



MAKING IMPACTFUL SOLUTIONS FOR THE NEXT GENERATION of Agricultural Professionals and Diverse Audiences



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S.J. Parker 1890 Extension Complex



Dr. Bruce W. McGowan

Message from the Interim Dean/Director

Since taking on my role as interim dean/director, I have had the privilege to get to know the people who make our School an innovative leader in education and outreach. Our Extension specialists, researchers, faculty and staff not only do their jobs with integrity – they stay committed to the bigger picture of making the world a better place. This is why my duty is to first and foremost lift others up within the School and support them in the work they do.

I want to help tell the story of our faculty, staff, students and those we serve to demonstrate how SAFHS makes an impact at the local, national and international levels. If we tell our story well, we will be able to better serve greater numbers. People need to know how they can benefit from our programs.

This publication contains examples of some of the novel ways SAFHS has made a difference in the world in the past year. Our students have obtained high-impact internships and jobs with government agencies. Cooperative Extension Program personnel are helping community members make a positive change in their lives through nutrition. We continue to provide educational resources and technical assistance to African American forest landowners to protect and retain their family land for future generations. And students who participate in our education abroad programming return from overseas with invaluable insights and competencies that will serve them in their future careers.

Everyone in the School of Agriculture, Fisheries and Human Sciences plays an essential part in the work we do, as do those we serve. With that being said, I invite you to get to know us a little better. We wish you a productive and prosperous 2023!

Sincerely,

A handwritten signature in black ink that reads "Bruce W. McGowan". The signature is stylized and fluid.

Dr. Bruce W. McGowan
SAFHS Interim Dean/Director



UAPB Chancellor Dr. Laurence B. Alexander, Chair of Board for International Food and Agricultural Development.

President Biden Appoints UAPB Chancellor as Chair of Board for International Food and Agricultural Development

President Joe Biden has announced his intent to appoint new members of the Board for International Food and Agricultural Development (BIFAD), including Chancellor Laurence B. Alexander as Chair. BIFAD is 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.

Dr. 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.

"Thank you to President Biden for this appointment. I'm honored to serve in this capacity," Chancellor Alexander said. "As Chancellor of Arkansas' only land-grant HBCU institution, our mission is steeped in innovation and discovery. This BIFAD appointment will be an excellent opportunity to expand awareness about the leading industry in the state of Arkansas—agriculture. In addition, it will further expand awareness about the research and extension mission of land-grant universities, and specifically about UAPB's initiatives, such as the agriculture and aquaculture research in which our renowned faculty are engaged, as well as our outreach services to small farmers in the state."

Along with the appointment of Dr. Alexander as Chair, President Biden also appointed the following new members: Dr. Marie Boyd, Associate Professor of Law at the University

of South Carolina; Dr. Rattan Lal, 2020 World Food Prize Laureate, Distinguished University Professor of Soil Science, and Director of the Center for Carbon Management and Sequestration at The Ohio State University; Dr. Saweda Liverpool-Tasie, Associate Professor in the Department of Agricultural, Food, and Resource Economics at Michigan State University; Ms. Henri Moore, Vice President and Head of Responsible Business, GSK Consumer Health; and Ms. Kathy Spahn, President and Chief Executive Officer of Helen Keller International. The announcement also extends the appointment of Dr. Pamela Anderson, Director General Emerita of the International Potato Center.

Serving as thought leaders and conveners of diverse expert dialogues, the Board has recently provided evidence-based recommendations to USAID on protecting and advancing nutrition and food security outcomes during COVID-19 response and recovery; improving the agricultural sector and food security in conflict-affected and fragile contexts; and measuring the benefits of global agricultural development investment on the U.S economy. ■

“Thank you to President Biden for this appointment. I’m honored to serve in this capacity. As Chancellor of Arkansas’ only land-grant HBCU institution, our mission is steeped in innovation and discovery. This BIFAD appointment will be an excellent opportunity to expand awareness about the leading industry in the state of Arkansas—agriculture. In addition, it will further expand awareness about the research and extension mission of land-grant universities, and specifically about UAPB’s initiatives, such as the agriculture and aquaculture research in which our renowned faculty are engaged, as well as our outreach services to small farmers in the state.”

~ Dr. Laurence B. Alexander



Harvesting sweet potatoes at UAPB Lonoke Farm.



Dr. Grace Ramena speaks with Arkansas Congressman Bruce Westerman about an ongoing research project to develop endolysins to replace antibiotics in the treatment of *Streptococcus iniae* in fish. Congressman Westerman examines the endolysins on an SDS gel slide image purified over a nickel column.

UAPB Collaborates with UAMS to Develop Therapeutic Strategies to Treat Orthopedic Infections

UAPB and the University of Arkansas for Medical Sciences (UAMS) are collaborating on a series of projects as part of the Connect Arkansas Research Scholars program. This initiative aims to find innovative solutions to research questions that impact human health, Dr. Grace Ramena, associate professor and director of fish health and diagnostics at UAPB, said.

Dr. Ramena's research team is collaborating with Dr. Mark Smeltzer, professor for the UAMS Department of Microbiology and Immunology and Department of Orthopedics and Director of Center for Microbial Pathogenesis and Host Inflammatory Responses, as well as researchers at Morgan State University and the Virginia-Maryland College of Veterinary Medicine to develop effective endolysin therapeutics for orthopedic infections.

"*Staphylococcus aureus* is a gram-positive bacterial pathogen that causes a diverse array of infections," Dr. Ramena said. "Treating those infections is increasingly compromised due to the persistent emergence of multidrug-resistant strains, including methicillin-resistant *S. aureus*."

Osteomyelitis is one of the infections caused by *S. aureus*, which is known to have intrinsic resistance to both host defenses and conventional antibiotics. This inflammatory disease leads to progressive bone destruction in humans. This emphasizes the need for alternative therapeutic strategies that can be used alone or in combination with conventional antibiotics to overcome refractory orthopedic infections, says Dr. Ramena.



In a discussion with Dr. Ramena, Arkansas Senator John Boozman learns about UAPB fish health lab research on developing endolysins as alternatives to replace antibiotics in the treatment of streptococcosis in fish and osteomyelitis in humans.

“Endolysins (enzymes) at the end of the phage lytic growth cycle typically degrade the bacterial cell wall peptidoglycan layer from the ‘inside out,’” she said. “We take advantage of this mechanism to degrade the gram-positive bacterial cell wall that lacks outer membrane from the ‘outside in,’ and we design them specific to the cell wall chemical structure in a given bacterium. We have identified at least two peptidoglycan hydrolases (PGHs) that can kill 20 *S. aureus* clinical isolates obtained by Dr. Mark Smeltzer from Arkansas Children’s Hospital.”

In addition to identifying effective therapeutics for orthopedic infections, Dr. Ramena is also developing therapeutic strategies to replace antibiotics to treat fish bacterial infections. She has secured \$750,000 from U.S. Department of Agriculture National Institute of Food and Agriculture (NIFA) Agriculture and Food Research Initiative and Capacity Building Grant programs to determine therapeutics as safe antimicrobials to treat streptococcosis, which affects nearly 30 fish species.

“We are in the process of obtaining a patent for an endolysin we discovered that could kill *Streptococcus iniae*,” she said. “There is a potential for commercialization of these enzymes upon completion of animal studies.”

Dr. Ramena has secured extramural funding for a variety of projects that currently support research and assistantships for two doctoral students, four graduate students, five undergraduate students and one high school student. ■

“We are in the process of obtaining a patent for an endolysin we discovered that could kill Streptococcus iniae. There is a potential for commercialization of these enzymes upon completion of animal studies.”

~ Dr. Grace Ramena



Dr. Ramena teaches students how to prepare samples and plates to run q-PCR. From right: Sharon Gudapati, Dr. Grace Ramena, Lewis Boykin and Issac Buyinza.



From left to right: Ashish Chaudhary, Annik Segree, Ayushma Sharma and Fard Karim. Karim and Sharma prepare agarose gel to run endolysin DNA plasmid samples purified from transformed DH5 alpha E.coli. Segree runs a protein gel to assess protein quality, while Chaudhary purifies endolysin on a nickel column.



Roy Mosby, UAPB facility safety supervisor, talked to Child Development Center children about cleaning their garden after harvesting their sweet potatoes and how to prepare it for planting fall mustard and collard greens.

UAPB Provides Childcare, Extension Outreach to the Community

Under the direction of the Department of Human Sciences, the UAPB Child Development Center (CDC) provides childcare to UAPB employees and students and the community. UAPB's Cooperative Extension Program serves as a resource to the Center by providing training and support to children, parents and teachers.

"Beginning in the 1940s, the CDC opened its doors as women began entering the workforce," according to Dr. Marilyn Bailey, interim chair, Department of Human Sciences. "At the time, childcare was a relatively new concept, but UAPB began fulfilling the service."

Today, the CDC uses a comprehensive approach to address the holistic needs of children and families, Dr. Bailey said. At intake, families may seek help acquiring skills in cooking and nutrition, financial literacy, or anger and stress management. Cooperative

Extension serves as a resource to address these needs.

UAPB's Extension faculty and staff work hand-in-hand with human sciences faculty to provide services to the Center. Dr. Obadiah Njue, assistant dean of Extension and outreach, serves as the community liaison.

"This summer, Dr. Njue and undergraduate students provided an opportunity for CDC children, their parents and teachers to plant and harvest a garden," Dr. Bailey said. "This experiential learning is invaluable in providing knowledge about the life cycle of fruits and vegetables from the farm, including raised beds and containers, to the table." ■



Pre-K children at the UAPB Child Development Center are learning how to garden indoors thanks to an inquiry-based learning project.

UAPB Project Teaches Pre-K Children to Grow Healthy Vegetables

Pre-K children at the UAPB Child Development Center (CDC) recently had the opportunity to learn how to garden indoors, Dr. Karleah Harris, assistant professor for the UAPB Department of Human Sciences, said. The young children learned how to grow mung beans through an inquiry-based learning curriculum under the guidance of Dr. Harris and undergraduate student assistants.

“Research shows that children are more likely to engage in healthy eating habits when actively growing their foods,” Dr. Harris said. “Over the course of the spring semester, we instructed students and their teachers on how healthy produce can be grown indoors. As part of the exercise, children actively engaged in science inquiry by making predictions, observing the different growth stages of the mung beans, constructing explanations, drawing conclusions and communicating their findings.”

Dr. Marilyn Bailey, interim chair for the Department of Human Sciences, said the

project is a great example of how young children can be exposed to the fundamental concepts of science, technology, engineering and mathematics (STEM) and have fun while learning.

“I was eager to work with the students who expressed willingness to engage in different science learning inquiry activities,” Dr. Harris said. “I was also impressed by the teachers’ ability to teach, be responsive, present and provide care to the students when they needed it.”

The project is funded by a grant from the U.S. Department of Agriculture National Institute of Food and Agriculture (award number # 2021-38821-34712). It was developed in partnership with Dr. Kieu Le of the University of Arkansas at Fayetteville, as well as Dr. Janette Wheat, Dr. Felicia Taylor Waller and Dr. Nicholas Romano, co-principal investigators at UAPB.

“I have enjoyed working with Dr. Harris and our other researchers on this grant project,”



During the project, children were able to work together to plant, cultivate and care for mung bean plants.



Students measure mung bean sprouts.

Dr. Wheat said. “Most of all, I appreciated seeing the children’s engagement in real-life action research, observing their interactions, excitement and inquiry while planting, growing, cultivating and caring for the plants. Moreover, all the plants grew beautifully, tasted fresh and delicious and delivered nourishment to our bodies, minds and spirits.”

Dr. Taylor Waller said it was exciting to see the collaborative efforts of the project investigators come to life in the hands and minds of the young learners. Dr. Le said she enjoyed working on the grant with Dr. Harris and the other co-principle investigators.

Dr. Romano is looking into expanding the project by setting up an aquaponics system for the pre-K learners. Aquaponics is the sustainable practice of combining fish and terrestrial plant culture.

“We recently set up an aquaponic system in one of the local elementary schools and believe setting up smaller units for the pre-K

children could provide them with an engaging experience,” he said. “I look forward to working with Dr. Harris and UAPB-CDC on this.” ■

“Research shows that children are more likely to engage in healthy eating habits when actively growing their foods. Over the course of the spring semester, we instructed students and their teachers on how healthy produce can be grown indoors. As part of the exercise, children actively engaged in science inquiry by making predictions, observing the different growth stages of the mung beans, constructing explanations, drawing conclusions and communicating their findings.”

~ Dr. Karleah Harris



Dr. Harris said the project growing mung beans from seeds to sprouts is a great example of how young children can be exposed to the fundamental concepts of science, technology, engineering and mathematics (STEM) and have fun while learning.



Nineteen high school students from 10 states participated in UAPB's 2022 AgDiscovery Program.

High Schoolers Build Fun Memories, Invaluable Experience During UAPB AgDiscovery Program

Nineteen high school students from 10 states spent two weeks on the UAPB campus as part of the AgDiscovery summer enrichment residential career exploration program. Dr. Christopher C. Mathis Jr., assistant dean/associate research director and AgDiscovery program director, said participants gained a firsthand look at career opportunities in the agricultural sciences through hands-on labs, field trips and group and team-building activities.

“AgDiscovery at UAPB was successful due to the ‘boots on the ground,’ with Mr. Dameion White, who served as the program coordinator, and the dynamic staff he assembled this year,” Dr. Mathis said. “It was through collaboration with Mr. White and Mrs. Karen Tate from the U.S. Department of Agriculture - Animal and Plant Health Inspection Service (APHIS), Wildlife Services, that each day, the students spent time learning from and interacting with APHIS professionals, university professors and other career professionals who opened

their laboratories and led field trips for the participating students and staff.”

Dr. Mathis said AgDiscovery is a special program that gives junior and high schoolers invaluable experience and insight into careers in agriculture. Those who participated in the 2022 program can now say they have conducted electrofishing, extracted strawberry DNA and participated in mock animal and plant health investigations.

Field trips are always a highlight of the program, he said. Students shot archery and canoed on the Arkansas River during a visit to the Delta Rivers Nature Center, learned the ins and outs of wildlife management at airports at the Little Rock Air Force Base and toured a fish farm.

Dr. Mathis said five of the AgDiscovery 2022 participants shared takeaways from their experience. ■

Jamiya Coffey

- first-year student from Dermott, Arkansas

Coffey said she applied for the program because she wanted to learn to grow plants and crops like her grandparents used to.



“We had an animal farm with chickens, geese and a baby calf. Thanks to AgDiscovery, I learned more about agriculture and farming. I feel I can now grow my own plants and raise more animals.”

~ Jamiya Coffey

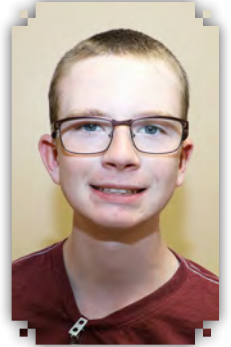


AgDiscovery 2022 students participate in an electrofishing demonstration.

Blake LaPean

- junior from Garner, Kansas

LaPean said he found out about AgDiscovery when he was searching on the internet for summer programs related to agriculture.



“I love agriculture, so AgDiscovery seemed like an ideal fit. I saw I had the option to attend in Kansas, but I chose to come to Pine Bluff to learn and experience something new and different. I wanted to get a feel for what people do in Arkansas since it is the heart of agriculture.

I learned so much about agriculture that I never knew - for example, I learned about the existence of the Animal and Plant Health Inspection Service. Most of all, I enjoyed learning and participating in fun activities with my friends.

I want to become an ag-education teacher because I love Future Farmers of America. I hope to become an advisor and teach others who want to learn about agriculture.”

~ Blake LaPean



Students shoot archery at the Delta Rivers Nature Center.

Paxton Herndon

- senior from Brandon, Mississippi

Herndon said a family friend who works for the USDA suggested he sign up for the program.



“I really think AgDiscovery has helped me broaden my mindset about agriculture. I learned that there is much more to agriculture than I originally thought. I was also able to gain contacts in the industry.”

One of my favorite parts of the program was the trip to Keo Fish Farm. I enjoyed handling the fish, snakes and crawfish. It was interesting to see how they operate the farm.”

~ Paxton Herndon



Each year, AgDiscovery participants gain laboratory experience in a number of exercises on the UAPB campus.



During the program, students spend time learning from and interacting with APHIS professionals, university professors and students and other career professionals who open their laboratories and lead field trips.

Emberlyn “Lyn” Grimstead

- first-year student from Fort Worth, Texas

Grimstead said she signed up for AgDiscovery because of the range of exciting activities planned such as the fieldtrips to the Little Rock Air Force Base and the ecotoxicology facility at Arkansas State University.



“There were a lot of cool events, but I most enjoyed doing activities with other people. I feel like this experience will help me determine a college. I am now interested in attending UAPB. It seems like a really good school with lots of hands-on opportunities.”

~ Emberlyn “Lyn” Grimstead

Xandria Reyes
- 2022 high school graduate from Kauai, Hawaii

When planning her summer break, Reyes said she wanted to attend a camp outside of Hawaii.



“My pastor was helping me look for programs that can help me get my foot in the door to become a veterinarian. I saw there was a program in Arkansas, and I have a cousin who lives there.

I loved everything about the experience. I came thinking it was going to be more about vet services, but I learned about the many other opportunities in agriculture. If my plans related to veterinary sciences don't work out, I have many other fields to choose from.”

~ Xandria Reyes



Participants learn the ins and outs of wildlife management at airports at the Little Rock Air Force Base.



Students participate in mock animal and plant health investigations.



Participants canoe on the Arkansas River during a visit to the Delta Rivers Nature Center.



Dr. Arlene Adviento-Borbe, left, works with Trenten Wills and Kur'an Suluki in a lab at the Biosciences Institute at Arkansas State University (ASU) in Jonesboro, Arkansas.

Four UAPB Students Complete Internships with Agricultural Research Service

Four undergraduate students at UAPB-SAFHS recently completed paid internships with the U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS). Over the course of 10 weeks, they worked firsthand with ARS scientists based at the Biosciences Institute at Arkansas State University (ASU) in Jonesboro, Arkansas.

Dr. Nina Lyon-Bennett, assistant dean for academics for SAFHS, said the students' accomplishment marks the beginning of an undergraduate internship program that will provide UAPB students with professional work experience year-to-year.

Students who completed the internships were Erikton Goodloe and Trenten Wills, junior agriculture business majors, Madison Purifoy, a junior nutrition and food science major, and Kur'an Suluki, a sophomore agricultural engineering major.

During the internship, Wills said he enjoyed working with people of different backgrounds who shared a love of agriculture. He primarily worked on irrigation systems.

"Every day, my team and I found ourselves walking on various soil types at different fields," he said. "Despite the many fields and soil and plant types, one thing truly stays the same – plants need water. Working on water irrigation systems is the key to a farmer's success. Implementing technologies such as sensors, solar panels and probes have all helped ensure that our farmers produce a better yield and fulfill the agriculture motto, 'From farm to table.'" Wills said the training was eye-opening because he could see firsthand the challenges facing farmers.

"There are many challenges in being a farmer," he said. "But when people come together and work as a team, they are bound to succeed."

Purifoy said she decided to sign up for the internship program to gain hands-on experience in laboratory and field research. Part of her responsibilities included analyzing the starch and sugar content of rice grown in different greenhouse conditions.

“This program has helped me get my foot in a door for conducting research in nutrition and food science. It has allowed me to learn the multiple facets of agriculture and has given me an idea of what being a researcher might be like in the near future.”

~ Madison Purifoy



Madison Purifoy collects gas samples during her internship. She says she signed up for the internship program to gain hands-on experience in laboratory and field research.

“This program has helped me get my foot in a door for conducting research in nutrition and food science,” she said. “It has allowed me to learn the multiple facets of agriculture and has given me an idea of what being a researcher might be like in the near future.”

Suluki said he was not sure what to expect during his first internship.

“I was greeted by many agricultural experts who bestowed upon me wisdom from their experiences within the field,” he said. “I am fortunate to have been able to learn from those at Arkansas State University and will carry what I have learned with me as I move forward.”

Goodloe said he has a better understanding of different agricultural fields thanks to the program. He also now has experience using cutting-edge agricultural technologies and techniques.

“Over the summer, I learned how to fly drones, change flow meters, collect water samples and utilize different forms of agricultural technology,” he said. “I have learned so much by working with ARS personnel.”

Goodloe said the internship experience complements his status as a USDA 1890 National Scholar.

“Being selected as a USDA 1890 National Scholar is a great honor and accomplishment,” he said. “It’s a blessing, and I couldn’t have accomplished this without my family. Now I want to make my family proud.”

Dr. Bennett said the internships would not have been possible without the support of Dr. Sathish Ponniah, associate professor of plant

“Over the summer, I learned how to fly drones, change flow meters, collect water samples and utilize different forms of agricultural technology. I have learned so much by working with ARS personnel.”

~ Erikton Goodloe

“There are many challenges in being a farmer. But when people come together and work as a team, they are bound to succeed.”

~ Trenten Wills



Trenten Wills measures flood depth during his internship, which was focused on irrigation systems.

“I was greeted by many agricultural experts who bestowed upon me wisdom from their experiences within the field. I am fortunate to have been able to learn from those at Arkansas State University and will carry what I have learned with me as I move forward.”

~ Kur’an Suluki

science, who assisted with writing the proposal for the 9-week-paid internship program.

“Also, Michele Reba, acting research leader for ARS, Dr. Joseph Massey, research agronomist for the ARS Delta Water Management Research Unit, Dr. Arlene Adviento-Borbe, research agronomist and lead scientist for the USDA-ARS Global Research Alliance on Agricultural Greenhouse Gases, Paddy Rice Research Group, and Dr. Thomas S. Risch, vice provost for research and technology transfer at ASU, provided extramural financial support, mentoring and experiential hands-on learning opportunities for our four students,” she said. “This relationship between these units and UAPB speaks to the type of collaboration necessary to support undergraduate research and student success.”

Dr. Risch said it was an honor to host the four UAPB students for their summer internships at ASU’s Arkansas Biosciences Institute (ABI).

“ABI is an agricultural and medical research consortium dedicated to improving the health of Arkansans,” he said. “Thus, it is important for us to work with universities throughout Arkansas. Students such as these UAPB interns will be the leaders of tomorrow that bring new and innovative approaches to agriculture and provide solutions for the challenges of feeding a growing global population. We hope to continue and grow this program in the future.”

Dr. Adviento-Borbe, who worked mostly with Purifoy and Wills, said she appreciated UAPB-SAFHS sharing its students with ARS for the summer.

“We certainly had a productive program and hope to conduct more collaboration with UAPB,” she said.

Massey said he enjoyed the chance to mentor UAPB students.

“Getting to know and work with these outstanding young people was the highlight of my summer,” he said. ■



From left: Stephanie Smith and Trenay Hayes, students majoring in hospitality and tourism management, and Dr. Suzzette Goldman, assistant professor and coordinator for UAPB's hospitality and tourism management program.

Networking Opportunity Prepares UAPB Students for Careers in Hospitality Industry

Two students majoring in hospitality and tourism management at UAPB recently participated in the National Society of Minorities in Hospitality's annual conference and career expo in Miami, Florida. During the conference, Trenay Hayes, a junior, and Stephanie Smith, a senior, were able to network with industry leaders and interview for internships, Dr. Suzzette Goldman, assistant professor and coordinator for UAPB's hospitality and tourism management program, said.

After interviewing with several companies at the conference, Hayes accepted a summer internship with Hyatt Hill Country Resort and Spa in San Antonio, Texas.

"My biggest takeaway from the experience was that you shouldn't be afraid to be yourself and stand out," she said. "Employers want you to display your talents because they are looking at what you can bring to the table."

Hayes said she hopes to pursue a career in the hotel industry, food and beverage industry or in event planning.

"Making others happy is a huge part of hospitality, and that's really the best part of any hospitality job," she said.

Smith interviewed with Aramark, the food service, facilities and uniform services provider.

"The interview experience was great," she said. "I actually already completed a summer internship with Aramark and was able to speak about that experience. The Aramark representatives I spoke with were happy to hear that my summer internship was a success for me and that I knew about the company."

Smith said she chose to major in hospitality and tourism management because she has

always loved to cook, travel and entertain people.

“You have to be a people person in this industry,” she said. “Someday I would love to have a career as the owner of an event center and maybe own a fine dining restaurant.”

Dr. Goldman said the National Society of Minorities in Hospitality is well known for connecting students with the entire hospitality industry. This year’s conference was hosted by Florida International University’s Chaplin School of Hospitality and Tourism Management, a great example of a well-established program model, she said.

“I was extremely pleased UAPB students had the opportunity to participate in the conference this year,” she said. “This was their first opportunity since the pandemic to meet and speak with professionals and other students in person.”

Dr. Goldman said the annual conference is not limited to participants from historically Black colleges and universities, but is open to all hospitality majors, including those from primarily white universities. The occasion was opportune for sharing UAPB program successes and interacting with students

from institutions such as the University of California, Cornell University and Morgan State University. Students of other disciplines such as agriculture, business, accounting, marketing and finance also regularly participate in the conference because of the opportunity to gain paid internships of full-time employment.

Besides making sure her students attend industry conferences, Dr. Goldman also introduces them to her former students who are now industry leaders and college advisors.

“It is important that our current students network with those who already have experience and can help direct them toward promising opportunities,” she said. “One of my former students is now the general manager of a boutique hotel group and regularly offers students paid internships.” ■

“Making others happy is a huge part of hospitality, and that’s really the best part of any hospitality job.”

~ Trenay Hayes



Trenay Hayes, far left, speaks with Sherrell Wilson and LaTonya Johnson, far right, both recruiters with Walt Disney World.



Allison Malone of Memphis, Tennessee is the first UAPB student to earn a bachelor's degree in agricultural engineering.

UAPB Graduates First Agricultural Engineering Major: Allison Malone

Allison Malone of Memphis, Tennessee is the first student to earn a bachelor's degree in agricultural engineering from UAPB. The degree program, which was initiated in 2019, trains students to meet the demand for more efficient means of production in the agriculture industry.

Malone is graduating with a job in hand. She has accepted a position as an agricultural engineering trainee for the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) in Dover, Delaware.

She had already completed an internship with the Dover-based office. However, due to the pandemic, the internship took place online, and she completed any in-person work in the NRCS offices in Shelby County and Jackson, Tennessee. This semester, she also had the opportunity to work with the NRCS office in Pine Bluff.

"I'm excited to see a new part of our country and learn new parts of conservation," she said. "While NRCS conservation work in the south tends to be more focused on irrigation and farm conservation practices, work in Delaware seems more focused on wetlands restoration and work with poultry operations. Of course, my family is both excited and sad about my move, but I've been preparing them for me leaving for a long time – they have always known I wanted to live in another part of the world someday."

During her junior year, Malone joined the USDA 1890 National Scholars Program. She received full tuition, books and the cost of room and board. Her internships with the USDA were also arranged through the program.

"I really appreciated the smaller classroom environment at UAPB," she said. "I wasn't just a number. Professors at UAPB know

your name and are always there for you. My professors were always making sure I was on track with my studies and that I never missed out on any important opportunities that would further my education.”

Malone said Alicia Robinson-Farmer, instructor and regulatory science undergraduate coordinator, was a great source of support who helped her apply for the USDA 1890 National Scholars Program. Laura Hildreth, program coordinator for UAPB’s STEM Academy, taught her how to network and grow professionally.

She credits Dr. Obadiah M. Njue, assistant dean for Extension and outreach, with helping her choose her major and making sure she chose to study at UAPB in the first place. She met him when she was involved in an agricultural conservation project for high school students organized by Brown Missionary Baptist Church in Southaven, Mississippi.

“At the summer apprenticeship, I was the student manager of a team of 11 – I happened to be one of the youngest participants and the only girl in the group,” Malone said. “I managed two gardens and a farmers market, where we sold everything that we grew. I ended up giving a tour to program organizers and visitors, and Dr. Njue was in attendance. He seemed impressed by my work and told me to keep UAPB in mind when I started looking for universities. He told me he would make sure I had access to scholarships and financial assistance to afford my studies.”

Malone said she has loved the outdoors and been interested in plants since she was a child. Later, she became interested in engineering. Specifically, she started to research civil engineering, which would allow her to design public works, and biomedical engineering, through which she could design prosthetics.

“Civil engineering didn’t seem engaging enough,” she said. “And biomedical engineering was out of the question once I found out that you have to be in the operating room during surgeries that involve prosthetics – I can’t stand the sight of blood.”

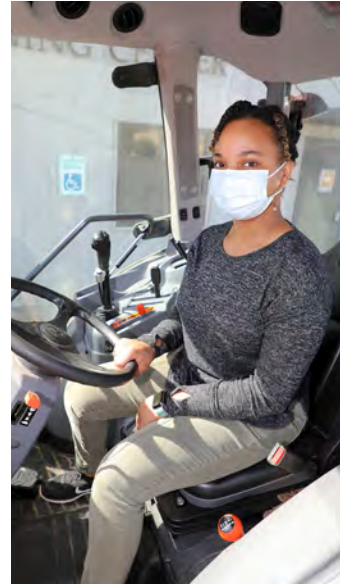
It was not until she participated in the agricultural conservation project for high school students that she learned about the possibility of pursuing a degree in agricultural engineering.

“Prior to that, I didn’t know there was a major that combined my two greatest interests,” she said.

“Dr. Njue told me they were in the process of establishing a degree program in the field at UAPB – this pretty much sealed the deal for enrolling at UAPB. I started majoring in plant science, and switched majors once they finalized the program in agricultural engineering during my sophomore year.”

At UAPB, Malone served as president of the Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) club and Alpha Kappa Mu National Honor Society. She was a member of STEM Academy, Alpha Chi National College Honor Society and the Carolyn F. Blakely Honors Program. She was secretary and second soprano section leader for the Vesper Choir and a member of the Yard Voices of Praise gospel choir.

“I am extremely proud of Allison,” Dr. Tracy Dunbar, chair for the UAPB Department of Agriculture, said. “She received the Chancellor’s Medallion Award for maintaining the highest GPA in SAFHS. She is going to work for the USDA NRCS and is looking to go on to graduate school. This is the type of experience that I would like for all of our students to have at UAPB.” ■



During her junior year, Malone joined the USDA 1890 National Scholars Program. She received full tuition, books and the cost of room and board.



Arkansas Sen. John Boozman and Hallie Roby meet during National Ag Day celebrations in Washington, D.C.

UAPB Sophomore Encourages Peers to Join Collegiate 4-H Club

Hallie Roby, a sophomore major of plant science at UAPB, encourages university students to consider joining their collegiate 4-H club. Though she had not been involved in 4-H programming during middle or high school, she decided to take a chance and join the UAPB Collegiate 4-H Club the very day she moved to campus during her freshman year.

“On my first day, my mom wanted to make sure I had things squared away for my major and hoped to find out about scholarship opportunities,” she said. “We headed over to the 1890 Extension building to see what we could find out. There, we met Ms. Teki Hunt (director of 4-H Youth Programs for UAPB), who told me about the many benefits of the program. I ended up leaving our meeting having signed up to be a member of 4-H on the first day of college.”

According to Hunt, collegiate 4-H programs get university students involved in community service, as well as in leadership

and professional development activities. Membership ensures students receive volunteer experience in Cooperative Extension and 4-H programs. Collegiate 4-H programs are also actively involved in promoting positive youth development both on campus and across communities.

Roby said collegiate 4-H programming gives participants a strong foundation in agriculture and science, technology, engineering and math (STEM) concepts.

“The program instills critical thinking skills that will help students beyond the classroom, both in their day-to-day lives and careers,” she said. “I would also encourage others to join the program because of the connections they will be able to make, as well as for the unique opportunities and experiences it will bring.”



COLLEGIATE 4-H

In her own experience, Roby references her being selected by the National 4-H Council for the 2022 National Ag Day Student Leadership Program as an unexpected and fulfilling opportunity. As part of the program, she traveled to Washington, D.C. with a cohort of five other 4-H students from across the nation and leaders of other student organizations. There, they met with congressional leaders, including Arkansas Sen. John Boozman, to mark National Ag Day on March 22.

“Initially, I wasn’t sure if I wanted to apply because the program was national – I felt I didn’t have enough experience to be selected,” she said. “Once I found out I was accepted, I was stunned. I made sure to say that it is a national celebration, because I was selected out of students from multiple universities beyond HBCUs. Once I received the meeting schedules, I discovered that I was one of only six 4-H members invited to Washington D.C. Out of 16 people, I was the only person of color and one of two students to attend an HBCU.”

Leading up to the trip to the nation’s capital, Roby participated in a series of virtual sessions that included governmental guests, experts and advocates in the agriculture industry. To prepare for the National Ag Day celebration, the student program participants had one-on-one, group and panel discussions about timely agricultural issues.

“When I was flown to Washington, D.C. during spring break, I met face-to-face with all the student representatives,” she said. “On the first day, we were brought to the press club, where we were able to network with many individuals within the agricultural community, from farmers to industry reps. On our last day, we walked around the National Mall, met with different vendors and had our meetings with state representatives. I had a meeting with Sen. Boozman and his team – the experience was great.”

Roby said her biggest takeaway from being involved in Ag Day celebrations was learning to take advantage of new opportunities, even if they are a little daunting at first.

“In the beginning, I wasn’t sure I would want to apply, but I did,” she said. “I was nervous about speaking during the press club, but I did

anyway. I was still nervous during my meeting with the senator, but I didn’t show it. Because I said yes to this opportunity, I have made new friends and connections. I have also stayed in contact with someone who works at the House and Senate who has taken my hand in helping me on my journey throughout college.”

Roby said she chose to major in agriculture because a lack of diversity in the field. While she is studying plant and soil sciences now, she hopes to eventually work in environmental law.

“I am very proud of Hallie,” Hunt said. “She took initiative joining 4-H on her first day on campus. Ever since, she has been an active member and is diligent in responding to opportunities that will further her education and prepare her for a career in agriculture. For example, she also became a USDA/1890 National Scholar after hearing about and applying for the program.” ■

“When I was flown to Washington, D.C. during spring break, I met face-to-face with all the student representatives. On the first day, we were brought to the press club, where we were able to network with many individuals within the agricultural community, from farmers to industry reps. On our last day, we walked around the National Mall, met with different vendors and had our meetings with state representatives. I had a meeting with Sen. Boozman and his team – the experience was great.”

~ Hallie Roby



Malcolm Jackson, a graduate research assistant at UAPB, is currently studying the potential of animal byproducts to degrade pollutants in water systems.

UAPB Researchers Protect Water Systems Through Development of New Types of Biochar

Researchers at UAPB-SAFHS are studying the potential of converting animal byproducts to multifunctional biochar – charcoal made from biomass, Dr. Hao Chen, assistant professor for the UAPB Department of Agriculture, said. Biochar products are used as a sustainable soil additive to improve crop yields and can reduce the ecological risks associated with common agricultural chemicals.

Though it looks like regular charcoal, biochar actually captures agricultural chemicals from the local environment, she said. The product is added to soil through tilling and absorbs pesticides, antibiotics and other undesired chemicals during agricultural production. Biochar improves water quality by ensuring nutrients and chemicals are not leached off the field and into the groundwater or nearby bodies of water, and it also increases soil health and fertility.

“Biochar can be produced both in factories, on small farms or in your own backyard from agricultural waste such as rice husks, crop stems, peanut hulls or walnut shells,” Dr. Chen said. “This research focuses on raw materials that are abundantly found in local agricultural waste and not widely reused. Specifically, we are converting rice husks, cotton wood, tree bark, shrimp shells and chicken feathers into value-added biochar.”

Dr. Chen and her team are currently working to design and optimize biochar products specifically suited for different agricultural applications such as nutrient retention or pollution retention and degradation.

Malcolm Jackson, a graduate research assistant at UAPB, is studying the potential of animal byproducts such as crawfish shells and chicken feathers to perform both sorption (adsorption/absorption) and degrade pollutants in water systems.

“Essentially, any animal byproduct can be used to make biochar, but not all animal byproducts are created equal in terms of their ability to perform sorption or degrade pollutants,” he said. “My research focuses on raw materials that are not widely reused. Things like chicken bones are not a priority because they are used to create other products such as bone meal feeds for livestock. Since crawfish shells and chicken feathers are rarely used once they have been removed from the animal, however, biochar made from these products could be particularly cost-effective.”

Jackson said biochar made from animal byproducts has some unique advantages compared to plant-based biochar. For example, many plant-based biochar products use chemical and metal modifiers to improve their sorption capabilities. This can be quite expensive as pure, raw chemicals and metals are costly. Biochar derived from animal byproducts, however, uses the naturally occurring chemicals and minerals in the raw material to achieve the same level of functionality.

“Biochar already has a long history in agriculture as a soil amendment, but in my research, I aim to create a product that removes pollutants from runoff and other agricultural processes,” he said. “This would prevent farms from polluting the local water systems and ensure agricultural sustainability.”

Dr. Chen said UAPB project data will be used to determine agricultural best management practices for the use of biochar on a large scale. Eventually the product could be a cost-effective multifunctional agent to not only increase soil fertility but also prevent environmental pollution. ■

“Biochar already has a long history in agriculture as a soil amendment, but in my research, I aim to create a product that removes pollutants from runoff and other agricultural processes. This would prevent farms from polluting the local water systems and ensure agricultural sustainability.”

~ Malcolm Jackson



Jackson said biochar made from animal byproducts has some unique advantages compared to plant-based biochar.



John Mitchell recently completed a paid internship with the USDA Agricultural Research Service.

Agricultural Research Service Internship Leads to UAPB Student Being Employed

John Mitchell, a graduate student at SAFHS, recently completed a paid internship with the U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS). Over the course of 10 weeks, he worked firsthand with ARS scientists based at the Dale Bumpers National Rice Research Center (DBNRRRC) in Stuttgart, Arkansas. Because of his work during the internship, he is now employed with the organization.

Mitchell is majoring in agriculture regulations, with a concentration in plant sciences. He is a native of Fordyce, Arkansas, who hopes to become a geneticist/plant breeder. He obtained a Bachelor of Science in agriculture business from UAPB in Spring 2022.

Mitchell said he decided to sign up for the internship program because he wanted to work in an environment that provides cutting-edge research funded by the government.

“Interning with DBNRRRC made me feel like I was a part of something bigger than myself,”

said Mitchell. “Everything that is done at DBNRRRC is making a difference in the world. I’m happy to help with that.”

During the internship, Mitchell’s responsibilities varied. He worked with agronomists, pathologists and geneticists. He said he did greenhouse sampling, measured abiotic stress, checked leaf temperatures, and collected data from sensors that show the temperature and soil moisture of fields and plants.

Dr. Jeremy Edwards, DBNRRRC research geneticist, said because Mitchell did so well in his internship position, the organization offered him a paid, part-time position. He is a biological science aide who helps with various projects.

“The work John is currently doing will help him with his thesis research for his master’s degree,” said Edwards. “We’re hoping that John is going to be a great future leader in the rice research community.”

Dr. Jai Rohila, DBNRRC research agronomist, said it was a pleasure working with Mitchell.

“He is a very quick learner and a wonderful co-worker. He works well independently, but he’s also a great team player,” said Rohila.

Mitchell said the most enjoyable part of his experience is working with the plants. “I have a ‘green thumb’,” said Mitchell. “I have a garden and I grow the best tomatoes.”

Mitchell advises that undergraduate students take advantage of internship opportunities.

“The internship opportunities will help students decide their future,” said Mitchell. “Through the opportunities, you will find your passion. I studied agriculture business, crop insurance and other Extension careers before I realized how much I really love working with plants.”

Sathish Ponniah, associate professor at UAPB, expressed that he is very excited that Mitchell is employed with DBNRRC.

“Since he is working with DBNRRC, he will learn their advanced phenotyping techniques in rice and teach me about them. I am happy to partner with the organization and share my expertise as well. We plan to continue the internship with DBNRRC in the coming years.”

Dr. Nina Lyon-Bennett, assistant dean for academics for SAFHS, said Mitchell’s accomplishment marks the beginning of an undergraduate internship program that will provide UAPB students with professional work experience year-to-year. The goal is to provide undergraduate students with hands-on research experience that helps them to apply textbook knowledge learned in the classroom to real-world experiential learning opportunities. ■



“The internship opportunities will help students decide their future. Through the opportunities, you will find your passion. I studied agriculture business, crop insurance and other Extension careers before I realized how much I really love working with plants.”

~ John Mitchell

Mitchell decided to sign up for the internship program because he wanted to work in an environment that provides cutting-edge research opportunities funded by the government.



The UAPB study abroad program to Ghana featured a range of cultural excursions, one of which was to the Bonwire Kente Village, where the participants learned about the production of handwoven, traditional kente cloth. From left: Dr. Benjamin Annor, Annette Fields, Lyric Armstrong, Jeremiah Pouncy, Jai Lewis, Dr. Nina Lyon Bennett, Dr. Emmanuel Asiamah and Allison Malone.

UAPB Study Abroad Program Brings Students from Three 1890 Universities to Ghana

A UAPB initiative recently gave students from UAPB, North Carolina A&T State University and Tennessee State University the chance to travel to the western African country of Ghana.

The study abroad program allowed students from the three historically Black universities to learn about agricultural topics and familiarize themselves with the history, culture and people of Ghana.

Student participants included Allison Malone, 2022 UAPB alumna of agricultural engineering, Jai Lewis, major of agricultural science at Tennessee State University, and Jeremiah Pouncy and Lyric Armstrong,

animal science majors at North Carolina A&T State University. The students were accompanied by Dr. Emmanuel Asiamah, UAPB assistant professor of animal science, Dr. Nina Lyon Bennett, professor and assistant dean for academics at SAFHS, and Annette Fields, instructor/counselor for the UAPB Office of Basic Academic Services.



G H A N A

Dr. Asiamah and Fields organized the program in coordination with the UAPB Office of International Programs and Studies. Most of the event programming took place at Dr. Asiamah's alma mater, the Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, Ghana.

Dr. Bennett oversaw the signing of a memorandum of understanding (MOU) between UAPB and KNUST.

“The signing of the MOU marks the beginning of a long-term partnership that will enable students and faculty to engage in research collaborations and future exchange programs between the two universities,” Dr. Asiamah said. “Next year we are planning on having KNUST students come to study agriculture at UAPB. Over the years, we plan to grow this exchange program and increase the number of students who will benefit from it.”

Engaging in hands-on agriculture education

“While in Ghana, our participants had the chance to engage in a number of hands-on activities related to agriculture,” Dr. Asiamah said. “They joined KNUST students in the field to learn about maize breeding, visited a catfish farm, where they learned a little about the business side of agriculture, and even saw how palm weevil insects are being farmed for value-added food products.”



Program participants engage in experiential learning at a poultry farm.

During a visit to a poultry farm, students learned how to sort chicken eggs without using machinery.

“The poultry farm activity opened the students’ eyes and put things into perspective for them,” he said. “Because they were sorting eggs manually, they gained a better understanding of just how quickly egg-sorting machines in the U.S. work. They couldn’t keep up with the farm technician who was able to sort eggs incredibly quickly.”

Developing an impactful study abroad program

Dr. Asiamah said he got the idea for a study abroad program to Ghana when Annette Fields visited one of his classes while recruiting students for a study abroad trip to South Africa.

“At the time, I joked, ‘Why not plan a program to my home country of Ghana,’” he said. “But as time went on, I thought that kind of trip would make a lot of sense, especially considering my alma mater’s well-known agricultural department.”

Dr. Asiamah said he was also inspired by Ghana’s “Year of Return” campaign in 2019. The initiative sought to bring foreigners from the Black diaspora to visit Ghana.

“Famous African Americans including Don Lemon and Steve Harvey traveled to Ghana as part of the initiative,” he said. “I thought it would be great to somehow make it possible for students from an HBCU – who were not as well-off as the celebrities – to visit Ghana and feel a connection to Africa too. Unfortunately, the pandemic ruined any plans to visit Ghana as part of the Year of Return campaign, but that’s when I decided we must plan a program to the country for UAPB students.”

In planning the program, Dr. Asiamah worked with Dr. Pamela D. Moore, associate dean for global engagement at UAPB, to secure funding from the 1890 Center of Excellence for International Engagement and Development (CEIED), which serves the nation’s 19 historically black 1890 land-grant universities. Involving students from other 1890 universities

and pursuing partnerships with universities in Ghana made the program more impactful and helped the grant get approved, he said.

“In addition to supporting Dr. Asiamah’s program, the grant we received is providing critical resources to jump-start signature study abroad programs in the Department of Aquaculture and Fisheries and Department of Human Sciences,” Dr. Moore said. “The Center received its funding through congressional legislation that included the establishment of Centers of Excellence at 1890 land-grant institutions. Center funding is administered through the U.S. Department of Agriculture National Institute of Food and Agriculture (NIFA).”

Experiencing cultural immersion in Ghana

“Our idea was to give young African Americans a true global experience rich in culture and history,” Dr. Asiamah said. “The program included visits to the coastal slave castles that were part of the European Atlantic slave trade. So, this was a bigger experience than what American history books can give you. Visiting those castles was more like a pilgrimage for the students – a chance to connect with their ancestors.”

Malone said the visit to slave castles made a lasting impression on her.

“It is a humbling experience to go to a slave castle because it shows you your ancestral lineage,” she said. “It also meant a lot to be there and understand the processes they went through. We are the dreams and hopes of the slaves, so when we go visit the castles, it is like we are returning home.”

Pouncy said the moment that stood out the most during the visit to the slave castles was seeing the “Door of No Return” at Elmina Castle. It was through this door that millions of Africans were forced onto ships heading to America where they faced a life of slavery.

“Being at the slave castle and being face to face with the door of no return was one of the most impactful moments for me on the trip,” he said. “It was a very eerie feeling as we walked



Participants take a stroll on the 100-foot-tall suspension bridge that hangs over the lush forest canopy in Kakum National Park.

through the castle. I was able to look around and see where my ancestors were held as slaves, as property. It felt relieving to return to the door where my ancestors were taken away, never to return home – that I was able to, in a sense, return for them.”

Dr. Asiamah said he enjoyed watching the students’ openness and willingness to experience a new culture. In addition to regularly interacting and playing games with KNUST students, they also enjoyed interacting with locals – everyone from restaurant waiters, to shopkeepers and workers at the market.

“At restaurants, our students would try to say a few phrases in the local Twi language, which always got a positive reaction from the people working there,” he said. “They also enjoyed many visits to the local markets, where they learned how to bargain. Several students would approach me and brag about the great deals they managed to make.”

Dr. Asiamah said he was especially touched when the students told him about how their perceptions of Africa had changed thanks to the program.

“They made observations about how developed Ghana is and about how it seems everyone is hardworking and entrepreneurial,” he said. “When we went to Kakum National Park, we took a walk on a 100-foot-tall suspension bridge that hangs over the lush forest canopy. After that trip, several students commented how they never expected Africa to be so green.”

Another cultural excursion was made to the Bonwire Kente Village, where the students learned about the production of handwoven, traditional kente cloth.

“I loved learning about the different symbolism in weaving kente cloth,” Malone said. “The colors, designs and symbols have a specific meaning and purpose. There is a story behind the cloth.”

They also visited the W.E.B. DuBois Center for Pan African Culture, where they learned about how the African American scholar and activist spent his final years living in Ghana, the first African country to win independence from colonial rule.

“My biggest takeaways from this study abroad program were that African history and culture gives me so much life and joy,” Pouncy said. “Everyone there was so amazing, welcoming

and loving that it made me feel at home, even though it was my first time being there. It also showed me that there is still a multitude of information about the world that I still don’t know. There are truly unlimited possibilities out there as well. I will be back to explore Ghana, the rest of Africa and the world as well.” ■

“While in Ghana, our participants had the chance to engage in a number of hands-on activities related to agriculture. They joined KNUST students in the field to learn about maize breeding, visited a catfish farm, where they learned a little about the business side of agriculture, and even saw how palm weevil insects are being farmed for value-added food products.”

~ Dr. Emmanuel Asiamah



The delegation visited the W.E.B. DuBois Center for Pan African Culture, where they learned about how the African American scholar and activist spent his final years living in Ghana, the first African country to win independence from colonial rule.



Dr. Sathish Ponniah observes rice plants under high nighttime temperature conditions in the growth chamber.

UAPB Researchers Investigate Effect of High Nighttime Temperatures on Rice Grain

Researchers at UAPB and the University of Arkansas are collaborating on a study meant to shed light on an increasingly common problem faced by rice producers, Dr. Sathish Ponniah, associate professor for the UAPB Department of Agriculture, said.

“Global warming has caused the temperatures at night to rise, which affects crop production,” he said. “Rice breeders have been trying to understand the effects of high nighttime temperatures on rice. Rice grown in high night temperatures produces chalky grains.”

Dr. Ponniah said chalky rice shows altered cooking quality and poor milling yield. Because buyers do not want this lower-quality rice, producers have had to face shrinking market values for their crop.

“Chalkiness is related to opaque areas creates air spaces in rice endosperm and generally results in lower milling yield because chalky

grain tends to be weaker and prone to break in milling,” he said.

Funded by the National Science Foundation (NSF), the study investigates why and how chalkiness is induced in rice grains through high nighttime temperatures.

“In our study, 12 locally-grown rice varieties in Arkansas with variations in chalkiness were germinated in a greenhouse and then in a growth chamber with normal or high night temperature conditions until the harvesting stage,” Dr. Ponniah said. “Two plants per variety were tested with three independent replications for normal and high night temperature conditions.”

A variety of yield parameters were recorded, including the total number of filled and unfilled grains per plant. Rice grains from each treatment were also scanned to measure their chalkiness.

Dr. Ponniah said the impact of high nighttime temperatures on rice kernels varied with different rice cultivars. Medium grain cultivars were more resistant to high night temperature, while long grain cultivars were highly susceptible.

“Studies like this one are of utmost importance as rice is the single most important food crop, providing 21 percent of the world’s caloric needs and contributes approximately \$1 billion to state economy,” he said. “This particular NSF-funded project will continue until August 2023.” ■



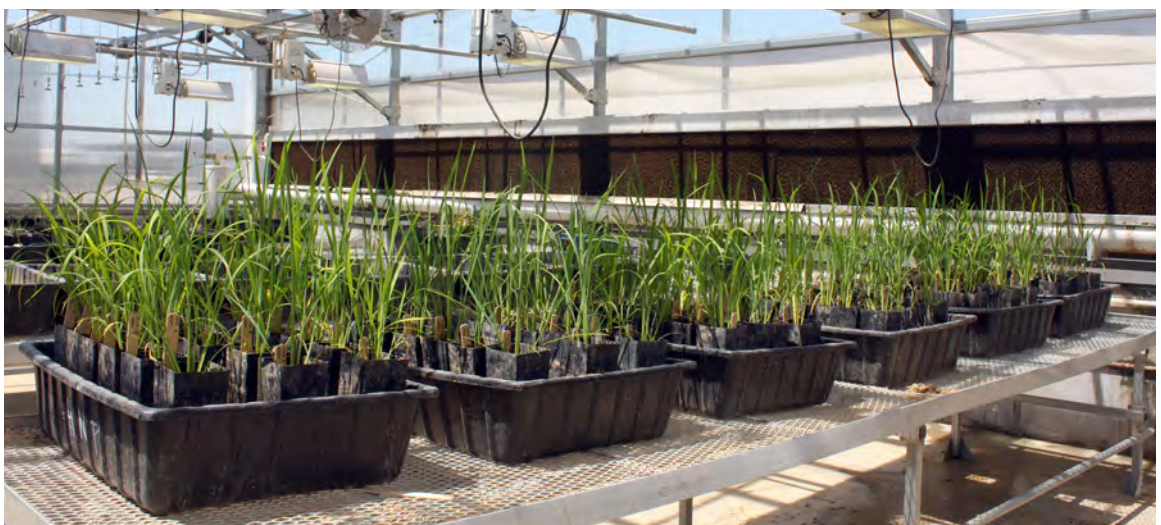
Germinating Arkansas rice cultivars in the greenhouse.



Measuring the chalk area in rice grains using WinSeedle™ instrument.

“Studies like this one are of utmost importance as rice is the single most important food crop, providing 21 percent of the world’s caloric needs and contributes approximately \$1 billion to state economy.”

~ Dr. Sathish Ponniah



Growing rice plants under greenhouse conditions until the plants reach the R2 stage.



UAPB researchers are studying the potential of black soldier fly larvae products to enhance growth and health in tilapia and catfish.

UAPB Researchers Study Potential of Insects in Diets of Tilapia, Catfish

Researchers at the UAPB Department of Aquaculture and Fisheries are studying the potential of black soldier fly larvae products to enhance growth and health in tilapia and catfish, according to Dr. Nicholas Romano, Extension specialist and interim director of the Center of Excellence in Aquaculture and Fisheries at UAPB.

“There is growing interest in insect farming to improve aquaculture sustainability,” he said. “Studies have already shown benefits on the inclusion of larvae as a source of protein and lipids.”

Dr. Romano and Dr. Amit Kumar Sinha, associate professor of aquaculture and fisheries, are leading a team of researchers in conducting a fish nutrition trial to better understand how insect products enhance fish production by using various analyses that include gene expression, histology and biochemical measurements.

“Currently, the market price for insect products is high, but the leftover ‘frass,’ which is what remains after the larvae eat their food and are harvested, has also gained interest as a potential ingredient,” he said. “This is because it’s a by-product, and is thus less expensive, while being rich in various minerals and other nutrients. We have already seen great benefits on the inclusion of frass in the diets of tilapia, and we are conducting another trial to see if this also applies to catfish, which is a major food-fish in Arkansas.”

If black soldier fly larvae frass shows the same benefit to tilapia as with catfish, then this could become a new standard ingredient in catfish feeds to enhance production and possibly their health, he said.

“We are already seeing entrepreneurs enter this industry to supply new black soldier fly larvae ingredients to catfish farmers,” Dr. Romano said. “We are at the beginning of

what will likely become a new and large industry to supply feed manufacturers with sustainable and effective insect products.”

In addition to Dr. Romano and Dr. Sinha, the researchers on this project were Dr. Surjya Narayan Datta, a World Bank scholar from India, Dr. Pande Gde Sasmita Julyantoro, a visiting Fullbright Scholar from Indonesia. ■

“We are already seeing entrepreneurs enter this industry to supply new black soldier fly larvae ingredients to catfish farmers. We are at the beginning of what will likely become a new and large industry to supply feed manufacturers with sustainable and effective insect products.”

~ Dr. Nicholas Romano



There is growing interest in insect farming to improve aquaculture sustainability.



UAPB researchers are conducting a fish nutrition trial to better understand how insect products enhance fish production.



Dr. Steve Lochmann explains how UAPB radio telemetry studies inform fisheries management decisions made by the Arkansas Game and Fish Commission.

Attendees of Aquaculture/Fisheries Field Day Learn About Timely Industry Topics

Attendees of Aquaculture/Fisheries Field Day learned about the latest research and Extension efforts of the Harry K. Dupree Stuttgart National Aquaculture Research Center (SNARC) and UAPB. The event, which was held at SNARC, covered a number of timely topics important to the industry.

“The field day was a great opportunity for stakeholders such as fish farmers and the Arkansas Game and Fish Commission to learn about the research and Extension efforts of SNARC and UAPB in an informal setting,” said Dr. Rebecca Lochmann, chair of the department of aquaculture and fisheries at UAPB. “The tour covered a number of timely topics important to the industry.”

Several of the topics were related to diets for different fish species. Other topics related to fish health covered the prevention of fish diseases and production losses.

Attendees also learned about small-scale aquaponics, the implications of inflation on the aquaculture industry, the re-establishment of aquatic vegetation in water bodies, split-pond catfish production and observation of fish behavior through radio telemetry. ■



Attendees of Aquaculture/Fisheries Field Day learned about timely topics important to the industry from SNARC and UAPB.



Scott Jones presenting on the use of sonar and submersible drone technology to assess native vegetation re-establishment projects on Lake DeGray.



Dr. Amit Sinha discusses the control of high iron toxicity in aquaculture practices with low-cost 'bentonite' clay.



Sujan Bhattarai, Hannah Knuckles, Dr. Dayan Perera and Jacob Jones demonstrate an urban aquaponics system that can be adapted to have a raft system or a flood and drain system.



Michele Jones presents her research on fermented soybean meal use in largemouth bass.



Dr. Uttam Deb and Dr. Lin Xie explain the study "Impact of Inflation on Seafood Consumption and Aquaculture Industry in Arkansas."



Front row, from left: Dr. Bruce McGowan, Ayushma Sharma, Sharon Gudapati, Dr. Grace Ramena and Tiffany Schafer. Back row, from left: Fard E. Karim, Annik Segree, Lewis Boykin, Kailash Bohara and Ashish Chaudhary. Dr. Ramena's team presented the "Aquaculture biosecurity model as an important strategy to mitigate disease outbreaks in fish farming" to Arkansas fish producers and other stakeholders. They also spoke about the most prevalent fish health and disease diagnostic cases and ongoing research projects.



Courtney Fisher Williams, UAPB Extension program aide, right, leads cooking classes in which clients of the Jefferson County Drug Court Program learn healthier nutrition habits.

Jefferson County Drug Court Clients Transform their Eating, Nutrition Habits Through UAPB Program

A UAPB program is equipping clients of the Jefferson County Drug Court Program with healthier nutrition habits, said Marcie Johnson, drug court advisor/counselor for Pine Bluff Adult Probation. Once a week, the program's clients, first-time offenders convicted of nonviolent crimes, attend nutrition and cooking classes hosted by the UAPB 1890 Cooperative Extension Program at the UAPB campus.

Johnson said Pine Bluff Adult Probation enhances public safety by enforcing state laws and court mandates through community partnerships and evidence-based programs that hold offenders accountable while engaging them in opportunities to become law-abiding, productive citizens.

"Jefferson County Drug Court is a program of second chances," she said. "Our clientele enter a very structured program for a minimum

of 18 months. During that time, they have random drug tests, attend court once a week, participate in both group and individual counseling sessions and are responsible for completing homework assignments. All of this is intended to help them get their lives back on track in a way that lasts."

The program clients are all required to have full-time jobs or be full-time college students. They receive assistance in obtaining GED diplomas or drivers licenses and have access to financial planning services and outside counseling. They also regularly meet with designated mentors with whom they discuss abstinence from drugs or alcohol and learn communication techniques that help them cope with life's challenges without resorting to substance abuse.

"Upon successful completion of the program, our clients' criminal records are expunged,"

Johnson said. “This allows them to move forward and be productive citizens and family members. It really is a win-win situation.”

Instilling healthy habits

Johnson said her organization’s partnership with UAPB began after Courtney Fisher Williams, UAPB Extension program aide, reached out to her in 2018 and suggested ways they could collaborate.

“People entering drug court often have challenges when it comes to healthy eating habits,” Johnson said. “I was immediately interested in the possibility of collaborating with UAPB to give our clientele the opportunity to learn about nutrition and how to cook easy, healthy meals.”

Since the partnership’s inception, UAPB Expanded Food and Nutrition Education (EFNEP) program aides have conducted lessons from a curriculum titled “Families Eating Smart, Moving More,” as well as from the U.S. Department of Agriculture MyPlate program. The participants learn how to read food labels, make healthier choices at restaurants and decrease sedentary behavior through physical activity. They also learn about the importance of food safety practices, portion control, the reduction of sodium and sugar in daily eating and ways to stretch their food dollar.

The cooking classes

Johnson said her program’s clientele attend interactive cooking sessions once a week at UAPB’s Extension auditorium, which is

equipped with a demonstration kitchen. They are able to interact with the EFNEP aides and ask questions about cooking, see firsthand how healthy meals are prepared and sample the dishes.

“Once the participants started to understand

how fun it can be to cook – to cut up the vegetables and follow the preparation steps – the cooking classes quickly became the talk of the office,” she said. “It was an easy sell after that. Everyone started looking forward to Wednesday and wondering what dish they would learn to prepare next.”

Johnson admits there was one caveat that several of the participants were not prepared for – salt, or the lack thereof.

“Some of our clients were shocked when some of the healthy meals they cooked called for different types of seasonings but lacked salt,” she said. “Some said they did not know how to cook without salt, so they started sneaking little packets of salt in. It was very funny. But in the end, everyone was pleasantly surprised to learn how tasty some low- or no-sodium meals can be.”

Johnson said one participant started regularly cooking meals she learned to make at the sessions for her grandmother, who had been on medicine for high cholesterol for years.

“Imagine their surprise when they showed up for one of the grandmother’s regular checkups at the doctor’s office, and it turned out her cholesterol drastically decreased,” she said. “The doctor even took her off the medications.”

Other clients have been eager to cook for their family members thanks to the sessions too.

“The cookbook we use is a hot commodity,” Johnson said. “For a while, after each lesson, we were having to make a lot of copies of the individual recipes and menus because everyone was asking for them. Now, at the end of the program, everyone receives the cookbook, as well as a set of cooking utensils.”

An opportunity to bond

Johnson credits Williams and other Extension program aides with encouraging the program clientele to get their children involved in their new cooking and nutrition routines.

“Because the meals we make are simple and straightforward, this is a great opportunity for



Participants of the program learn how to cook simple, healthy meals.

parents to ask their children for help in the kitchen,” she said. “They can help prepare the ingredients and learn how to chop vegetables. Even seeing how a whole onion is chopped into little pieces and then added to the dish is a great learning experience for them.”

This type of collaboration with children can go a long way in forging stronger familial bonds, Johnson said.

“We try to show parents how they can interact with their children in healthy ways,” she said. “Once they graduate from our program, for some parents, getting back to their families and living more productive lifestyles can be like starting from scratch. At this point, they are able to develop an almost entirely different relationship with their child. I have heard very heartwarming stories from our former clients about the ways they are now able to spend time with their children in more meaningful ways.”

Showing their drug court clients healthy ways to have fun and bond with their friends does not stop at cooking classes, Johnson said.

“Asking someone to change their lifestyle is a big deal,” she said. “When we ask our clients to make this kind of change, we have to show them alternatives. One of the alternatives we introduce them to is the excitement of sporting events.”

Johnson and her staff regularly bring their clients who have started living clean lifestyles to UAPB football and basketball games.

“For many adult clients, this is a totally new experience. Most never got to attend little league sports games, much less play in them, and they grew up in environments where drug use was common,” she said. “Attending sporting events like this and realizing it’s something they can share with their families and children is huge. They always absolutely love hearing UAPB’s Marching Band (M4). Seeing the excitement on their faces is priceless.”

Moving forward, stronger than ever

Johnson said she is inspired by clients who completely transform their lives after graduating from the drug court program.

“One client came into our program with a 4th grade reading level,” she said. “She got to work and earned her GED diploma and then went on to enroll at Southeast Arkansas College. She has completed several different programs and earned two associate degrees.”

Johnson said clients like this have the power to motivate others to change their own lives for the better.

“This particular client won a writing contest for an essay that detailed her transformation,” she said. “Thanks to her achievement, she was able to participate in the “Parade of Transformation” at the Arkansas Specialty Court Conference in mid-April. She is now getting ready to start a nursing program and obtain Licensed Practical Nurse (LPN) certification.

Johnson said she encourages other clients to continue their education. She has scheduled several campus tours for those who expressed interest in attending courses at UAPB.

“All the staff members and a judge working for Pine Bluff Adult Probation are UAPB alumni,” she said. “We promote UAPB as the college to attend. The clients love the environment and feeling of being on campus.” ■



Marcie Johnson, left, said her organization's partnership with UAPB began after Williams, right, reached out to her in 2018 and suggested ways they could collaborate.





Patrick Gulley and his mother, Viola Gulley, have been increasing the sustainability and profitability of their family land through collaboration with the UAPB Keeping it in the Family Program.

UAPB Forestry Program Helps Keep Landowner's Legacy Alive

In the summer of 2020, Patrick Gulley, pastor of Antioch Baptist Church in DeAnn, Hempstead County, Arkansas, suddenly found himself in the position of being responsible for his family's forestland in Nevada County when his father, Henry Gulley, died in an automobile accident at the age of 72. Alongside his mother, Viola, he began looking for ways to carry out his father's vision for the family land.

Gulley said his father grew up on a farm in Rosston, Arkansas and was always passionate about working the land. After graduating from high school, he enrolled in Arkansas Agricultural, Mechanical and Normal College (now UAPB) and went on to serve in the U.S. Air Force from 1968 to 1974.

"My parents went to the same high school and met as teenagers. They got to know each other better at church, where my father was a musician and played spiritual songs on his guitar," Gulley said. "My parents got married in 1973, and the next year, my father finished his military service."

The newlywed couple ended up finding an opportunity to buy land that bordered property owned by Viola's father, Dock McKinney. McKinney, who was employed by a local landowner, had worked on the land in question for years and originally intended to buy it himself. However, he realized this could be an opportunity for his daughter and son-in-law to own their own land.

"The news that he could acquire this kind of property was music to my father's ears," Gulley said. "My grandfather was already getting older and was right across the street – he knew my father and that he would be a good neighbor and steward of the land."

Henry and Viola Gulley would go on to enjoy the entirety of their marriage on the property. Gulley said his father remained committed to enhancing and protecting his land over the years.

"My father's vision was for the land to mature as much as possible," he said. "He had cattle,

planted trees for timber, grew vegetables and fruit and even hunted on the land. In so many ways, he achieved his vision of living off the land.”

Revitalizing the land through UAPB’s “Keeping it in the Family” Program

Before his father’s passing, Gulley visited the local Natural Resources Conservation Service (NRCS) office and asked about ways he and his father could improve their timber stand. Though they had harvested trees years ago, the area had been left unmanaged. The NRCS personnel informed Gulley about UAPB’s “Keeping it in the Family” (KIITF) Program, which provides educational resources and technical assistance to African American forest landowners to protect and retain their family land for future generations.

Gulley and his father started reaching out to KIITF personnel, asking for advice on how to improve their land and attending the program’s informational webinars. However, it was not until his father’s sudden and untimely death that Gulley could actively start implementing the ideas for the land the two of them had discussed. Determined to carry on his father’s plans for the land, Gulley and his mother

arranged for the KIITF team to conduct a site visit on their property.

Levell Foote, a retired NRCS district conservationist who works as a conservation consultant for the KIITF Program, was assigned to help the family with their forestland management goals.

“From day one, working with Patrick and Viola Gulley gave me a glow in my heart. It was immediately apparent they were so passionate about accomplishing the goals that Henry Gulley originally set out to do. On the drive back home from our first meeting, all I could think about was how great a visit it was. Ever since then, Patrick and his mother have stayed very involved in transforming their land for the better.”

~ Levell Foote



Two consultants for UAPB’s forestry program, Charley Williams, left, and Levell Foote, center, instruct Gulley on how to use the Web Soil Survey application to identify soil type.



Gulley works as pastor of Antioch Baptist Church in DeAnn, Hempstead County, Arkansas. He says he remains committed to realizing his late father's plans for the family land.

Gulley asked Foote for assistance with two main objectives: revitalizing forestland on the property and setting up a viable cattle operation.

"Patrick told me the NRCS had not accepted his forestry management plan," Foote said. "After reviewing the plan, I noticed issues such as a lack of fire lanes along property boundaries and some inconsistencies regarding the number of trees that would be planted. We corrected these issues in the plan, and I also identified several conservation practices that could be implemented and funded through the Environmental Quality Incentive Program (EQIP)."

Thanks to Foote's assistance and guidance, Gulley received EQIP funding for conservation practices such as:

- prescribed burning – applying controlled fire to enhance forest health.
- tree and shrub site preparation – treating areas to improve site conditions for establishing trees and shrubs.

- tree and shrub establishment – planting seedlings or cuttings that promote natural regeneration.

Now that tree planting is underway on Gulley's property, Foote aims to help him with his goals related to enhancing pastureland and raising livestock. In addition to having a productive timber stand, Gulley hopes to raise 50 head of cattle per year.

"The Keeping it in the Family team has been wonderful – thanks to them we have gained so much knowledge. We have learned just how many government resources are available to families like us. A lot of people think the state wants to take your property, but this is far from the truth. They want you to stay on your land and help you reap its benefits in a sustainable and profitable way. Some may think it sounds too good to be true, but we have learned firsthand that it is true."

~ Patrick Gulley

Foote said the Gulleys serve as an example for other landowners because of their deep commitment to the land. He says it is apparent they are both looking at all aspects of the land now and considering new ways to ensure its health and sustainability.

"Patrick and Viola really took the bull by the horns in refreshing and replenishing their land," Foote said. "They are taking what was recently bare land and turning it back into a productive forest. Their knowledge and interest in the land grows day by day – most recently they have been looking into rehabilitating a pond on their property and have even had wildlife biologists on their land to ensure the health of the species that live out there. They are truly carrying on the legacy of Henry Gulley and making his vision a reality." ■

By the Numbers

Extension and Research Funding (Funding Sources for FY 2022)

University of Arkansas at Pine Bluff
School of Agriculture, Fisheries
and Human Sciences received

\$18.2 million

from federal, state and local governments,
as well as from grants and contracts.



32%

NIFA/USDA
Formula Funds
(1890 Research
and Extension)



22%

State Match
Funds



20%

UAPB Educational
and General (E&G)
Support



26%

Competitive
Grants and
Contracts

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