in many forms – whether through shared experiences, acts of service, or simply the joy of creating something with our own hands

Cooperative Extension Apprenticeship Program Prepares Next Generation of Agricultural Leaders

Contributor: Conchita Newman

The Cooperative Extension Apprenticeship Program was launched through the 1890 Center of Excellence Student Success and Workforce Development (SSWD) initiative to provide undergraduate students with meaningful, hands-on learning experiences in agricultural sciences. This innovative program pairs students with experienced Cooperative Extension faculty mentors, allowing them to gain real-world exposure in areas such as agriculture, natural resources, 4-H youth development, community development, and family and consumer sciences.

The inaugural cohort features eleven dedicated apprentices, each working closely with one of four expert mentors. Throughout the semester, students have engaged in field-based activities designed to build professional skills, deepen their understanding of extension services, and prepare them for future careers in the agricultural sciences.

MEET THE MENTORS AND APPRENTICES:

Angel Forde – Agriculture & Natural Resources
Rayven Custis
Noah Roberts

Sabrina Hayes – 4-H Youth Development
Madison Hunter
A'Marie King
Neriah Lee

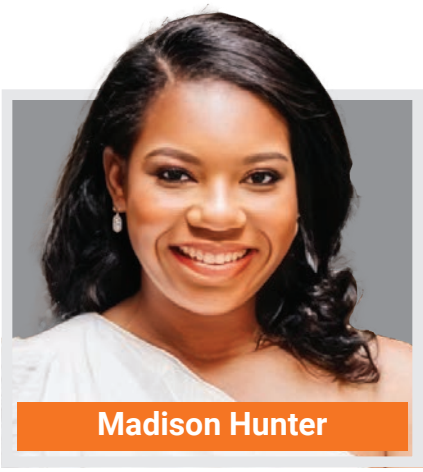
Teron Speer – Community Development
Camyrnn Harper
Nia Stevenson
Nyael Jones

Eunice Stevenson – Family & Consumer Sciences
Roderick Conley
Aaliyah Fonville

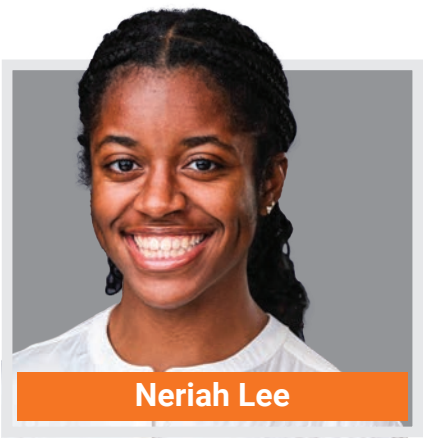
The program concluded in March 2025 with final presentations, where apprentices showcased their projects, findings, and reflections on their experiences. The Cooperative Extension Apprenticeship Program provided students with invaluable experiential learning opportunities, bridging the gap between academic knowledge and practical application. The commitment of our mentors and the dedication of our apprentices were instrumental in the program's success. We proudly celebrate the achievements of our first cohort and the strong foundation they've built for future careers in agricultural sciences and extension services


Rayven Custis


Noah Roberts


Madison Hunter


A'Marie King


Neriah Lee


Camyrnn Harper


Nia Stevenson


Nyael Jones


Roderick Conley


Aaliyah Fonville

FAMU FLORIDA A&M UNIVERSITY COOPERATIVE EXTENSION
COLLEGE OF AGRICULTURE AND FOOD SCIENCES

Building and Sustaining the Next Generation of the Food, Agriculture, and Natural Resources Workforce at FAMU, A Global Approach.

Florida A&M University, through its Office of International Agriculture Programs (OIAP) in the College of Agriculture and Food Sciences (CAFS), has launched its "United States Department of Agriculture (USDA) Next Generation Global Agriculture Scholars' Program", and is currently entering students for Summer and Fall 2025. This program is funded through the National Institute for Food and Agriculture (NIFA), From Learning to Leading: Cultivating the Next Generation of Food and Agriculture Professionals (NEXTGEN) program. FAMU's OIAP is working in collaboration with three 1890 Land-grant Universities (University of Maryland Eastern Shore (UMES), Kentucky State University (KSU), and Southern University (SU), with UMES serving as the management entity for the consortium. USDA NIFA (2022) argues that there are significant challenges associated with building the future agricultural workforce in the U.S., including limited awareness of the range of agriculture-related career opportunities available across academia, government, industry, public and private sectors. There are also, declining interest in agriculture and in government, and an insufficient supply of highly skilled technologically sophisticated professionals to meet the Food, Agriculture, Natural Resources, and Human Sciences (FANH) workforce demands, according to USDA.

The goal of this project is to help build and sustain the next generation of the FANH workforce to support the needs of USDA, other public agencies and the private sector. This project provides an opportunity for students to matriculate through an increasingly globalized FANH curriculum on our U.S. campus, as well as study at international partner universities in France and Austria. Students can also benefit from globalized internships, experiential and service learning across six global regions, says Harriett Paul, the project's Co-Principal Investigator and Director, FAMU's Office of Global Agriculture Programs. The project has a limited number of undergraduate scholarships and master's assistantships available on a competitive basis to qualifying students for summer and fall 2025, Paul says.

This summer, the AGG 4952 Service Learning in International Agriculture, three semester credit course, will be offered during Term "A" in the CAFS. This course engages students from diverse disciples in directed service learning experiences abroad. The course introduces students to a global, holistic, and cross-cultural approach to problem-solving development challenges in agrarian-based communities. Students in the Summer 2025 class will be required to collaborate with FAMU and host country faculty and students to plan and implement various sustainable agriculture and economic growth demonstrations for small farmers and other stakeholders. These demonstrations will be designed to promote improved cultural practices and post-harvest handling to increase food security, market channels, and income.

For more information please contact:
Harriett A. Paul, Director,
Office of International Agriculture
Harriett.paul@famu.edu
850/599-8867 Office.

NAVY ROTC '25

Spring Commissionees

ENS Saniyah Drayton

ENS Alesandra Hardy

ENS Justin Sepulveda

ENS Carter Shackelford Starnes

Congratulations Fall 2024 Graduates!

BACHELOR OF SCIENCE DEGREES

Darwin C. Phillips	B.S., Agri-Business
Darius A. Williams	B.S., Agri-Business
Addison R. Griffin	B.S., Agricultural Sciences
Camden T. Kruis	B.S., Agricultural Sciences
Celeste N. Harper	B.S., Agricultural Sciences
Eryse L. White	B.S., Agricultural Sciences
Rennie J. Rivera	B.S., Agricultural Sciences

BIOLOGICAL & AGRICULTURAL SYSTEMS ENGINEERING

Micala Jones	B.S., Agricultural Sciences
Jylon N. Bennett	B.S., Veterinary Technology

CONCENTRATION IN ANIMAL SCIENCE-PRE-VET OPT

Aliyah N. Bonner	B.S., Agricultural Sciences
Christian O. Watson-Kerr	B.S., Agricultural Sciences
Erneshia S. Cox	B.S., Agricultural Sciences
Heaven R. Wade	B.S., Agricultural Sciences
Kayla A. Smith	B.S., Agricultural Sciences
Kennedi N. Mayo	B.S., Agricultural Sciences
Kenicia C. Johnson	B.S., Agricultural Sciences
Sharniece T. Carson	B.S., Agricultural Sciences

CONCENTRATION IN FOOD SCIENCE

Torren D. Manning	B.S., Food Science
Katelyn A. Warrick	B.S., Food Science

CONCENTRATION IN PLANT AND SOIL SCIENCES

Deborah Q.LaBruzzo	B.S., Agricultural Sciences
Faith A. Lewis	B.S., Agricultural Sciences
Sofia Garcia	B.S., Agricultural Sciences

MASTER OF SCIENCE DEGREES

Aaliyah J. Barrington-Johnson	M.S., Ag Sciences
Adeiza P. Adonuja	M.S., Ag Sciences
Amaury Marie C. Toure	M.S., Ag Sciences
Ann Marie S. Robinson-Baker	M.S., Entomology
Herbert O. Franklin	M.S., Ag Sciences
Jahlita A. Janeau	M.S., Ag Sciences
Jonathan W. Giles	M.S., Ag Sciences
Kaylah Bias	M.S., Ag Sciences
Kiara L. Ivy	M.S., Entomology
Ruth A. Fennell	M.S., Ag Sciences

Congratulations Spring 2025 Graduates!

BACHELOR OF SCIENCE DEGREES

Isaiah J. Hunt	B.S., Agri-Business
Leyhma B. Leban	B.S., Agricultural Sciences
Nadiyah M. Hayes	B.S., Agricultural Sciences
Rakhael S. Charles	B.S., Agricultural Sciences
Rennie J. Rivera	B.S., Agricultural Sciences
Ricky D. Coachman	B.S., Agricultural Sciences
Sheree A. Christensen	B.S., Agricultural Sciences
Xena M. Echevarria	B.S., Entomology

CONCENTRATION IN ANIMAL SCIENCE-PRE-VET OPT

Ahsari Randolph	B.S., Agricultural Sciences
Alaana D. Henry	B.S., Agricultural Sciences
Amanda L. Dwyer	B.S., Agricultural Sciences
Amber Johnson	B.S., Agricultural Sciences
Armond K. Ansley	B.S., Agricultural Sciences
Carlanna N. White	B.S., Agricultural Sciences
Chai A. Comrie	B.S., Agricultural Sciences
Elizabeth S. Earhart	B.S., Agricultural Sciences
Jordan A. Meyers	B.S., Agricultural Sciences
Kai J. Dawson	B.S., Agricultural Sciences
Nathaniel D. Hector	B.S., Agricultural Sciences
Mckenzie A. Scott	B.S., Agricultural Sciences
Percy M. Martin	B.S., Agricultural Sciences
Stephanie Mathis	B.S., Agricultural Sciences
Taylor Peterson	B.S., Agricultural Sciences
Tiffany Kern	B.S., Agricultural Sciences

CONCENTRATION IN PLANT AND SOIL SCIENCES

James Shaw	B.S., Agricultural Sciences
Sofia Garcia	B.S., Agricultural Sciences

CONCENTRATION IN FOOD SCIENCE

Javon L. Williams	B.S., Agricultural Sciences
Jazmine L. Pace	B.S., Agricultural Sciences
Shiann S. Addison	B.S., Agricultural Sciences

MASTER OF SCIENCE DEGREES

Adeiza P. Adonuja	M.S., Agricultural Sciences
Skylar J. Fletcher	M.S., Agricultural Sciences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