

# Southern Administrative Heads Updates and Highlights

## Winter Meeting 2022

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## **Clemson University – College of Agriculture, Forestry and Life Sciences Highlights for Fall 2021**

**Clemson packaging science students win in design competitions** - Three teams from Clemson University's Packaging Science program used their knowledge to capture international awards for projects ranging from a skin care package to quarantine survival kits for shipping and gifts on the go. One of the teams won first place in the United States/United Kingdom division at the PIDA (Packaging Impact Design Award) competition. They traveled to Monaco along the French Riviera to present their Golden Bee Skin Care package design during the Grand Finale at Luxe Pack Monaco. Two other Clemson teams won awards in the annual Student Packaging Design Competition held in Toronto, Ontario, Canada by AICC, The Independent Packaging Association. Each team had to create and design "Quarantine Survival Kit," a self-shipper box that could be delivered during a quarantine.

**Researchers manipulate daylight hours to help save poinsettias** - Rising temperatures are threatening poinsettia production, but a research team led by Clemson professor Jim Faust has found manipulating daylight hours can help keep the sparkle in this Christmas star and money in producers' wallets. The threat comes from a phenomenon known as "heat delay" which can halt poinsettia flower development. Heat delay may cause poinsettias to mature too late for the Christmas market, resulting in revenue loss. The researchers are conducting a study to look at how rising temperatures are causing heat stress for poinsettia plants grown in greenhouses. They hope to gain a better understanding of the environmental conditions that create temperature stresses inside greenhouses so that strategies can be developed to help growers alleviate or avoid these stressors.

**Pinckney's legacy continues to grow with National 4-H Hall of Fame induction** - The Rev. Clementa Pinckney began his 4-H career at 9 years old with a focus on projects in public speaking and debating. Nearly four decades later, as his daughter Eliana spoke at his posthumous induction into the National 4-H Hall of Fame, it was clear his success in those project areas had been passed on to the next generation as well. "He was a great orator, and Eliana is too," S.C. 4-H Assistant Director Ashley Burns said. And even after his death, Pinckney has continued passing traits he honed in 4-H as a youth on to future generations in South Carolina. Along with sister Malana and on behalf of his wife, Jennifer, Eliana accepted the late senator's induction for his lifetime achievements and contributions to 4-H into the National 4-H Hall of Fame at a ceremony in the nation's capital. Honored by Clemson University and the South Carolina 4-H Youth Development Program, Pinckney was one of 20 people inducted during the ceremony held Oct. 12 at the Kellogg Conference Hotel at Gallaudet University in Washington, D.C.

**Muddy Tigers shine at regional contest** - Clemson University's Soils Team, The Muddy Tigers, ends the fall semester with a grand showing at the Southeast Regional Collegiate Soils Contest in Knoxville, Tennessee. Out of 60 participants, Clemson had three students – Devon Griffin, Cady Kurz and Caroline Gilmer – place in the Top 10. Overall, the Clemson team placed 3rd and advances to the National Collegiate Soils Contest hosted by Ohio State University in April 2022.

**Clemson scientist studies 'vaccine' for peach trees** - The South Carolina peach industry is a major contributor to the state's economy and the fruit is a favorite for many people, but a devastating fungus is a constant threat to this jewel of the South. The honey fungus (*Armillaria tabescens*) causes Armillaria root rot, also known as oak root rot. There are no controls for this disease, which costs farmers millions of dollars each year in crop losses. Some Clemson University scientists are studying this fungus to help South Carolina peach growers grow more profitable crops. The latest study is led by Sachin Rustgi, an assistant professor of molecular breeding at the Clemson Pee Dee Research and Education Center (REC) in Florence. Rustgi has received a grant from the South Carolina Department of Agriculture to develop management strategies for Armillaria root rot. This study involves a two-pronged approach, including "vaccinating" peach trees with the

tomato yellow leaf curl virus. The virus used for this study has been modified so that it does not cause disease and replicates as it spreads throughout host plants.

**National quail conservation initiative finds new home at Clemson University** - Clemson University is home to a new center for the National Bobwhite Conservation Initiative (NBCI) and will serve in a national leadership capacity co-managing the operations and enabling the implementation of the initiative. Selected by the National Bobwhite Technical Committee (NBTC) and the NBCI Management Board, the center will be folded under the umbrella of the College of Agriculture, Forestry and Life Sciences (CAFLS), which has a strong focus on teaching, research and extension in wildlife and natural resource conservation. The NBCI staff will work closely with University faculty and staff to leverage the organization's resources to enhance teaching, research and outreach programs to accomplish joint conservation goals.

## **University of Florida, IFAS**

**J. Scott Angle, [jangle@ufl.edu](mailto:jangle@ufl.edu)**

### **Leadership**

- Dr. Andra Johnson, from PSU, was appointed Dean for Extension as of November 1, 2021.
- Department chair searches are currently underway for Agronomy and Entomology/Nematology.
- Five center directors' positions are currently being advertised. UF Centers are often large centers with many faculty and staff.
- We will soon seek an Associate VP for Inclusion, Diversity, Equity, and Access.
- UF will begin a search for a new President later in 2022.

### **Budget**

- A new budget model is being introduced by establishing base level unit funding with the opportunity for increases (or decreases) following leadership consultation.
- Current total budget for IFAS is nearly \$450M per year. Research funding is \$155M for FY 21. NSF ranks UF #1 or 2 for agriculture and natural resources federal funding.
- Modest state increases are expected for the current budget year.
- IFAS facilities (18 state wide) are in poor shape and represent the Institute's greatest need. We estimate \$250M is needed to bring facilities to modern standards.

### **Hot Topics**

- Questions around free speech on the UF campus have dominated the fall semester, second only to Covid. Concerns were raised around the ability to consult in the state of Florida for a fee. This issue may ultimately be settled by the court system and could have significant impact on outside activities.
- Covid response has been controversial in Florida with strong opinions on all sides of the issue.
- As noted, IFAS supports 18 research, education, or demonstration centers. Most have significant faculty and staff located there. With decaying facilities, a new model or plan for support is needed. An external and independent review of centers was recently completed and will be the basis for any future changes.
- 37,000 acres of land was recently gifted to IFAS. Now we need to figure out how to use, and fund, research and education on the property.
- IFAS recently completed a strategic plan. It's one page long!
- Inmate labor was discontinued last year with regular cost of \$3 M.

- Hire of 14 dedicated agriculture AI faculty is nearly complete and academics' fastest AI supercomputer has been "switched on".

**Mississippi State University**  
**Division of Agriculture, Forestry & Veterinary Medicine Update**

**January 2022**

**Division Leadership**

Keith Coble, William L. Giles Distinguished Professor of the Department of Agricultural Economics, began his tenure as Vice President for the Division of Agriculture, Forestry, and Veterinary Medicine (DAFVM) in February 2021. He is a past president and Fellow of the Agricultural and Applied Economics Association.

Ashli Brown, a tenured professor in Biochemistry, Molecular Biology, Entomology, and Plant Pathology, was named associate vice president of DAFVM in July 2021. Brown has served since 2013 as Mississippi's State Chemist. Much of Brown's research focuses on using analytical techniques to improve conservation efforts, food safety, and regulatory science. While at MSU, she has obtained over \$10 million in funding from federal, state, and industry sources to develop and support a research group, as well as help fund the mission of the Mississippi State Chemical Laboratory.

Loren W. "Wes" Burger, a W.L. Giles Distinguished Professor of Wildlife Ecology in MSU's Department of Wildlife, Fisheries, and Aquaculture, was named the new dean of the University's College of Forest Resources and director of the Forest and Wildlife Research Center in November 2021. Burger is a Fellow of The Wildlife Society and Food Systems Leadership Institute. He was a 2017 Fellow of the SEC Academic Leadership Development Program. On-Campus he is *Grisham Master, Ralph E. Powe Excellence in Research Award* recipient, and *Giles Distinguished Professor*

Dr. Scott Willard is the new director of the Mississippi Agricultural and Forestry Experiment Station and dean of the University's College of Agriculture and Life Sciences as of January 7, 2022. Willard joined the University as an assistant professor in the Department of Animal and Dairy Sciences with a three-way teaching, research, and extension appointment. Willard is the author or co-author of over 100 peer-reviewed scientific publications and more than 400 total journal publications, reports, abstracts, proceedings, book chapters, and a textbook. He is a fellow of the Food Systems Leadership Institute and the Southeastern Conference Academic Leadership Development Program. He has been recognized with awards, including the American Society of Animal Science Outstanding Young Animal Scientist, the International Gamma Sigma Delta Award for Distinguished Achievement for advancing and improving agriculture.

**COVID Response**

Our teaching faculty continued to adapt to the needs of our students during the pandemic. We finished out the Fall semester with mostly face-to-face instruction with classroom masking. We strongly encourage vaccination as we prepare to return to a traditional spring semester. Our Extension Service has returned to a more normal schedule, but also clientele is now comfortable with educational programs delivered through technology.

**Points of Pride**

- Despite COVID-19 challenges, DAFVM research programs continued unabated, with grants and contracts totaling nearly \$100 million for the second year in a row.

- In the latest NSF Higher Education Research and Development Report, MSU's research expenditures ranks rose four spots in FY 2020. With \$280.4 million in expenditures, MSU set a new record, and MSU's 6 percent increase in research expenditures from FY 2019 is well above the national average of a 3.3 percent increase. MSU's ranking of research expenditures in agricultural sciences and natural resources and conservation was 15<sup>th</sup> nationally.
- MSUES served more than half a million direct contacts, nearly one in six Mississippians.
- CVM celebrated 40 years of training the best and brightest students interested in animal-health careers. In 1981, MSU CVM graduates graduated from its first class of veterinarians, boasting a national board examination (NAVLE) pass rate of 98% compared to a 92% national average.

### **College Enrollment and Instruction**

Enrollment in the three colleges of DAFVM continued to increase. Our fall 2021 enrollment includes 2,563 in the College of Agriculture and Life Sciences, 563 in the College of Forest Resources, and 512 in the College of Veterinary Medicine - about a 4% increase over last year.

### **New Construction**

This construction was funded with State Bond funding. Present construction includes a new modern Forestry Greenhouse and an aviary for our Wildlife, Fisheries, and Aquaculture Department. We are about to begin remodeling Ballew Hall for a CALS/MAFES administrative building and Dorman Hall for Plant and Soil Science. We have a proposal to the state legislature for \$13.2 Million of water, sewer, and broadband expenditures from the ARPA funds allocated to the state.

### **State Funding**

Our separately funded units have made a 9.9% increase request of the Mississippi Legislature. Tax revenue for the state this fiscal year continues to be significantly higher than last year. Merit-based pay raises averaging 2.5% were provided to faculty this past fiscal year.

## **Division of Agricultural Sciences and Natural Resources Oklahoma State University**

### **Annual Summary – Southern AHS meeting, February 2022**

1. Course offerings in spring semester, 2021 continued with social distancing, required wearing of masks and use of online platforms for some courses. Course offerings returned to full capacity in [fall semester, 2021](#), without social distancing and without a mask requirement due to an executive order by Governor Stitt prohibiting mask and vaccine mandates. In fall semester, upon notification of a student in class testing positive for COVID, faculty were given the responsibility of choosing between three options for two weeks: online delivery, hybrid delivery, or face-to-face delivery, with the requirement that all wear masks in the face-to-face settings. The same policy continues in [spring semester, 2022](#).
2. Undergraduate enrollment in the [Ferguson College of Agriculture](#) increased in fall semester, 2021, with the second largest cohort of freshman in the history of the college and the largest cohort of transfer students in the history of the college. Undergraduate enrollment reached 2,701 and graduate enrollment was 398 for a total of 3,099. Retention of freshman students from fall, 2020 to fall 2021 surpassed 90% for the first time in the history of the college.
3. The [Department of Biosystems and Agricultural Engineering](#) launched a new undergraduate major, [Agricultural Systems Technology](#). The department, together with the College of Engineering, Architecture and Technology had a favorable review and renewal of ABET accreditation.
4. The [new building](#) to replace Agricultural Hall is on schedule for completion in 2024. Fundraising has reached \$48.8 million towards the \$50 million goal; groundbreaking occurred on April 23; and site

preparation is complete, with construction bids due in early February, which should indicate to what extent markets and supply disruptions may affect the \$100 million project.

5. Dr. Keith Owens retired as Assoc. VP for AES; [Dr. Scott Senseman](#) began as Assoc. VP as for AES on August 1, 2021. Dr. Phil Mulder retired as Department Head for Entomology and Plant Pathology. [Dr. Justin Talley](#) was named new department head following a national search. Searches are currently under way for the head of Animal and Food Sciences, following Dr. Clinton Rusk's move to head the International Charolais Association, and for the head of Plant and Soil Sciences, following Dr. Jeff Edwards' move to head the same department at the University of Arkansas – Fayetteville.
6. State funding for OSU Extension and OSU Ag Research received a slight (1%) increase for FY2022.
7. The [New Technologies for Agricultural Extension](#) grant from USDA NIFA was renewed with OSU Agriculture as the host for another year with nearly double the funding from previous appropriations. The eXtension group, which subcontracts much of the work from OSU was renamed the [Extension Foundation](#).
8. Burns Hargis retired as President of OSU in 2021 after 13 years at the helm. A national search resulted in naming [Dr. Kayse Shrum](#) as the 19<sup>th</sup> President of OSU. Dr. Shrum is a pediatrician who previously served as President of the OSU Center for Health Sciences and Dean of the College of Osteopathic Medicine, all in Tulsa.
9. In concert with President Shrum's [strategic planning effort](#), we are updating the strategic plan for OSU Agriculture in 2022.

## **University of the Virgin Islands, School of Agriculture**

### **HIGHLIGHTS January 25, 2022**

#### **Academic Programs**

The following five new agriculture academic program proposals have been completed in December 2021 and are ready to be submitted to the University Curriculum Committee (UCC) in January 2022 for review and approval:

1. Certificate - Animal Science
2. Associate of Applied Science - Animal Science
3. Bachelor of Science Degree - Horticulture
4. Bachelor of Science Degree - Agricultural Business
5. Bachelor of Science Degree – Aquaponics

Work is also near completion for the following other new academic program proposals:

1. Certificate - Cannabis Social Science
2. Associate of Applied Science - Cannabis Biotechnology
3. Associate of Applied Science - Cannabis Social Science
4. Associate of Applied Science - Regulatory Science
5. Bachelor of Science Degree - Animal Science
6. Bachelor of Science Degree - General Agriculture
7. Bachelor of Science Degree - Regulatory Science

#### **Agricultural Experiment Station (AES)/Cooperative Extension Service (CES)**

**Dr. Worku Burayu** joined the SOA-AES team as the new Research Associate Professor of Agronomy in October.

Over 40 trees were donated to VI DOA for a tree giveaway at the end of November for the weekly Saturday Farmers' Market at DOA grounds. Species included Eugenias, Saman and Wild Frangipani amongst others.

**Dr. Worku Burayu** conducted 20 farm visits to work with them to develop improved sustainable pasture management systems.

AES collaborated with CES in the growing and distribution of vegetable seedlings for World Food Day.

CES participated in the 2021 Crucian Coconut Festival on December 5, 2021. The Academic Programs had a recruitment booth, distributing brochures and other written information regarding the academic programs offered in the School of Agriculture. The 4-H Health Ambassadors developed and tested three coconut recipes: coconut shrimp, coconut curry chicken, and coconut bread pudding. Approximately 75 samples of each recipe were distributed to the public, along with printed copies of the recipe. CES also had a hands-on display of coconut palm pests that included diseases, rodents (rats), birds (pearly-eyed thrashers), insects, and mites. The public was provided information on how to recognize and manage these coconut palm pests.

In partnership with the Department of Human Services, CES conducted a Basic Computer Training Course for individuals in the foster grandparent program. This course is designed to increase participants' knowledge and usage of computers. One of the goals of this course aims to bridge the digital divide in the U.S. Virgin Islands. The seven-week course began with learning how to use Microsoft Windows. After learning Microsoft Windows functions, participants were taught word processing using Microsoft Word. The class then learned E-mail/Internet, which included how to set up e-mail accounts and search for information using the World Wide Web. The main objective of this course was to get all participants computer literate according to UVI's standards. Seven participants received their certificates during the closing ceremony.

The 2021 World Food Day observance, sponsored by AES, CES and the V.I. Department of Agriculture (DOA), was held mostly virtually on Sunday, October 17, 2021. The World Food Day theme, selected by the Food & Agriculture Organization (FAO) of the United Nations for 2021, was "Our actions are our future - Better production, better nutrition, a better environment and a better life." The observance of World Food Day promotes awareness, seeks to highlight the challenges associated with poverty and world hunger, and encourages action to help feed less fortunate people in the territory. Over 5,000 vegetable seedlings, along with descriptive crop production handouts, were distributed to the public between 1:00 p.m. and 3:00 p.m. on the grounds of the V.I. Department of Agriculture. The vegetable seedling distribution was intended to encourage and enable residents to grow some of their own food. The World Food Day Opening Ceremony began at 4:00 p.m. and was followed by educational workshops on the three featured 2021 World Food Day agricultural products – pepper (54 persons attended), papaya (54 persons attended) and goat (54 persons attended). The World Food Day Opening Ceremony and educational workshops were conducted via Zoom.

Pesticide Education Safety Program Training continued in hybrid formats (combinations of in- person and virtual) for pesticide applicators in Institutional, Industrial, Structural Health Pest Category (there were seven attendees). Exams were administered in three categories (Institutional, Industrial, Structural Health Pest; Agriculture Pests - Plants and CORE).

CES staff concluded phase I of the Plant a Seed Challenge initiative, in partnership with the office of Senator Milton Potter. This initiative targeted residents and families in the St. Thomas/St. John District through a contest that encouraged Virgin Islands youth to become involved in gardening activities, thereby increasing their skills and knowledge about urban gardening. The second goal of the competition was to expose participants to career opportunities in agricultural science while promoting the academic program at the UVI School of Agriculture. CES staff provided technical assistance

and support to the approximately 150 participants and served as judges for the contest. As a result of CES' support, the contest participants and their family members increased their knowledge of the principles and practices of urban gardening. The winners of the competition were announced on October 30, 2021.

CES collaborated with Virgin Islands Trail Alliance, Our Brother's Table and the National Park Service to construct the first phase of the Morningstar & Windsor Forest Estate Educational Nature Trail. The nature trail is for use by the general public.

**Dr. Louis Petersen and Mr. Dale Morton** appeared as guests on the WTJX radio program Analyze This to discuss and promote the UVI School of Agriculture. Listeners increased their knowledge and awareness of the School, including its academic programs, services offered by the Cooperative Extension Service, and research work conducted by the Agricultural Experiment Station. Listeners also gained insight regarding the origin, history and mission of the Land Grant University concept. In addition, the radio audience increased their level of knowledge regarding the mandates of the School of Agriculture's three components in support of farmers and the community in general.

**Dr. Thomas W. Zimmerman** was a December 18<sup>th</sup> guest on Saturday morning 'Fresh from the Farm' radio show at 7:00 am. Topics discussed included Sorrel, Winged-bean, Sweetpotato and Jicama.

**Dr. Thomas W. Zimmerman and Mr. Stafford Crossman** participated in Congressperson Stacey Plaskett's virtual Farm Tour Roundtable on December 14<sup>th</sup>, with short presentations on research and Extension from UVI-SOA-Agricultural Experiment Station and Cooperative Extension Service.

### **Faculty Accomplishments**

The teaching faculty have contributed to various School of Agriculture and University-Wide committees work, among them include Curriculum, Benevolence, Student Recruitment, World Food Day, Facilities, General Education, English Proficiency Examinations, and Tenure and Promotion. They have participated in many professional development activities ranging from Blackboard training, student recruitment and advisement to grant writing and proposal development for the USDA agricultural teaching curriculum grants for the Insular Region colleges/universities.

## **Virginia Tech Updates for SR-AHS Meeting (January 2022)**

### **Academic Environment:**

The University has capped undergraduate student enrollment at 30,000, so enrollment in the College of Agriculture and Life Sciences has been steady over the past several years. University and college applications for undergraduate enrollment have increased significantly in recent years, and there is on-going discussion about increasing the cap. Virginia Tech was requiring all employees and students to be vaccinated against COVID (with religious and medical exemptions); however, Virginia's new governor, Glenn Youngkin, issued several executive orders and directives as part of his first day in office (January 15). Among those, Executive Directive 2 impacts the application of certain COVID-19 policies to our classified employee workforce at Virginia Tech. To avoid differential treatment of employees in similar roles, the University has included all Virginia Tech employees (but not students) in this alignment, so employees will no longer be required to be vaccinated, report their vaccination status to the university, or participate in mandatory testing. Testing continues to be offered to employees on a voluntary basis. Masking policies remain in place for everyone, and all COVID policies (which includes mandatory vaccinations with religious and medical exemptions) remain in full effect for students.



**Budget:**

Going into the 2022-24 biennium, the Commonwealth has substantial additional General Fund resources due to higher than expected growth across nearly every state revenue source. The Governor's Executive Budget proposal includes several items that are favorable to the university's operations, capital projects, and employee compensation and benefits. This Executive Budget proposal is not the final state spending plan. The General Assembly has convened to consider amendments and will finalize the Commonwealth's two-year spending plan by Spring 2022. Last year, V

**Capital Projects:**

Virginia Tech's and the Commonwealth's investments in new capital projects showcases the university's commitment to boost Virginia's agriculture and food industries. Among the new facilities managed by the College of Agriculture and Life Sciences are:

- completion of a new Metabolic Research Facility at Kentland Farm that allows for state-of-the-art studies of large animal metabolism in different environments;
- completion of the new Etgen Large Animal Learning Center on Plantation Road (western edge of campus), which provides a combination of classroom space and livestock handling space for hands-on learning;
- completion of a new Applied Reproductive Physiology facility adjacent to the College of Veterinary Medicine;
- upgrades, construction, and renovation of livestock and poultry facilities (campus farm sites) with most of Phase 1 scheduled to be completed in the summer of 2022;
- construction of the new Seafood Agricultural Research & Extension Center in downtown Hampton (replacing the current facility) is scheduled to be complete in the coming weeks;
- Agricultural Research & Extension Center system-wide improvements (phase 1) is a capital request to the State.

**Virginia Cooperative Extension Director Search:**

Dr. Ed Jones, who has served in the role since 2011, has announced his plan to retire, so we are initiating the national search for a new Director of Virginia Cooperative Extension. The Director also serves as an associate dean in the College of Agriculture and Life Sciences.

Virginia Tech implemented a faculty/staff compensation program (average 5%), and a similar program is being considered for this year. As part of a multi-year plan, Virginia AES and Coop Extension budgets received increases in new funding (\$4M one-time and \$1M recurring in year one) to support personnel, new technology and equipment, and IT infrastructure and maintenance; and we are hopeful for additional new funding for year two of this multi-year plan.

**University of Arkansas at Pine Bluff 2021 Accomplishments**

President Joe Biden appointed UAPB's Chancellor Laurence B. Alexander as Chair of the Board for International Food and Agricultural Development (BIFAD), a seven-member, presidentially appointed advisory committee to USAID to ensure it brings the assets of U.S. universities to bear on development challenges in agriculture and food security and supports their representation in USAID programming. Chancellor Alexander's appointment as BIFAD Chair marks the first time the board is chaired by a leader of an 1890 public land grant university, acknowledging the valuable contributions of Historically Black Colleges and Universities (HBCUs) and presenting an opportunity to further strengthen USAID's partnerships with HBCUs and other U.S. Minority Serving Institutions.

New Internship Program: UAPB is working with Riceland Foods, the largest rice production/milling company in the country, to establish a “first-time” Richland Foods Internship Program for student majors in the school of Agriculture, Fisheries and Human Sciences. This internship program will be a paid, 4 and ½ week summer internship. Students will rotate in four distinct workforce competency areas within the company and shadow key employers.

UAPB submitted a grant application under the USDA-NRCS Conservation Outreach: Equity Conservation Cooperative Agreements which has been selected for \$1M funding, pending further negotiation. This grant will provide climate-smart conservation practices, training and education for socially disadvantaged farmers in rural Arkansas communities.

### **Cutting-Edge Funded Research**

Dr. Sathish Ponniah (National Science Foundation - \$340,910) - *EPSCoR Infrastructure entitled: RII Track-2 FEC: Systems Genetics Studies on Rice Genomes for Analysis of Grain Yield and Quality under Heat Stress*. This project employs systems genetic approach to identify genes associated with the HNT-induced chalkiness.

Dr. Michael Eggleton (USDA, NRCS - \$3M) – *Development of an Ecological Monitoring and Assessment Framework for the ACEP-WRE Program*. This project examines the ecological monitoring and assessment of these wetland easements, including understanding influences of easement management practices to wetland structure and function.

Dr. Christopher C. Mathis, Jr. (Farm Service Agency - \$3.37M, in collaboration with Michigan State University, University of Wisconsin, and Deveron Corp.). UAPB’s portion was \$390,000. *Integrating Strategic sampling with an ensemble multi-model approach to quantify and scale soil carbon stocks and climate benefits in CRP*. This project aims to assess, monitor, model and compare the climate benefits of the Conservation Reserve Program (CRP) by developing an integrated system for soil sampling and modeling across spatial scales (from fields to regions) of soil organic carbon accrual and ecosystem services. Our project will comprehensively cover the conterminous U.S.

Dr. Hao Chen (USDA-NIFA - \$500,000). *Impact of Biochar Amendment on Antibiotic Retention and Soil Quality Improvement*. This project is aimed at developing an interdisciplinary research program to maximize the ability of biochar as a soil amendment on antibiotics retention and toxicity reduction. A variety of agricultural-residue-derived biochars will be produced through slow-pyrolysis at different process conditions. Critical physicochemical properties that may influence the residue-derived biochar as soil amendment to remove antibiotics will be determined in the laboratory. In particular, it will focus on an in-depth understanding of physical, chemical, and biological processes that control the interactions between pharmaceuticals and biochars and their impact on soil and crop systems.

Dr. Grace Ramena (USDA-NIFA - \$500,000). *Phage Endolysins as Alternative to Antibodies for Treating Systemic Infections of Streptococcus iniae in Fish*. This project aim is to evaluate evaluate PGHs as novel antimicrobials alternative to antibiotics against *S. iniae* in tilapia and HSB, for PGH use can be translated to other fish pathogen species as well as for animal and human diseases.

Dr. Karleah Harris (USDA-NIFA - \$390,000). *Healthy People Healthy Planet, A Food Desert Program at the University of Arkansas at Pine Bluff, and Fayetteville, AR*. This project aims to strengthen the UAPB and Fayetteville ‘s capacity to build partnership in the food desert community. Specially, designing curricula for programs at the PreK-12 level in the state of Arkansas.

Dr. Blessing Masasi (USDA-NIFA, Evans Allen - \$150,000). *Monitoring and modeling water and nutrient use Efficiencies in the Arkansas Delta*. The goal of this project is to develop applied research focused on the application of precision technologies on irrigated agriculture in the Arkansas Delta to reduce pressure on the aquifer.

### **Extension and Outreach Highlights**

**The Small Farm Program:** Sustainable Forestry and African-American Land Retention (SFLR) "Keeping it in the Family (KIITF) Program directly assisted 279 landowners and impacted 12,742 forest acres. During the fiscal year ending 2021, the KIITF Team provided forest management and estate planning education to over 1,500 participants. Eighty-four site visits were conducted by the KIITF team and approximately \$283,612 of the Environmental Quality Incentive Program Funds were obligated to cover 662.6 acres of African American forestland.

**Family and Consumer Sciences Program:** Although the Covid-19 Pandemic has put stress on early childhood programs, the UAPB's Early Head Start-Child Care Partnership (EHS-CCP) Project continues to provide quality early learning services for children birth to three years of age and provides strategies to help families, teachers, and program staff cope with fear related to the pandemic and maintain healthy social and emotional wellbeing. Of the children enrolled, 90% (based on the Desired Results Developmental Profile and Child Plus data) have entered their next educational opportunity with a solid foundation in physical, social-emotional, and health development. Since March 2015, the UAPB EHS-CCP Project has served more than 500 children (Birth to 3) and their families; provided more than \$3.5 million to sustain qualified teaching staff with an additional \$1.2 million in layer funding to ensure that teachers get the training and support needed to help young children meet their individual maturational needs. The project funds Early Head Start programs for 8 child care centers and 1 home-based child care facility and serves Bradley, Chicot, Drew, and Jefferson Counties in Arkansas.

**The Horticulture Program:** In 2009, the University of Arkansas at Pine Bluff (UAPB) received \$400,000 from the Arkansas Congressional Representatives and legislatures for the development of the Sweet potato Foundation Seed Program. This allowed for the renovation of a greenhouse to meet the standard for sweet potato clean plant multiplication and equipping the tissue culture laboratory, as well as for the purchase of a tractor, a sweet potato planter and a sweet potato harvester. UAPB also constructed two new high tunnel hoop houses to provide additional space for more sweet potato slip multiplication. Funding from the state and the National Clean Plant Network for Sweet potatoes (NCPN-SP) helped propagate 1,984 tissue cultured sweet potato plants that were used to produce 25,000 slips during the summer of 2021. UAPB worked with 25 growers from Arkansas, supplying them virus-indexed sweet potato slips and technical assistance. UAPB's sweet potato program is now responsible for over 90% of the acreage under sweet potato production in the state of Arkansas.

**The Aquaculture & Fisheries Program:** The baitfish farms in Arkansas produce almost 90% of baitfish in the United States, with an economic impact of about 350 million annually. The UAPB's personnel participated in the Animal and Plant Health Inspection Services certified Fish Health inspection program and processed 11,200 fish samples. Pine Bluff and Lonoke labs conducted 159 fish health cases, 156 disease diagnostic cases, 197 water quality analyses, 355 plankton/algal identification analyses, and 382 microbial case analyses. Additionally, technical assistance was provided to clientele through farm visits, phone consultations, and office visits. The inspection services provided enabled farmers to ship their live fish interstate and internationally. The fish health and disease diagnostics, water quality, and algal analyses services provided to fish producers in Arkansas resulted in an economic impact of over 6 million dollars.

## **Aquaculture/Fisheries Center of Excellence and Department of Aquaculture and Fisheries**

Developed two diversity, equity, and inclusion (DEI) plans – one for faculty and staff, and one for graduate students. Faculty and students also participated in special sessions on DEI at our professional association meetings, including Aquaculture 2021 in San Antonio and the American Fisheries Society meeting in Baltimore.

Final approval is pending for a new non-thesis option in our MS degree program and initiated a self-study of our MS degree program.

Held Aquatic Sciences Day for high school students. This is a hands-on series of youth-oriented demonstrations that showcase research, extension and career opportunities in our field. The event was attended by approximately 200 students and instructors from 5 high schools.

Dr. Steve Lochmann, professor of fisheries, took the first extramurally funded sabbatical leave in our Department (to study science communication at SUNY). Results will be integrated into our academic programs and disseminated through professional association workshops.

Hosted a Fulbright visiting research scholar from Indonesia – collaboration on insects as fish feed ingredients. An MOU to continue collaborative research and academic activities for faculty, staff and students at UAPB and the Indonesian institution is in development.

Completed pre-planning visits to multiple institutions in Ghana. UAPB has agreed to collaborate with Ghana colleagues on aquaculture curriculum development, extension program development, small-scale aquaponics farming, and feeds development using local ingredients.

Total extramural funding for the Aquaculture/Fisheries Center for 2021 exceeded \$4.65 million.

Efforts are underway to launch a multi-institutional research consortium with USDA/ARS facilities and cooperating Universities focused on developing insect products as fish feed ingredients for multiple aquaculture species.

Youth Fishing (Extension/outreach)- Arkansas Collegiate Series -103 students from 16 institutions in 6 states participated in 2021. Net economic impact was between \$51,052.15 and \$63,792.15 in 2021.

## **Department of Agriculture/Agricultural Regulations Highlights**

- The potential of animal byproducts such as crawfish shells and chicken feathers to perform sorptions (adsorption/absorption) and degrade pollutants in water systems was studied in 2021. This research focuses on raw materials that are not widely reused, such as crawfish shells and chicken feathers. Since they are rarely used once removed from the animal, biochar made from these products could be particularly cost-effective. After optimizing the pyrolysis parameters, the biochar we made showed excellent soil and water remediation results.
- The nutraceutical laboratory of the UAPB Department of Agriculture identified and characterized physiological functions for at least ten accessions of sweetpotato that are suitable as nutritious leafy vegetables with high medicinal attributes. This laboratory also developed several healthy cooking methods using sweetpotato leaves as nutritious vegetables.
- For the 2021 growing season, UAPB Sweetpotato Foundation Seed Program provided 25,000 virus-indexed sweetpotato slips to the industry. This resulted in approximately 13 acres cultivated using UAPB virus-indexed slip. The harvest from this acreage will be used as seed stock for the 2022 season.
- The Department of Agriculture conducted an intensive summer residential program for high school students (9-12 grades) for 2-weeks to stimulate interest in education and careers in veterinary and

animal science and help increase the recruitment of students in animal and poultry science programs UAPB. Created Flyers and application forms, distributed to local school counselors, science teachers, students, and parents. Another summer program, Ag Discovery, was also completed successfully. Several speakers, including faculty from our department, and lab activities, farm tours, hands-on experiences, were provided to participants in July 2021. These summer programs were posted on social media and our FaceBook page and Instagram, including local newspapers. Seventeen high school students attended this summer enrichment program.

#### **Academics:**

- Approved a new master's level graduate degree program in Agricultural Regulations (Non-Thesis Option).
- The Bachelor of Science (B.Sc.) in Agricultural Engineering degree at UAPB is the first agricultural engineering program at an HBCU within Arkansas. It prepares undergraduate students for the industry's current and future demands to solve problems concerning power supplies, machine efficiency, structures and facilities, pollution and environmental issues, and the storage and processing of agricultural products. We hired 2 new tenure-track faculty in Agricultural Engineering, 1 Research Associate/Instructor (Ph.D.), and 1 Greenhouse manager.
- The Department of Agriculture/ Agricultural Regulations faculty and researchers published 25 articles in peer-reviewed journals during 2021. Eight presentations at professional meetings, of which student presenters made 5. They have published 7 Extension, outreach, or popular press articles, 30 abstracts, and seven reports. The department of agriculture obtains four competitive grants totaling \$0 .6M.

#### **Department of Human Sciences Highlights**

- Dr. Doze Y. Butler was selected to participate in the World Food Prize Global Guides program for 2021-2022. Her project will involve a novel way to address food insecurity. Professor Butler was elected President of the National Coalition for Black Development in Family and Consumer Sciences. Her term runs from July 2021-June 2023. The key theme of her tenure will be the development of future FCS leaders.
- Dr. Karleah Harris (Assistant Professor) was awarded a 2021 U.S. Department of Agriculture National Institute of Food and Agriculture (NIFA) Capacity Building Grant (CBG) "Healthy People Healthy Planet, A Food Desert Program at the University of Arkansas at Pine Bluff, and Fayetteville, AR." For \$390,000. Dr. Karleah Harris (Assistant Professor) was also awarded a 2021 U.S. Department of Agriculture National Institute of Food and Agriculture (NIFA) Evans Allen Grant "Examining Grandparents Raising Grandchildren: Multiples Role's, Challenges, and Community Engagement."
- Dr. Marilyn Bailey was awarded a 2021 American Rescue Plan Act (ARPA) grant from the Administration for Children and Families; Amount: \$105,292.00; This project focuses on trauma-informed care for Early Head Start staff and families coping with the impact of Covid-19 and program management. Dr. Bailey was also awarded a 2021 American Rescue Plan Act (ARPA) grant from the Arkansas Department of Education (Division of Child Care and Early Childhood Education; Amount: \$26,485.00; This project focuses on staff support to ensure adequate teacher-student ratio and health and safety related to Covid-19 protocols.
- Dr. Opiri Jane was awarded a (USDA/NIFA – CBG) entitled, ARX012020-11182 NIFA: Digitalization and Expansion of the Merchandising, Textiles and Design (MTD) Curriculum to prepare students for future careers in Textiles and Apparel Industry. Amount \$149, 998. The goal of this project is to build the capacity of the Merchandising, Textiles and Design program by enhancing and strengthening the curriculum and teaching laboratories. This project will establish a state- of -the- art computer aided

design laboratory. The lab will be used to enhance the current courses and expand the course offering by creating new courses and thus enhance the teaching and learning environment.

- New Publication for Dr. Ying Gao Balch: Gao Balch, Y.H. (2021). Subculture human skeletal muscle cells to produce the cells with different Culture medium compositions. *Clinical Research and Clinical Trial*; 3(2) JDOI:10.31579/2693-4770/036.
- Dr. Sankar Devarajan (USDA-NIFA Evans –Allen grant was funded and entitled, *Screening the Chymase Inhibitory Potential of Different Varieties of Sweet Potato (Ipomoea Batatas L.)*. We have discovered four sweet potato varieties (Burgundy, Covington, Beauregard, and Orleans) exhibits chymase inhibitory and free radical scavenging effects in vitro. The ethanol extracts of sweet potato varieties exhibit more significant chymase inhibitory and free radical scavenging activities than the aqueous extracts. Sweet potato Burgundy shows remarkable chymase inhibitory properties compared to other types. The preliminary data obtained from this project supports seeking extramural grant funds to translate this research to in vivo experiments. This study will significantly impact nutrition and food science research and the development of nutraceuticals or functional food ingredients to control salt-induced hypertension. Natural foods with known antioxidative and anti-inflammatory defense could be an added advantage besides chymase inhibitory properties to effectively improve hypertension and associated complications. Since the chymase inhibitor, the generic drug, is still not approved yet for human hypertension, searches for foods or food compounds that exhibit chymase inhibitory properties will be helpful. It can be advocated as a natural remedy to control the development and maintenance of hypertension caused by high salt intake. This study would pave the way for path-breaking research and support underrepresented students to excel at the state, regional, national, and international level(s) through novel and evidence-based research.

## **University of Tennessee Institute of Agriculture Highlights APLU Southern Administrative Heads Section Meeting — Winter 2022**

### **STATE SUPPORT**

Agriculture and UTIA continue to receive strong support from the Tennessee General Assembly and Governor Bill Lee's administration.

- With a \$2.1 million recurring budget increase, UTIA is hiring the final of 32 additional Extension agents to serve rural and distressed counties. When fully staffed, Tennessee Extension again will serve 95 counties with at least one agricultural agent, one family and consumer sciences agent, and one youth development agent.
- UT AgResearch received a one-time, \$50-million grant from the state's federal American Rescue Plan funds for enhanced infrastructure and equipment modernization at its 10 centers.
- Minimum wage increased to \$15 per hour for full-time employees.

### **CONSTRUCTION**

Construction is underway on campus and across the state:

- A \$10-million College of Veterinary Medicine Teaching and Learning Center addition boasts a theater classroom and new simulation equipment to enhance student experiential learning. Expected completion is June 2022.
- A 100-million Energy and Environmental Science Building will house plant sciences; entomology and plant pathology; forestry, wildlife and fisheries; the Smith Center for International Sustainable Agriculture; and other programs and faculty. Expected completion is December 2023.

- Lone Oaks Farm’s West Tennessee 4-H and Youth Development Center is in its first construction phase. Forest Cabins and two new buildings with classrooms and STEM lab space, as well as a dining facility, are underway.
- The Clays at Lone Oaks Farm, a 14-station sporting clays course, opened in spring 2021. Created in partnership with the Tennessee Wildlife Resources Agency and acclaimed designer Marty Fischer, the facility received the Project of the Year Award from the American Institute of Architects Kansas City.

### **LEADERSHIP ADDITIONS/CHANGES**

- David White has been appointed to a limited duration appointment as a senior administrative fellow, overseeing projects and new initiatives while building collaborations for UTIA. Jodi L. Letham became the first woman to join the AgResearch leadership team, serving as an assistant center director. Daniel Berckmans, renowned precision livestock farming scholar, is a new adjunct distinguished professor. Tom Tabler joined animal science as a poultry specialist. Craig Pickett Jr. was appointed as the director of diversity, equity, and inclusion.
- Additional UTIA leadership initiatives include searches for an associate vice chancellor for business and finance, an assistant dean of UT Extension’s agriculture and natural resources programs, and a permanent senior vice chancellor/senior vice president to lead the entire Institute. Linda C. Martin is serving in an interim capacity following Tim Cross’ retirement.

### **COLLEGE NEWS**

- The College of Veterinary Medicine has received a major gift from Charles and Julie Wharton to name the Large Animal Hospital. The Board of Trustees approved the naming in January.
- The College of Veterinary Medicine is undergoing a scheduled onsite AVMA Council on Education accreditation review which occurs every seven years. In the last review in 2015, the college was fully accredited.
- Applications to the Herbert College of Agriculture are up 31 percent for fall 2022.

### **NEW INITIATIVES**

- The newly named Hickman Precision Agriculture Technology Unit supports the AgResearch Precision Livestock Farming Initiative focused on cattle and poultry. Milking robots will soon modernize AgResearch’s dairy center.
- With support from two alumna, the Herbert College of Agriculture is working with the College of Education, Health and Human Sciences to revive the UT Creamery. It is expected to open in summer 2022.
- AgResearch extramural funding increased by 40 percent compared to the prior year, with monies from the USDA, National Science Foundation, the National Institutes of Health, and NASA.
- UT Extension Family and Consumer Sciences received NIFA funding for a Farmer Stress Grant totaling \$7.2 million. Additionally, FCS and the Tennessee Department of Agriculture launched a Family Farm Health and Wellness Program.
- High-quality, locally sourced UT Beef is on the menu at University of Tennessee, Knoxville dining halls, thanks to UTIA. The Aramark partnership highlights UTIA grazing system research and supports a variety of livestock operations across the state while minimizing environmental impact.

## **LSU AgCenter and College of Agriculture HIGHLIGHTS**

### **LSU College of Agriculture**

1,500 Undergraduate Students

300 Graduate Students

407 New Enrollments

8.2% increase in undergraduate students since 2019

### **Short-Term Initiatives:**

- Identify and recruit top 100 ag students in the state
- Reevaluate scholarship needs for incoming students
- Expand internship offerings and undergraduate research
- Enhance collaborations with professional schools across campus and LSU System

### **Youth Development**

4-H and FFA youth programs reach 160,000 in Louisiana. 4-H Clubs were still being hosted in schools across the state, based on campus access, and other clubs were moved to community or special interest clubs. Programming at Camp Grant Walker Educational Center was not held again in 2021 due to the not just pandemic, but ongoing damage from the two hurricanes in late summer of 2019. So, over 75% of the parish 4-H programs hosted a “Camp on the Road” in the summer 2021. These educational fun filled day camps allowed youth to join together and experience a “taste” of Camp Grant Walker in their own parish. Here is the link to the current 4-H Annual Report:

[https://www.lsuagcenter.com/portals/communications/publications/publications\\_catalog/4-h%20youth%20development/annual-report](https://www.lsuagcenter.com/portals/communications/publications/publications_catalog/4-h%20youth%20development/annual-report)

### **Diversity Champions**

The LSU AgCenter established the **Regional Diversity and Inclusion Champions program**. The Regional D&I Champions will promote greater inclusion and foster an understanding of the importance of D&I to the LSU AgCenter’s success. The first cohort began January 2022.

### **Management Development**

New in 2022, is a pilot training program for the LSU AgCenter and College of Agriculture called the Management Development Institute (MDI). The program will be a year-long series of 10 workshops culminating in an MDI Certification upon completion. The program content will focus on three areas: managing self, managing others, and managing the business. The series was designed for those who aspire to leadership roles as well as current leaders who may be interested in sharpening their management skills.

### **Healthy Communities**

Healthy Communities, started when the AgCenter entered a five-year agreement with the CDC for a High Obesity Program to address the nutrition and physical activity environments of six rural Louisiana parishes with an adult obesity rate over 40%. The LSU AgCenter has been working diligently in communities across the state to lower obesity rates and improve quality of life by increasing access to healthy foods and changing health behaviors in a population. The team just completed food systems assessments in the six pilot parishes. See the reports at this link: [https://www.lsuagcenter.com/topics/food\\_health/healthy-communities/reports-and-research](https://www.lsuagcenter.com/topics/food_health/healthy-communities/reports-and-research)

### **EXCITE grant**

The LSU AgCenter has been awarded a grant from the Extension COVID Immunization Training and Education (EXCITE) program from May 1, 2021, to April 30, 2022. The program targets medically underserved minority populations in Caddo Parish in the Northwest Region with the family and consumer science coordinator and agent serving as principal investigator. Partners in the project are LSU Health Shreveport, We Grow Together! Coalition, Food Bank of Northwest Louisiana, Caddo Parish Head Start and the Caddo Parish Expanded Food and Nutrition Education Program.

### **Low Glycemic Rice**

Frontière is a low glycemic rice developed by LSU AgCenter scientists. This low glycemic rice is a non-GMO



developed using conventional mutational breeding methodologies. The scientist's ultimate goal was for the rice to supplement the protein intake of people worldwide who have high-carb, low-protein diets. Second-generation rice farmer, Michael Frugé, grows and markets the rice as Parish Rice. The product is in 65 Rouses supermarket locations and online.

### **Research and Promotion Board Grants**

LSU AgCenter's researchers and extension professionals receive new and continued support from commodity boards. Research efforts provided through the promotion board check-offs are critical for the agricultural industry to remain viable. These boards annually review proposals for funding and this year the AgCenter received:

- Rice Research Board: \$1.2 million
- Soybean and Grain Research and Promotion Board: \$1.7 million
- Sugarcane League: \$1.1 million

### **Intellectual Property**

Our scientists continue to bring innovative discoveries to the world marketplace through the Office of Intellectual Property. For the last fiscal year, we garnered \$8.5 million in royalties, had fourteen patents and seven plant variety protection certificates issued, filed 20 patents, and entered into 4 new license agreements. 19 new companies have been started since office inception based on our licensing technology. Our intellectual property truly contributes around the world. Royalties from these companies and from other licensing agreements have generated over to \$85 million since 1999.

### **Research Stations Featured**

Louisiana has an incredibly diverse agricultural sector for a state its size. Livestock, agronomic crops, horticultural crops, forestry, aquaculture and marine fisheries all constitute major components of the state's agricultural production sector. The LSU AgCenter's network of 15 research stations across the state supports Louisiana's diverse agricultural industry with a broad range of research and extension activities designed to address the needs and challenges of the state's agricultural industry. Fall 2021 issue of Louisiana Agriculture Magazine features all our research stations.

<https://www.lsuagcenter.com/portals/communications/publications/agmag/archive/2021/fall>

### **Philanthropy**

Currently there has been \$18.6 raised toward the \$29M campaign goal for the College of Agriculture and LSU AgCenter. The LSU AgCenter and College are always seeking opportunities to develop public/private partnerships. These partnerships enhance and extend our current programs:

- Newton family funded a professorship in Sugarcane variety research.
- Loveland Product Inc., an affiliate of Nutrien, continued their support with another \$500,000 gift to the H. Rouse Caffey Rice Research Station for the development of advanced rice inbred lines, hybrid lines, parent lines, genetic marker development, and determination and development of advanced agronomic traits such as disease resistance, herbicide tolerance and yield enhancement.
- Michael and Debra Venker created a planned gift of \$5M to support diversity recruiting in the college and scholarship support in Ag Economics and Agribusiness.
- Raised an additional \$1M in support for the Burden Museum & Gardens Welcome Center.
- The LSU AgCenter is in the final year of a \$1.4 million grant from the Patrick F. Taylor Foundation. The project researches reducing nutrient runoff from crop fields.

## Leadership Changes

•**Lucien P. Laborde, Jr., Ph.D.** was named Interim Vice President of Agriculture and Dean for the LSU College of Agriculture in August of 2021. Laborde holds three degrees from LSU, a bachelor's degree in agronomy, an MBA, and a Ph.D. in wildlife management. Laborde had a successful 30- year career as a global insurance broker and risk adviser and started on a second career in wildlife management at the LSU School of Renewable Resources. Laborde follows Dr. William Richardson who has returned to teaching and international programs.

•**Allen Rutherford, Ph. D.** was named Executive Associate Dean for the LSU College of Agriculture and also serves as the Director for the LSU School of Renewable Natural Resources. A professor of fish ecology, Rutherford has been with LSU for more than 36 years. He holds a bachelor's and master's degree in biology from Baylor University and a doctorate in zoology from Oklahoma State University.

## The AgCenter priorities for the FY 22-23 budget:

- 1) Analyzation of funding from 2021 Regular Session.
- 2) Funding to provide faculty and staff pay raises.
- 3) Increased funding for one-time costs associated with development of a Precision Agriculture program to support producers statewide through research and extension programs and initiatives, and research station modernizations and equipment.
- 4) Increased recurring funding to enhance extension programs statewide and allow for strategic hiring of 39 agents and/or specialists in the areas of Agricultural and Natural Resources, Family and Consumer Science (health/nutrition), 4-H Youth Development, Urban Programming, and Communications Support.
- 5) Revenue to support the development and implementation of broadband/rural connectivity educational and training program(s) to provide resources to producers and stakeholders statewide.

## NC STATE UNIVERSITY

### January 2022 College of Agriculture and Life Sciences Report

**CALS Leadership.** After close to ten years of serving as Dean of the College, Richard Linton has become the President of Kansas State University. During his tenure he developed a strategic plan for the college that focused on building people, programs, and partnerships. He engaged with industry, government, and universities to form valuable collaborations, which led to the NC Plant Sciences Initiative, the Food Manufacturing Initiative, and the Food Animal Initiative, among many others. The number of faculty, undergraduate students and graduate students in the college increased. He is especially proud of the new, diverse faculty hired as well as the great increase in the number of rural students admitted to the college. John Dole will succeed Dean Linton as Interim Dean and Kim Allen will become Interim Associate Dean for Academic Programs. A national search for a new Dean has been initiated.

**Plant Sciences Initiative.** The cornerstone of the Plant Sciences Initiative, the NC State Plant Sciences Building will be dedicated April 12. The \$160 million project will be finished on time and on budget. Led by Adrian Percy, it will engage 79 faculty from 6 colleges. NC Plant Sciences Initiative (PSI) ROI is already \$122M/18 months.

**CALS Strategic Plan.** The College is in the middle of developing its next strategic plan for 2022 to 2030, being co-led by John Dole and Rebecca Zuvich. The plan is due to be released this summer, in consultation with the new Dean.

## Research

- \$98M competitive research, 1131 publications, patents disclosed/filed/issued: 76/64/32
- New partnerships with SAS, Microsoft, & Novo Nordisk Foundation
- \$25M NSF Science & Technology Center funded program with engineering (first at NC State)
- \$11 M NC Food Innovation Lab—GMP facility fully operationally in Kannapolis
- \$4 M has been awarded for NCSU Bee Building
- IR-4 program was awarded a USDA grant for \$54M

## Extension

- Remarkable response and engagement during the pandemic
- Highlights from last year <https://www.ces.ncsu.edu/how-extension-works/extension-impacts/>
- New partnership with IR-4. Office has fully moved from Rutgers to NC State. IR-4 supports the specialty crop industry in the US and in NC.

## Academics

- CALS launched its first completely online BS this year - the first NC State online degree for incoming freshmen. The Online Agricultural Science degree, in the Department of Agricultural and Human Sciences, is intended for agricultural careers requiring a broad background in agriculture.
- Graduate student numbers increased to 1047; however, 4-year students declined slightly to 2637, and 2-year (Agricultural Institute) students declined to 229.
- Overall undergraduate applications were up 9% last year and our Early Action applications are already up 13% this year for 2022/23.
- CALS Online Academy, a cooperative program among CALS Academics and Extension and NC Community Colleges, has completed its first two courses.

## Advancement

- \$43M total funding, will near \$479M in capital campaign (~ 25% of NCSU campaign total)
- Less than \$600,000 left to raise toward the \$160.2 million NC State Plant Sciences Building
- April 12, 2022 - Dedication of the NC State Plant Sciences Building

## Diversity and Inclusion

- Significant new efforts during pandemic, (national racial challenges, presidential election)
- Significant increases in women, black, Hispanic, and Asian faculty (past 5 years)

## Human Resources and Communications

- Incredible effort and impact for our faculty, staff, and students during the pandemic

## University of Georgia, College of Agriculture & Environmental Sciences

### Academics

- Undergraduate enrollment: 1,446
- Graduate enrollment: 699 – 12% increase from Fall 2020
- Added a new undergraduate degree program in Hospitality and Food Industry Management; major has seen 305% enrollment growth between Fall 2019 and Fall 2021, making it the second fastest growing UGA undergraduate major since 2019
- Admitted first class of scholars through the UGA Rural Scholars Program, which offers full four-year scholarships to outstanding students from rural counties

## Research

- Increased total grant expenditures in FY21 8.3% from \$40.4M to \$43.8M; increased competitive federal grant expenditures 8.6% from \$32.3M to \$35M.
- Increased new awards in FY21 10.6% from \$57.6M to \$63.7M; new competitive federal grants 6.3% from \$49.3M to \$52.4M.
- Invested \$2.5M in ongoing renewal program for greenhouse complexes in Tifton, Griffin, and Athens; broke ground for the new \$5M greenhouse complex and over \$5.6M in new cool season greenhouse, renovated headhouse and multidisciplinary plant growth facility in Athens
- Invested \$1.1M in GPS and variable rate irrigation and fertilization equipment at the 8 RECs throughout the state; UGA plans to form an Institute for Integrative Precision Agriculture

## Extension

- 309 county agents, 70 educators, and 385 support staff; 124 Extension specialists with 10%-100% Extension appointments
- Georgia 4-H: 97,124+ total participation over the 2020-2021 Program Year; 21,805 individuals utilized 4-H facilities around the state
- 786,293 total formal educational contact hours delivered by UGA Extension
- Experienced decrease in Extension and 4-H programming due to COVID-19; actively working to rebuild engagement numbers and return to previous levels

## Development

- Total funds raised for CAES in FY21 is the second highest fundraising to date for CAES in the last decade; CAES raised nearly \$15.2M, 161% of our \$9.4M goal; Georgia 4-H raised nearly \$1.7M, 169% of our \$1M goal.
- Poultry Science Building: our funding goal is \$27M, currently funded at \$8.7M in private donations and nearly \$24M in state funding.
- Major funding priorities include support for the new Poultry Science Building, Rural Scholars Program and endowed support for faculty and students – recently received a \$2.3M gift to create a Distinguished Professorship in Poultry Science.

## Communications and Public Relations

- 3,400+ national and international media mentions for CAES and Extension coverage
- 1,451,583 visits to the CAES site and 3,607,777 visits to the Extension website
- 2,633,928 visits to webpage versions of Extension publications, and 121,853 downloads of Extension publications
- Moving away from traditional print advertising; building the CAES brand and leaning more heavily on video and digital marketing to showcase innovation

### Florida A&M University, College of Agriculture and Food Sciences

Robert W. Taylor, Ph.D., Dean and Director of Land-Grant Programs

*Highest Ranked Public HBCU and the Number One Public HBCU for Research & Development.*

#### CAFS Research Highlights

**Center for Biological Control** – Thirteen (13) research projects were funded, totaling over \$1.1 million in 2020-2021.

- **Two Newly Funded Projects as Part of a Consortium include totaling \$16.3 million:**
  - \$15.0 million funded project. Consortium (University of California Davis, Florida A&M University, Michigan State University, World Vegetable Center) for proposal submitted by Horticulture

Innovation Lab University at UC Davis to USAID Feed the Future Program. Co-PIs (Harriett Paul, and Lambert Kanga)

- \$1.3 million funded project. Consortium (Florida A& M University, University of Maryland Eastern Shores, Alabama A&M University, Southern University, University of Arkansas at Pine Bluff) for proposal submitted to USDA 1890 Center of Excellence for Global Food Security and Defense by the University of Maryland Eastern Shores on behalf of the Center of Excellence for International Engagement and Development. Co-PIs (Harriett Paul, Lambert Kanga, Violeta Tsoleva, Anthony Ananga, AND Lucy Ngatia)

**Center for Viticulture & Small Fruit Research** – Nineteen (19) grants were funded totaling over \$2.9 million in 2020-2021. Highlights include:

- Enhanced Florida grape industry through identifying new bunch grape and muscadine genotypes suitable for wine production and fresh consumption, adapted to Florida condition. This includes the release of two red muscadine cultivars suitable for wine production ‘Floriana’ and fresh consumption ‘Onyx’, as well as start the process for the release of two new bunch grape cultivars suitable for white wine production ‘Blanc du Soliel’ and ‘Blanc de Leon.’
- Develop a breeding platform utilizing the unique beneficial qualities of the Muscadine to secure the lead and enable breeding programs in the U.S. Routinely applied modern genomics and genetics tools to efficiently deliver cultivars with producer-required disease resistances and market-essential fruit/vinification qualities.
- The Southeastern NCPN Center for Grape at FAMU evolved further by expanding and including the working group from Texas A&M University/Horticulture Department in College Station and Micropropagation and Repository Unit at North Carolina State University (NCSU).

**Center for Water Resources (CWR):**

- Building Research Capacity in Hydrologic Exchanges between Natural and Human Environments. PI: Katherine Milla, Ph.D., Co-PIs: Amita Jain, Ph.D., and Odemari Mbuya, Ph.D. NIFA 1890’s Capacity Building Program, \$586,262, (3/1/2019 – 3/2/2022). New collaboration developed with University of Florida Extension Agents Yilin Zhuang, Ph.D., and Andrea Albertin, Ph.D. Zhuang. This collaboration focuses on promoting the testing of well water among rural communities. Accomplishments: Two laboratory modules were developed as online labs for the classes: “Introduction to GIS and Remote Sensing” and “Research Applications of Geographic Information Systems.” Five video tutorials were developed and deployed in classes demonstrating specific GIS geoprocessing methods. Created a database of attributes for houses sold in Tallahassee during 2015-2016. Attributes include number of bedrooms, number of bathrooms, presence or absence of swimming pool and presence or absence of garage or carport. A laboratory for processing and analyzing microplastics in water was set up.
- Effect of Reclaimed Wastewater Irrigation on Soil Health and Environment – (on-going), PI: Amita Jain, Ph.D., Co-PIs: Katherine Milla, Ph.D., Odemari Mbuya, Ph.D., Ashvini Chauhan, Ph.D., and Johnny Grace, Ph.D. Goals: assess impacts of reclaimed water irrigation on soil quality, nutrient movement in soil and groundwater resources; produce trained and skilled graduates in agriculture and natural resource sciences. Students, faculty, farmers, and local communities will benefit from the protection and improvement of water quality of groundwater. The enhanced knowledge and improved understanding of the effect of irrigation use of reclaimed wastewater on soil’s chemical, microbiological properties and its implication on denitrification and nitrification processes will be useful to mitigate the negative impact on soil and groundwater resources thus protecting environment and human health. Accomplishments: Soil samples were collected in triplicate from six pivot sites and six control sites in February, 2020 at three depths, 0-6", 6-12", and 12-24" separately for both chemical and microbial analyses.

## STUDENT RESEARCH – Graduate Student Spotlight

- The Center for Viticulture and Small Fruit Research is very proud to report the significant achievements of graduate student **Jiovan Cambell** and his major professor Islam El-Sharkawy, Ph.D.. Campbell was a graduate research assistant at the Center’s Genetics and Breeding Program. Campbell was also selected for a summer paid internship with the Beaux Frères Winery in Oregon. Upon graduation from FAMU CAFS in spring 2021, Campbell published three refereed publications as the first co-author. The publications’ data and results were generated under his master’s thesis research project, with the exemplary mentorship and guidance of El-Sharkawy and contributions of the Center and its international team of experts.
- **Worrel Diedrick**, graduate student of Lambert Kanga, Ph.D., Center for Biological Control Director, – *First Discovery of Egg Parasitoid of the Kudzu Bug in Florida (North America)* –first to discover an efficient egg parasitoid (*Ooencyrtus nezarae*) in the State of Florida (classified as a State Record), it is a new biocontrol tool that can be used to manage kudzu bug (*Megacopta cribraria*). The kudzu bug is a destructive and invasive pest species that affects essential food crops such as soybean and legumes. This new biocontrol tool can prevent the need for the use of pesticides in soybean production (the second most planted field crop in the U.S.) which has an estimated annual revenue of \$39 billion (2020).

## USDA Centers of Excellence (COE) Funding at FAMU:

- **Center for Innovative and Sustainable Small Farms, Ranches, and Forestlands (7/1/2020 – 6/30/2022)** –FAMU is the Co-Lead, Thrust Area 1: Farm Commodity, Process & Systems. FAMU Award: \$75,000. Principal Investigator (PI): Vonda Richardson, Director, Cooperative Extension.
- Three proposals with Verian D. Thomas, Ph.D., CAFS Associate Dean, Recruitment and Alumni Affairs, as the Principal Investigator, were funded:
  - Virtual Center to Motivate and Educate for Achievement (MEA)** – MEA, one of three USDA 1890 Centers of Excellence established in 2015 along with the 125th Anniversary of the Second Morrill Act of 1890, is also the name of this proposal, funded to establish MEA – Under MEA Objective 2, *Deliver Workforce Development Experiences by Creating/Strengthening A Partnership with a 9th – 12th grade Bridge Program in Food, Agriculture, and Natural Resources*, and MEA Objective 3, *Expand student experiences to increase their knowledge and engagement in STEAM with Cooperative Extension’s AgriSTEM Saturday Academy*. FAMU Sub-award: \$35,174 (USDA NIFA MEA, 7/1/2020 – 6/30/2022)
  - MEA, Project Title:** Building a Community of Future Employees in Food and Agricultural Sciences, Natural Resources, and Related Sciences: Opportunities Through Collaboration (includes experiential learning for new 1890 Scholars). FAMU Award: \$50,000 (USDA NIFA MEA, 7/1/2020 – 6/30/2022)
  - USDA 1890 Center of Excellence for International Engagement and Development (CEIED)** – Project Title: Training Globally Competent Students for the Food, Agricultural, Natural and Human Sciences Workforce; an 1890 and Latin American Institutional Partnership. FAMU Award: \$24,000 (USDA NIFA, 8/1/2020 – 6/30/2022).

## Cooperative Extension Reached More Than 1.7 million Citizens in 2021

- **Direct Clientele Contacts:** 30,900 ♦ **Indirect Clientele Contacts:** 1,732,551 ♦ **Educational Materials:** 212 ♦ **Group Learning Activities:** 1861 ♦ **4-H Youth:** 5,710 ♦ **Volunteer Hours:** 22,474 ♦ **Value of Volunteers:** \$542,522 ♦ **New Grants Awarded:** \$3,862,023.
- **Agriculture and Natural Resources** – Farm financial literacy is a chronic determinant of small farm failure and is a primary contributor to many beginning farms failing within their first 10 years of operation. FAMU Cooperative Extension has made farm financial literacy a high priority topic. Over the past two years, more than 100 beginning farmers and ranchers have received training in farm financial literacy, including marketing techniques, through the Beginning Farmer and Rancher Development Program (BFRDP). This

has resulted in an increase in self-reported confidence, knowledge of government assistance programs, and increased competencies in agribusiness management, agricultural policy issues, farm economics, and marketing. Over 70 certificates of completion in farm financial management and its related competencies were issued to beginning farmers and ranchers in Florida.

- **The Havana Community Development Corporation (HCDC)**, a collaborating entity with the FAMU BFRDP, has improved their nursery management skills and profitability for its participating beginning farmers through program activities. They are now able to produce their own seedlings, between 800 - 1000 seedlings per month, as opposed to purchasing costly starter plants. Also in 2021, HCDC successfully produced and sold compost, jalapeno peppers, kale, lemon balm, tomatoes, and several other medicinal and culinary herbs to a Whole Foods store. They have also tapped into distant markets as far away as New York State.

#### **FAMU Continues Free COVID-19 Testing and Vaccinations to Community**

- Since April 25, 2020, FAMU continues to provide free testing and vaccinations, with no physician referral required, averaging 1,691 tests daily to help our communities battle the Covid-19 pandemic. As of January 2021, over 515,841 Covid-19 tests and 23,379 vaccines were administered to students, faculty, staff, and the community.

#### **FAMU Videos:**

**FAMU Center for Viticulture and Small Fruit Research (Promo Video 2021):** <https://youtu.be/J4wDDgi5szo>

The Center for Viticulture and Small Fruit Research is located within FAMU's College of Agriculture and Food Sciences. The Florida legislature established the Center in 1978 with Florida Senate Bill No. 898, identified as the "Florida Viticulture Policy Act," to provide leadership, undertake research, extension, and development activities that will contribute to industry growth and development. The Center is recognized internationally for excellence in warm climate grape research and as a facilitator of outstanding academic programs for experiential learning and student training. It has the only specialized research program among the 1890 colleges and universities dedicated to grape and wine, and it is a national leader in muscadine grape research. By USDA charter, the Center maintains the most extensive muscadine grape germplasm collection in the world and serves as one of five National Clean Plant Centers for Grapes. Capitalizing on the close industry-clientele partnership, its economically feasible and accelerated breeding pipeline has allowed it, only within the last two years, to release three new, patented American native grape cultivars: 'Floriana,' 'Florida Onyx' and 'Blanc du Soleil.'

**FAMU Speaks at Florida Global Food Security Summit (2021):** A full recording of the Global Food Security and Nutrition Summit is available online at this link:

<https://drive.google.com/file/d/1D-zH31jzd6YAz1RyKD8lxOTG4NHoQw9l/view?usp=sharing>

## **University of Arkansas System Division of Agriculture**

### **SRAHS February 2022**

#### **Research and extension**

- Mark Cochran, Vice President-Agriculture, retired Sept. 30, 2020, after a decade of Division of Agriculture growth. Search is ongoing for a replacement to fill this chancellor-level position.
- Michael Blazier became dean of the College of Forestry, Agriculture and Natural Resources, at the University of Arkansas at Monticello and director of the Arkansas Forest Resources Center for the Division of Agriculture.
- Division of Agriculture, UA-Monticello announce one-of-a-kind grad student certificate program in wildland management with the Five Oaks Research and Education Center.

- Extension Service launches first-ever summer internship program to help recruiting and retention of extension agent candidates.
- Jeff Edwards, a Bumpers College alumnus, appointed head of the Crop Soils and Environmental Sciences Department, Jan. 10.
- Ken Korth, who oversaw the merger of the entomology and plant pathology departments as interim since 2018, was named department head in July.
- Ground is broken for a new facility, which will become the Jackson County Extension Center. In addition to housing staff, the center will also have a 120-by-40-foot multiuse room that can accommodate groups of about 60 people.
- Travis Faske appointed new director of the Lonoke Extension Center starting Jan. 1, replacing Gus Lorenz, who retired after a distinguished entomology career.
- The Crop Science Research Center building was completed in 2021, providing a much-needed update for research facilities.
- First-ever Dinner at the Vines, a garden-to-table fund-raiser for the Arkansas 4-H Foundation, raised \$30,000.
- Development of the Northeast Rice Research and Extension Center continues. The center is needed to conduct research on rice production in the unique growing environment of northeastern Arkansas.
- Division of Agriculture filling new faculty positions for horticulture-weed control; urban pest management/bees; and family and consumer science-nutrition.
- Cooperative Extension Service creates family and consumer science educator position, filled by Leigh Ann Bullington to help recruitment and retention for FCS agents.
- Twenty-two faculty positions released in 2021.
- Both research and extension pivoting back and forth between in-person and online programming as COVID cases wax and wane.
- The C.A. Vines Arkansas 4-H Center earned five Best of Biz titles for the fourth straight year for the readers of Arkansas Business, for its team-building and conference hosting capabilities, among other characteristics.

#### **Updates from the Dale Bumpers College of Agricultural, Food and Life Sciences:**

- In 2021, for the first time, Bumpers College was able to offer more than \$1 million in scholarship funding; the college offers more than 500 scholarships annually and more than 70 percent of students who complete the application process are awarded at least one scholarship; the average amount of each scholarship is \$1,700; Bumpers College students who apply for scholarships receive an average of \$2,500.
- Bumpers College enrollment grew by 2.6 percent to 2,122 students with an 18.4 percent in new freshman enrollment. The University of Arkansas saw overall enrollment increase by 5.4 percent to 29,068 students, with the largest class of new freshmen.
- Bumpers leads the University of Arkansas in freshman retention and six-year graduation rates with rates of 87.7 percent and 69.9 percent, respectively.
- Through a generous gift from Mark and Angela Waldrip, Bumpers College opened the Waldrip Student Center in the AGRI Building; students can study, socialize and take a break between classes; in this space, they are also able to meet with their adviser and other staff members regarding changing majors, scholarships, career services, personal matters and more.
- The Department of Agricultural Economics and Agribusiness, and the Department of Agricultural Education, Communications and Technology both created a 2-plus-2 transfer degree program with UA-Cossatot Community College; the agreement is for students working toward bachelor's degrees in agricultural business or agricultural education, communication, and technology with concentrations in agricultural business management and marketing, or in agricultural education.



- The Department of Poultry Science created a 3-plus-1, dual-degree transfer program with Missouri State University; the agreement allows animal science majors at MSU to complete their senior year at the U of A and earn degrees in animal science from MSU and in agricultural, food and life sciences with a poultry science concentration from the U of A; students can also choose the pre-professional concentration; the purpose is to help meet needs for more degreed professionals in the poultry industry.
- Katie Dilley joined the dean's office staff as coordinator of undergraduate student recruiting; she moved to the U of A after working at Purdue University as the College of Agriculture's academic programs initiatives recruitment and outreach coordinator.
- Catherine Beasley joined the dean's office staff as director of employer relations; she develops strategies to increase employment opportunities for students and recent graduates, coordinates employer recruiting on campus, speakers in classes and employer information sessions, and facilitate seminars, industry tours and training for faculty and students; she joined Bumpers College from U of A's Sam M. Walton College of Business where she was associate director for student success.

## **TUSKEGEE UNIVERSITY**

### **College of Agriculture, Environment and Nutrition Sciences**

#### **Personnel Updates**

- Walter Hill has stepped down as Dean, Research Director, and Extension Administrator
- Olga Bolden-Tiller named as Dean and Research Director
- Raymon Shange named as Extension Administrator

#### **Research Highlights**

- Obtained \$19.5M in competitive grants.
- A 10,000sqft Red Meat slaughtering processing facility under construction.
- A major partner with Tufts University in the USAID \$25M Food System and Nutrition Innovation Lab grant.
- Principal Lead for the USDA/NIFA 1890 Center of Excellence for Farming System, Rural Prosperity and Economic Sustainability (CFSRPES).
- TU serves as co-lead for three USDA/NIFA 1890 Centers of Excellence
  - Student Success and Workforce Development
  - Nutrition, Health, Wellness, and Quality of Life
  - Global Food Security and Defense
- Established a 20-acre Certified Organic Research and Demonstration Farm.
- Several partnerships and agreements with private companies, including Cargill and others have been established this past year.

#### **Extension Highlights**

- Obtained \$2M W.K. Kellogg Foundation Grant for addressing Community, Youth, and Workforce Development through a Food Systems Approach.
- Establishing and Enhancing two demonstration sites in the AL Black Belt: Tuskegee University Ag Innovation Center in Montgomery and the Black Belt Family Marketing & Innovation Center in Selma.
- Working with University and Community Partners on two COVID response, immunization, and education grants (one with HHS and one with ADPH).

- Established Regional Partnerships and have begun work on an annual State of African Americans in the Black Belt Report.
- Working with six Black Belt high schools to provide a year-long exposure to students in agriculture, consumer science, and extension (Supervised Extension Experience-SEE).

### Academic Highlights

- Undergraduate population increased by 8%.
- Graduate population increased by 9%.
- Due to COVID-19 concerns Instruction mainly completed virtually but with options in hybrid/hi flex.
- Introduced a new M.S. program in Integrative Public Policy and Development (IPPD).

## PRAIRIE VIEW A&M UNIVERSITY Ag College and Land Grant Program 2021-22 Highlights

We are delighted to report the continuing strong development and advancement trajectory in all three mission areas! Academics reports record enrollments, graduations, and new curricula (featured in the previous ARS update); extension and research have been growing their program portfolios and are recipients of large external (competitive) funding, both from government agencies and increasingly also the private sector. As a result, there has been tremendous growth in the number of grant-funded employees (we are poised to almost double the number of extension and research employees by the end of this calendar year, a good thing, but we are running out of space to office them. Employees are required to report face-to-face, so virtual is not an option at this point. The campus R&D farm also continues to mushroom in impactful ways, attracting students, partnerships and external investment along the way. Our biggest challenge is the continued lack of the federally-mandated 100% state match, which puts us at a competitive disadvantage in research capacity investment and also severely restricts our ability to serve more than only 20% or so of our almost 6 million (and growing) underserved clientele across the large state of Texas, one of the fastest growing in the country. <https://www.pvamu.edu/cahs/>

- **Shell Corp Partnership:** PVAMU recently signed a 5-year \$5 million “Nature-Based Solutions” research and innovation agreement with Shell Oil to be headquartered in the Ag College. PV President Ruth Simmons observed that “this is the first research partnership that we will have signed following the announcement recently, that we have been reclassified to our [Carnegie] Research 2 capacity.” She went on to add that this is a “very important classification to us to recognize that we are growing as a research institution and that we're joining 130 other institutions in the country in being in that classification.” The timing is great as we launch new curricula in Natural Resources and Environmental Sciences (NRES) in the college, with the potential to grow to a Ph.D. “The partnership will help create the most advanced soil research lab on the planet,” said Selda Gonsel, President, Shell Global Solutions. Additionally, this agreement will give birth to new facilities on the campus’ 778-acre farm and ranch to support research in areas of clean air and water and maintaining biodiversity (<https://www.pvamu.edu/research/post/tag/shell-pvamu/>).
- **Danish Ministry of Environment Partnership:** The university and the ministry signed an MOU to explore the feasibility of a pilot plant to convert farm wastewater into biogas with the goal of building a more sustainable energy and climate future, and to pave the way for study abroad programs, internships and more for both Danish and PVAMU students in ag and related disciplines (<http://stylemagazine.com/news/2021/dec/10/danish-minister-environment-visits-pvamu-campus/>).

- **USDA, AFRI-funded Smart Ag Project:** A multi-institutional research team led by Dr. Ali Fares, Professor and Endowed Chair of the Water-Energy-Food Nexus, received funding for their “GetAgSmart” project to address needs in the growing area of smart agriculture which, together with food, nutritional, water and energy security and sustainability, are among the strategic areas of the College (<https://www.pvamu.edu/research/post/fares-earns-748719-for-smart-ag-project/>).
- **TAMU Vet students for clinical rotations at PVAMU Int’l Goat Research Center (IGRC):** funded by a USDA grant, and a joint effort of the TAMU Vet School and the IGRC at PVAMU, the goal is to provide experiential veterinary training in small ruminants at PVAMU.
- **Pre-Vet program success:** for the past 12 years we have been sending an average of five students to vet school. This year alone we had nine students accepted to vet schools, some receiving early acceptance. The success rate once students enter vet school is almost 100%.
- **PVAMU Faculty named Regents Professor:** The Texas A&M University System (TAMUS) Board of Regents recently conferred upon PVAMU Professor and interim Executive Associate Director of Ag Research Dr. Alfred L. Parks, the rare designation of Regents Professor (<https://www.pvamu.edu/cahs/2021/12/22/parks-awarded-tamu-regents-professor-award/>). Just last year, Parks was named a Fellow of the Agricultural & Applied Economics Association.
- **New Executive Associate Director of Research at the PV Ag College:** Finally, we are also excited to report that Dr. Erdogan Memili, DVM, Ph.D., Professor and Director, Animal Functional Genomics at Mississippi State University will join us effective February 1, 2020, taking over the role from interim Exec Assoc Director, Dr. Parks. <https://www.ads.msstate.edu/associate.php?id=112>).

**University of Puerto Rico COLLEGE OF AGRICULTURAL SCIENCES**  
**Dr. Raúl E. Macchiavelli, Dean and Director**  
**Highlights from July 2021 to December 2021**

**AGRICULTURAL EXPERIMENT STATION RESEARCH PROGRAM**

These accomplishments were gathered from NIFA-funded projects, which were close to termination during the previous semester or mature enough to have already gathered significant results. They are grouped under their associated Critical Issue and the project's title, PD, and targeted crop or animal is provided. The issue addressed is briefly described along with the most recent results obtained.

**I. Agriculture/Plant and animal systems**

- **Pigeon peas and maize** - D. Viteri - "Control of Helicoverpa spp. and Spodoptera spp. pests in pigeon pea and sweet corn by the use of biological agents alone and in combination with low-toxic synthetic insecticide"

Problem: Lepidoptera species are the major pests in pigeon pea [*Cajanus cajan* (L.) Mill.] and sweet corn (*Zea mays* L.) in Puerto Rico and tropical environments worldwide. Larvae attack all plant stages and yield losses can reach 100% if control measures are not applied on time. Alternative strategies of control by the use of biological agents alone and in combination with low-toxic synthetic insecticides need to be evaluated.

Accomplishments & Results: Tobacco budworm, *Heliothis virescens*, was identified affecting flowers, pods and seeds of pigeon pea. Fall armyworm, *Spodoptera frugiperda*, was observed in all plant stages, whereas corn earworm, *Helicoverpa zea*, and the sugarcane borer, *Diatraea saccharalis*, affected only ears in sweet corn. This information is valuable to establish an adequate insecticide rotation to control these Lepidoptera species for each crop. The effectiveness of three biological agents and six synthetic insecticides for the control of *Helicoverpa* spp. and/or *Spodoptera* spp. in field applications at reproductive stages were evaluated. Results on the dosages needed to control larvae provide valuable information that should be used by entomologists and plant breeders to schedule the insecticide applications in the field.

- **Indoor Agriculture & lettuce production** - F. Perez - "Understanding and Demonstrating Indoor Agriculture Technology in Puerto Rico"

Problem: Puerto Rico has about 4 million square feet in vacant industrial facilities resulting from a reduction in manufacturing economic activity. With a small investment, all these industrial facilities can become productive again, but in the agricultural sector. Indoor Crop Production (ICP) specifically refers to the use of an enclosed, controlled environment system used to grow crops without the use of solar light (or supplementing solar light with an artificial source). A project was established to gain hands-on understanding of ICP technology and determine its economic feasibility for Puerto Rico.

Accomplishments and Results: A tropical crop production research and demonstrative laboratory at UPRM using Indoor Agricultural Technology was inaugurated last year. Two types of ICP equipment were established: a multilevel hydroponic system, and a vertical hydroponic system. The production of the most consumed and produced lettuce variety in Puerto Rico (i.e., Tropicana) under ICP was begun. Although preliminary runs of the systems yielded disappointing data, seven consecutive runs carried last year provided more important findings such as: better germination rate in oasis or cocopeat (98%) compared to foam (52%); decreasing room temperature negatively impacts plant weight (e.g., 43.4 g at 22.2 °C, 52.8 g at 23.9 °C, 73.3 g at 26.7 °C for the multilayer system); and, plant height increased with room temperature, with the multilayer system yielding higher plants compared to the vertical arrangement. After funded project closing date, two new undergraduate students worked the system on cilantro and produced baseline information. Moving forwards, the project PI plans to continue opening undergraduate research opportunities every semester.

- **Sheep and goats** - A. Rodriguez - "Impacts of Stress Factors on Performance, Health, and Well-Being of Farm Animals"

Problem: In tropical environments heat stress negatively affects animal performance. It is necessary to establish normal physiological parameters associated with heat stress in sheep and goats raised in tropical climates and evaluate the effect of the specie, breed, age and diet manipulation. The development of nutritional and management strategies to decrease heat stress in small ruminants is essential to increase lamb and goat meat production.

Accomplishments and Results: Measures of animal stress and well-being were identified along with factors affecting the biology of stress and immune responses. Final experiments showed that the use of thermography represents a non-invasive tool to detect heat stress in rams, ewes and lambs raised under tropical environments. Sexual maturity of crossbred rams was also affected by heat stress conditions.

- **Dairy cattle**- H. Sanchez-"Characterization and relationships of growth patterns, eating behavior and

health in slick and wild type- haired Puerto Rican Holstein calves and heifers"

Problem: Previous studies have associated the slick hair coat presence with better adaptation to tropical weather, higher milk yields and smaller mature body size in Holstein cows. However, highly limited information was available on the possible effects of hair coat length over cattle's performance at younger ages. The current study aimed to compare the growth and performance of slick and wild type-haired Holstein calves/heifers.

Accomplishments and Results: Sampling has continued during this year, bringing a more complete dataset as some of the evaluated heifers are getting close to parturition (progress through gestation). This will allow to evaluate the complete birth to parturition period in terms of growth, performance and health of slick and wild type- haired Puerto Rican Holsteins. This study has already provided empirical data on how Puerto Rican calves / heifers grow. Up to this point, data regarding calves raised in Puerto Rico was scarce. Because it is known that the environmental conditions leading to heat stress (such as tropical weather) may limit cattle growth, extrapolation from USA studies was not a viable option. Most recent results have shown that hip height is a feasible and inexpensive alternative for reliable body weight prediction in dairy calves when a weighing scale is not available. Several body dimensions (such as barrel circumference, thoracic perimeter, and shoulder to pin bone distance) are also feasible and inexpensive alternatives for the reliable prediction of body weight in dairy calves when a weighing scale is not available.

## II. Food Science and Technology

- **Value-added products from apio and plantain** - R. Chavez- "Elaboration of flours, extruded products and chips based on apio (*Arracacia xanthorrhiza* Bancroft) and plantain (*Musa paradisiaca* L) as alternatives for using local agricultural products and their marketing."

Problem: The Puerto Rico production of tubers and plantains has great quality and potential for establishing a value-added industry. Processing flours from apio (*Arracacia xanthorrhiza*) and plantain (*Musa paradisiaca* L) are potential post-harvest preservation strategies for these crops. This project aims to produce flours and starch for culinary purposes and snacks (expanded extruded products and chips) from local cultivars of apio and plantain.

Accomplishments and Results: Overall, arracacha starch isolated from the storage root, rootstock, and stems exhibit attractive properties and can be used as an alternative for the food industry. Apio and plantain flour also shows potential for the development of new food products given its nutritional, functional and thermal properties. This study demonstrated that apio (*Arracacia Xanthorrhiza*) can be extruded and used as a high quality snack. In the optimal process, the maximum expansion ratio (obtained at 11% of moisture and 150°C process temperature) coincided with the best texture.

## AGRICULTURAL EXTENSION SERVICE

### Impact Statement COVID -19

Puerto Rico Agricultural Extension Service oscillate from face-to-face delivery of information to virtual delivery back and forward, depend on pandemic situation. The current COVID-19 pandemic particularly impacts low-income and educationally disadvantaged older adults, which are among the more susceptible population and more prone to develop severe complications. The social isolation instigated to comply with COVID-19 biosecurity curtailed the already limited social activities that elderly used to enjoy, affecting negatively their mental and physical health. **Puerto Rico Agricultural Extension Service (PRAES)**

developed and delivered non-formal education activity tools such as courses, webinars and workshops related to COVID-19, prevention of health issues and promotion of good practices for daily activities such as: how to stay safe, support in alleviating feelings of loneliness and social isolation, leisure time and physical activity, fall-prevention plans, taking care of mental health, self-care during public health emergencies; also financial fraud prevention and food safety training. A total of 10,739 subjects (mostly older adults and caregivers) participated in our face-to-face workshops and courses, and webinars related to daily living activities for the elderly. Among the courses/webinars included: Taking care of your mental health (n=551); Food safety management (n=233); Managing emotions in times of uncertainty and stress (n=551); Financial fraud and protection (n=327); Self-care for preventing falls and physical activity (n=203); COVID-19: Environment, health and food safety (n=1,500); Handwashing (n=54). The main changes that older people/caregivers reported adopting after participating in our courses were: improved the ability to manage stressful/mental health situations such as depression, loneliness, negative emotions (n=366); incorporated physical activities in their daily routine (n= 87); increased the ability to prevent financial fraud (n=190); adopted precautions to avoid slips and falls at home (n=137); increased self-esteem and self-care (n=185); incorporated healthy habits regarding food safety (n=202).

### Impact Statement

Communities urgently needed to identify opportunities to develop family and community enterprises that could generate income and improve their quality of life after the hurricanes and earthquakes experiences during previous years. Puerto Rico Agricultural Extension Service (PRAES) developed educational campaigns (<https://www.uprm.edu/sea/extension-virtual/>) to train volunteers to work with food preparation, textiles, designing and sewing new products as a means to develop and market clothing, handcrafts, and masks during the pandemic. Governmental and non-governmental organizations collaborated with PRAES to support the development of their projects. These efforts resulted in 100 trained volunteers collaborating with PRAES training programs with a total of 1,493 volunteer hours registered. Six new community gardens were developed by community leaders and volunteers, and 32 community projects organized. The community self-management approach allowed community entrepreneurs to improve their income by more than \$39,000, shortening their recovery response period. Five new economic projects were developed, 61 participants received economic benefits and 14 new employment opportunities were created; generating 49 new alliances to strengthen community initiatives. A small family business was opened to elaborate “sofrito”, a blend of vegetables and herbs at the base of many Puerto Rican dishes, with nine community gardens sponsors.

## ACADEMIC PROGRAMS

### COVID-19 and Academic Instruction

Faculty, staff and students responded remarkably well to the challenges of the COVID pandemic, pivoting to online and hybrid instruction for courses, adopting web-based meetings and instruction. We started out the spring semester with a mixture of in-person and virtual formats. We are currently strongly encouraging vaccination and booster as we prepare to return to fall semester. In addition some in-person class activities were done. Enrollment has held steady (1408 Undergraduate and 204 Graduate students).

### Hiring

As of August 2021, UPRM recruited four new faculty members for the College of Agricultural Science.

**College of Agriculture**  
**Alabama Agricultural Experiment Station Auburn University**  
**Update – February 14, 2022**

**Personnel**

- New Faculty Hires - Hired 19 new faculty members during fiscal year 2021 (ending September 2021).
- Faculty Searches - Currently searching for 7 faculty positions: (1) Asst. Prof. Production Econometric, Ag. Econ; (2) Asst./Assoc. Prof. Meat Science, Animal Sciences; (3) Lecturer Crop Sciences, Crop, Soil, and Envi. Sciences; (4) Asst. Prof. Hort. Systems Engineering., Hort./Biosystems Eng.; (5) Asst./Assoc. Prof. Animal Physiology, Poultry Science; (6) Asst./Assoc. Prof. Poultry Nutrition, Poultry Science; (7) Asst./Assoc. Prof. (Extension) Poultry Management, Poultry Science.
- Leadership Searches - Currently searching for an Associate Dean for Extension and Associate Dean for Research/Associate Director Experiment Station.
- Regional Station Directors – Currently searching for four regional experiment station directors, who will provide administrative oversight of the research stations in their region.

**Facilities**

- Ag+STEM Complex - This building will replace an aging life science research building opened in 1960. The project is under design and construction will begin in 2023. The planned building is 212,233 GSF and will cost \$165 million.
- Miller Poultry Center – Final adjustments are underway at this 14-acre poultry complex, including a feed mill, hatchery, processing plant, and multiple research houses.
- Transformation Garden – This 16-acre teaching and demonstration garden is moving through the first phase of its construction (grading and underground infrastructure).

**Innovations**

- AU Barkley – Auburn University released a new peanut variety, AU Barkley in 2021, named in honor of Charles Barkley. This Virginia style (snacking) nut will join AU- NPL-17, a runner peanut (processing) released in 2017.
- SalesForce – The College of Agriculture has joined other colleges at Auburn University in developing a data warehouse to record and discover linkages related to students, student experiences, donors, alumni, supporting and partner firms.
- Vertical Farms – The College of Agriculture is producing salad greens for campus dining in a vertical farm produced by Freight Farms. This production joins vegetables (tomatoes and cucumbers) and fish (tilapia) produced through an aquaponics system for campus dining.
- 150<sup>th</sup> Anniversary - In 2022, the College of Agriculture and College of Engineering will celebrate their 150<sup>th</sup> anniversary at Auburn University. These colleges were formed in 1872 when Auburn University was established as the South's first land grant institution.
- SoilKit – The College of Agriculture has partnered with AgriTech Corporation to offer an Auburn University branded, technology enhanced soil test kit, SoilKit. The kit is available through garden centers throughout the state.

**TENNESSEE STATE UNIVERSITY, College of Agriculture**  
**Institutional Update, July-December 2021**

On top of the challenges present by COVID-19, TSU agriculture is still rebuilding from a tornado

that essentially leveled our farm in the spring of 2020. Despite these hardships, our college is growing and remains very productive.

### **ACADEMICS**

- The Tennessee Higher Education Commission (THEC) **approved Ph.D. in Agricultural Sciences**
- Two new online offerings were approved, M.S. in Agricultural Sciences with concentrations in **Agribusiness or Agricultural Education**
- Twelve students participated in the Agriculture Future of America Leaders Conference
- Fourteen College of Agriculture students won awards at the Annual Meeting of the Tennessee Academy of Sciences

### **OUTPUTS**

- Published **46 articles in peer-reviewed** journals. Of these, 23 had students as senior author and 23 were faculty publications.
- 97 presentations at professional meetings, of which 46 were student presenters and 51 faculty presenters.
- Published 16 factsheet/other publications.
- Obtained **31 competitive (non-formula) grants** totaling \$4,962,794

### **RESEARCH HIGHLIGHTS**

- Mechanistic prediction of soil microbial response to temperature change and nitrogen fertilization- this study will provide foundational knowledge in soil organic matter transformation under emerging climate warming and fertilizer overuse and to improve soil and cropland sustainability
- Analyzing and integrating NASA pertinent satellite data to create models for quantifying impacts of climate change on natural resources
- Development of applied strategies to prevent exotic Ambrosia beetle damage in ornamental nurseries
- High power UV-C light emitting diodes for surface and aerial decontamination of food environments to eliminate microbial cross contamination - this study will demonstrate and validate the potential of UV LED technology to inactivate spoilage microorganisms, pathogenic bacteria and viruses as bioaerosols and on contact surfaces
- Identification landscape-scale environmental variables that influence black pinesnake occupancy across the species' range, use this habitat information to model suitable habitat using species distribution models, and compare various methodologies of determining species presence

### **EXTENSION HIGHLIGHTS**

- Tennessee (TSU) New Farmer Academy
- Outreach and assistance for socially disadvantaged, minority, women and limited farmers
- Annual Small Farms Expo and Small Farmer Recognition program
- Educational outreach for incarcerated youth and adults
- Biofuels, bioenergy and bio-char research and education program
- Hemp research and education program
- Outreach to teach food safety, food handling and food safety regulations
- Community Nutrition Program Organic Farm Certification Program
- STEM and drones technology training for 4-H Youth and adults
- Poultry Production & Management for Backyard producers and 4-H Youth.
- Increased TSU staff presence to 60 counties



**Southern University Agricultural Research and Extension Center (SU Ag Center) and  
College of Agricultural, Family and Consumer Sciences (CAFCS)**

**HIGHLIGHTS**

**DR. ORLANDO F. MCMEANS, CHANCELLOR-DEAN**

**ACADEMIC PROGRAMS**

For the second year of the 1890 Scholarship Program at Southern University-Jag S.T.A.R.S. (Student Training in Academics, Research and Service), we were able to award 78 new freshmen and two (2) transfer students with scholarships. The goal of the Jag S.T.A.R.S Scholarship is to increase the number of minorities studying Food, Agriculture, Natural Resources, and Human Sciences. We awarded a total of 129 students in the Fall with this scholarship opportunity. Eight students were selected from Southern University to be a part of the National USDA 1890 Scholars Program.

Enrollment for the College of Agricultural, Family and Consumer Sciences (CAFCS) has been on a constant upward trajectory. In fact, enrollment increased by 41% with a 93.5% freshman retention rate during the past academic year. These are both record numbers in the CAFCS.

Additionally, the CAFCS' B.S. degree program in Urban Forestry and Natural Resources was granted full accreditation by the Society of American Foresters and the Environmental Toxicology Ph.D. program was transferred to the CAFCS. The CAFCS now has two Ph.D. programs and is working on adding a third.

**EXTENSION/OUTREACH**

The Ag and Natural Resources (ANR) Unit provides technical assistance to small family farmers and landowners in parishes throughout the state of Louisiana. From 2019 to 2021, we provided our clientele with 200 educational programs totaling 500 hours of instruction which directly reached over 1,000 adults and youth. Programs held included our Enhancing Capacity of Louisiana's Small Farms and Businesses Certification Program, USDA informational meetings, field days, the Louisiana Small Farmer Conferences and the Annual Livestock Shows

The ANR team worked with the USDA and state and federal representatives to inform over 2,500 residents of Louisiana about governmental financial relief programs. However, using additional avenues such as local television, print media, and social media platforms, the information was shared with an additional 25,000 Louisiana citizens. Additionally, the staff has acquired over \$2.3 million from funding agencies to provide the citizens of Louisiana with workshops, conferences, trainings, and technical assistance that will prepare our underserved, women and veteran farmers.

The Southern University Ag Center's Nutrition Education Programs (NEP) has taken strides of success, despite the impacts of COVID-19. Nutrition Education (SNAP-Ed and EFNEP) programming continued to work with eligible clientele throughout the state through published magazines, billboards, and social media campaigns. With the transition to a nationwide lockdown, the program decided it was the perfect time to redesign its website and create a new Facebook Live Series.

**RESEARCH UPDATE**

The state of Louisiana faces increased challenges associated with climate change and food insecurity affecting minority and economically depressed areas. To that fact, the Southern University Agricultural

Research and Extension Center (SU Ag Center) is currently strengthening its research agenda associated with Climate Change, Climate Smart Agriculture, Food Innovation and Bioprocessing, Aquaculture and Non-traditional Agriculture (e.g., Specialty Crops and Viticulture). The Ag Research unit is seeking additional expertise in these areas to complement the existing expertise of our research faculty. SU Ag Research Programs are designed to be responsive to the target focus stakeholders, including socially disadvantaged farmers, minority communities, and small minority-owned businesses.

### **SU MEDICAL MARIJUANA PROGRAM**

The Southern University Ag Center in partnership with Ilera Holistic Healthcare continues to expand its forms of medical cannabis in the state of Louisiana. The program launched its first THC tincture products in July 2020. Since then, the group has introduced topicals, metered- dose inhalers (vapes), and edibles (gummies) to the market. As a result of the 2021 Legislative Session, a flower bill was passed allowing medical cannabis to be sold in its raw form. Southern University Ag Center/Ilera Holistic Healthcare rolled out its flower which was available for sale to patients on the first business day (January 3) of 2022. Thus far, two (2) strains were rolled out; Mandarin Cookies and OG Chem. The group plans to introduce additional strains in the upcoming weeks. The introduction of flower has increased product sales.

### **SU AG FACILITIES UPDATE**

The SU Ag Center's campus has over 10 construction and capital outlay projects underway this fiscal year. Our facilities need repairs and upgrades. The funding is provided by the State of Louisiana Legislature, the Governor's Office, and USDA/NIFA 1890 Facility Funds. The projects include replacing the fencing at the SU Ag Center and the Southern University Agricultural Research Station, installing two large parking lots for the Maurice A. Edmond (M.

A. Edmond) Livestock Arena and the SU Ag Center Multi-Purpose Building, renovations of M.

A. Edmond Livestock Arena, information technology upgrades and the initial phases of the construction of the SU Ag Center Mega Disaster Shelter.