

MISSISSIPPI

# LANDMARKS

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AND VETERINARY MEDICINE

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## VICE PRESIDENT'S LETTER

I grew up in a small town in South Central Missouri on a dairy farm. As a child and teenager, I helped milk cows and saw firsthand the labor that goes into running a farming operation. While

technology has evolved, farming is still a very labor-intensive way to make a living.

As the global population continues to increase, we must find ways to use the fixed amount of land we have more efficiently to feed and clothe a growing world. One way we are doing that at Mississippi State University is by launching the nation's first institute dedicated solely to agricultural autonomy. The Agricultural Autonomy Institute establishes a hub for a top-notch team of scientists at MSU to collaborate on multi-disciplinary research and expand resources. Don't miss this story on page 16.

Artificial intelligence (AI) is all around us, but it may surprise you to learn we're using AI to verify wood products and their origins to reduce fraud and misrepresentation. You can read more about this on page 13.

In this issue, you'll also read about how we are protecting our state's largest commodity, poultry, at every level—from testing for the highly pathogenic avian influenza at the MSU College of Veterinary Medicine diagnostic lab in Pearl to education and implementation of biosecurity measures through Extension (page 20).

We're discovering new ways to help Mississippi farmers diversify and improve their crops and irrigate more efficiently (page 10). Students and faculty in fashion design and merchandising are teaming up with engineers to create smart textiles—fabrics created with electronic components. The newest project could be a lifesaver—literally (page 26).

When tornadoes ripped through our state this year, our Extension agents got to work immediately to clear roads, rebuild fences, and help communities recover (page 6). This is a great example of our commitment to people in need.

We are dedicated to serving our state and taking care of what matters.

KEITH H. COBLE  
Vice President

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ON THE COVER

Scientists in Agricultural and Biological Engineering are developing an autonomous cotton picker to harvest cotton bolls on the lower portion of the plant that develop quicker than those on the upper portion of the plant. (Photo by David Ammon)



*Food Science Innovator, Dedicated Educator*  
 CALS Assistant Professor  
**Ignites Passion,  
 Mentors Students**

One professor can change a life. That's what Dr. Shecoya White, an assistant professor in the Department of Food Science, Nutrition, and Health Promotion, strives to do daily.

As a student at Iowa State University, White found inspiration and mentorship and now seeks to invest the same in students at Mississippi State.

"While attending a summer internship program at Iowa State University as an undergraduate, I heard about how much another intern enjoyed conducting research within their food microbiology lab," White said.

When White returned to Iowa State to earn a doctoral degree in toxicology, remembering the experience of the intern inspired her to reach out to Dr. Aubrey Mendonca, an associate professor in the university's food science and human nutrition department, to see if she could rotate through his lab. That experience helped ignite White's passion for microbiology, a passion evident today as she invests in training tomorrow's food science leaders.

White teaches seven courses in the College of Agriculture and Life Sciences (CALS) at the undergraduate and graduate levels, inspiring budding food scientists in the areas of food product development, food quality assurance, food law, food microbiology, and more. For White, food science is also an entrée into helping the community, whether that's teaching rural African American high school students about STEM or challenging her food product development students to host a recipe showcase for innovative foods made with ingredients regularly found in Bully's Pantry, MSU's food bank for students.

White has received several CALS awards recently, including the Excellence in Teaching New Faculty Award in 2021, the Outstanding Faculty Service Award in 2022, and the Faculty Diversity Award and Team Diversity Award in 2023. White focuses on making all students feel like valued members of the university community.

"I try to reach students where they are, in the classroom, in the community, and through research opportunities and

campus organizations. I've seen firsthand the impact of my guidance. I always tell the students I can't do it alone and their success is my success," she said.

White also manages a Mississippi Agricultural and Forestry Experiment Station food safety research lab, where she currently has two doctoral, five master's, and four undergraduate students engaged in food science research that improves food quality and safety for all Mississippians. Graduate student Zonia Elizabeth Caro Carvajal has been mentored by White for almost two years.

"Dr. White has offered support from the first moment. She has helped me with my research while being an extraordinary guide for me to participate in diverse organizations and apply for scholarships," said Caro Carvajal. "No matter how busy she is, she always makes time to answer questions and look for solutions."

The mentorship has been a gift for the standout student who has received 15 scholarships, including the George Washington Carver Internship with the World Food Prize, which gave her the opportunity to interact with and assist World Food Prize laureates, government officials, and international experts tackling global food insecurity issues. Caro Carvajal spoke to White's roles as both a student mentor and faculty adviser to student organizations including MSU's Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS), the MSU Food Science Club, and the MSU Pipetting Team, which two of her students founded in 2019.

"Dr. White is a friendly voice who encourages students to take part in research and outreach. She keeps students engaged to do their absolute best and achieve better results daily. Her continued commitment inspires and motivates us all and is reflected in the successes of her students and the organizations she is a part of," Caro Carvajal said.

BY VANESSA BEESON • PHOTO BY KEVIN HUDSON

"I try to reach students where they are."

DR. SHECOYA WHITE

Dr. Shecoya White manages a food safety research lab, where she currently mentors 11 graduate and undergraduate students.

# Tornado Response

## MSU Extension Serves Communities in Times of Disaster

Too often, severe weather pummels Mississippi and leaves survivors to pick up the pieces or start from scratch.

On March 24, 2023, Rolling Fork and Amory became the latest towns in the state to absorb direct hits from large tornadoes, while other areas of the state also saw significant damage to homes, business structures, and agricultural property. Tragically, 26 lives were lost in the outbreak. Damage was reported in Sharkey, Humphreys, Carroll, Montgomery, and Monroe Counties.

Shortly after this and other natural disasters, numerous volunteer organizations rush to affected areas to help victims rebuild. The Mississippi Emergency Management Agency (MEMA) coordinates local response team missions, and the Mississippi State University Extension Service is one of the agencies written into MEMA's comprehensive emergency management plan to respond to disasters.

Emergency support functions include mass care services, donation management, agricultural damage assessments, and work relief. Extension agents, specialists, and staff assist with various recovery efforts.

Depending on the assignments they receive from MEMA or county emergency managers, those efforts can include performing agricultural damage assessments; supporting the Mississippi Board of Animal Health, MEMA, and USDA Farm Service Agency; helping farmers clear debris and rebuild fencing; and staffing points of donation distribution at the local level.

Dr. BJ McClellon, MSU Extension coordinator based in Clay County, was working with emergency personnel in Amory to staff a community distribution site there before he was assigned to conduct damage assessments and later to assist work relief teams.

"Local EMAs have a designated distribution and donation area figured out ahead of time—that way we can help secure a food supply and make sure people have non-perishable items and toiletries," he said. "Usually when we get called in, we're helping collect, sort, and provide donated items to the public."

Anne Howard Hilbun-Benoit, instructor with the MSU Extension Center for Government and Community Development, said in many cases work relief and damage assessment are connected.

"Agricultural damage assessments show us where we need to send work relief teams," she said. "We had requests for relief teams from people from the Wren community in Monroe County, and we were the right people to help them as other supporting agencies helped survivors in Amory."

The tornadoes' destruction was hardly limited to buildings and houses. Timber loss was recorded in six of the state's counties after aerial surveys conducted by the Mississippi Forestry Commission estimated more than \$13 million in losses. Storms also battered Enviva's wood pellet production plant in Amory, suspending operations there.

"Damage from this round of tornadoes definitely seems to be greater than anything I've worked in North Mississippi in the last decade," said Dr. Brady Self, an associate Extension professor of forestry. "From what I've seen, a lot of the timber downed in these storms is a total loss."

Landowners with profitable timber for a logger to salvage can ask for contact information for any local logging contractors, or they can call the Mississippi Forestry Association for a list of contractors. MSU Extension also has multiple publications available that detail topics ranging from chainsaw and debris clearing safety to timber casualty loss tax considerations.

"County Extension agents and forestry specialists can go to look at a property and offer technical advice on whether a landowner should consider a tract as manageable or something that they should regenerate," Self said.

For MSU Extension agents whose counties are affected by disasters, the work of recovery in their communities unofficially begins as soon as the danger has passed, well before receiving assignments from MEMA. Extension county coordinators Emily Carter in Sharkey County and Randall Nevins in Monroe County were among responders clearing debris from roads and helping people find shelter and necessities.

"We got to work first thing early next morning. I was clearing roads with anybody I could find so folks who had been trapped at home could get through," Nevins said. "We're trying to be of service to these folks. There's a lot of destruction across the county from one side to the other."

In response to the storms, Extension health specialists teamed with colleagues in the MSU Department of Psychology to create new publications with tips for storm victims coping with stress and grief. MSU Extension has several publications related to coping with disasters, including the two new ones stemming from this collaboration.

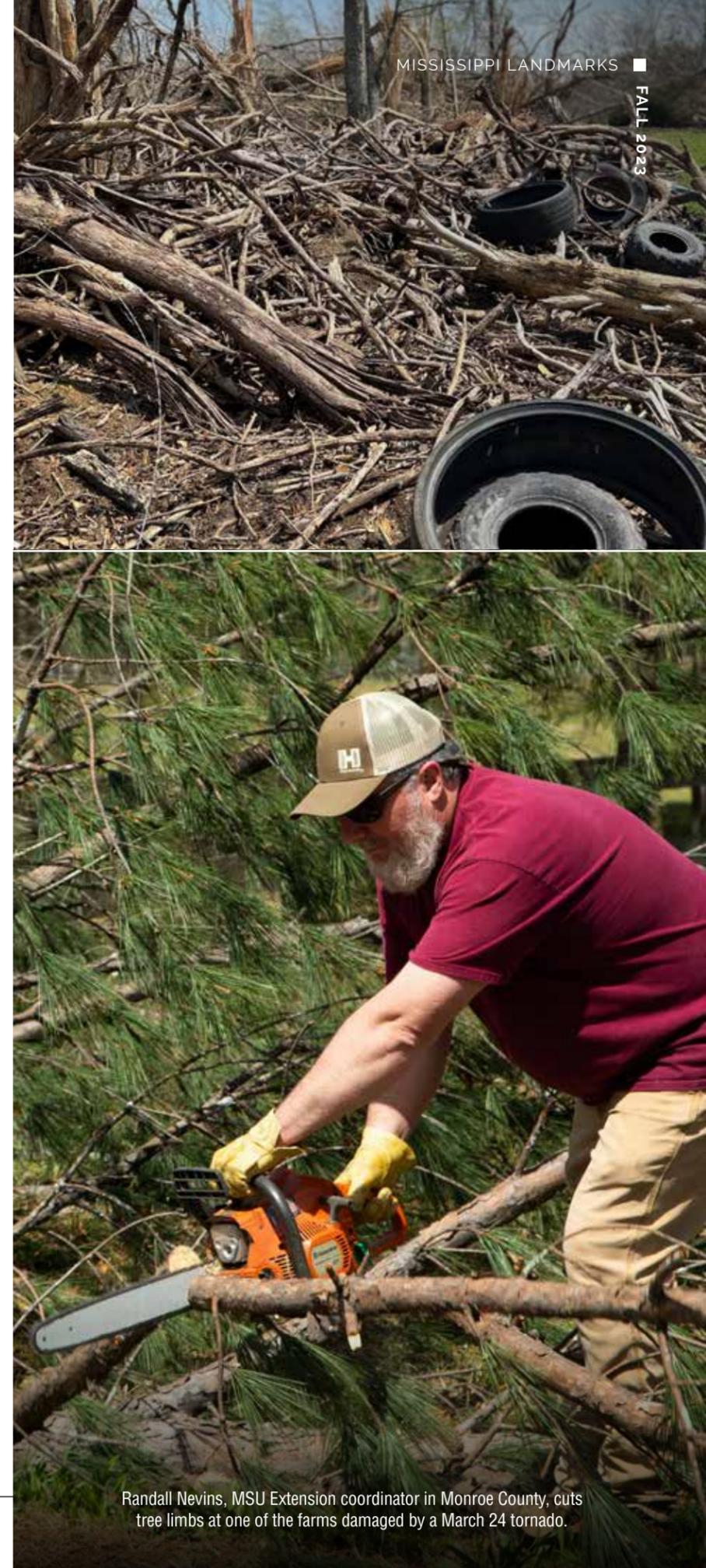
Links to MSU Extension resources related to post-storm recovery are available online.

BY NATHAN GREGORY  
PHOTOS BY NATHAN GREGORY  
& OLIVIA AYLSWORTH



"Agricultural damage assessments show us where we need to send work relief teams."

ANNE HOWARD  
HILBUN-BENOIT



Randall Nevins, MSU Extension coordinator in Monroe County, cuts tree limbs at one of the farms damaged by a March 24 tornado.

# Better on the Farm

## Veterinary Students Get Hands-On Large Animal Experience

The Mississippi humidity is heavy in the air as the sun rises over Town Creek Farm in Clay County. It's an early morning in May, but the warmth of summer has come early.

Dr. Jim Brett and three veterinary students with the ambulatory and field services rotation have arrived to pregnancy check 90 cows and take lab samples on this group of registered Brangus cattle. While there, they'll also assess a lameness issue in a horse—and address anything else that happens to be ailing the animals.

The team's assistance is welcomed by Milton Sundbeck and Joy Reznicek, who are well aware of the access to care issues facing many of their peers across the state and the country.

"For decades, farmers have endured a shortage of rural veterinarians, but the problem is now at an all-time high. Statistics indicate that fewer than 3 percent of the country's recent Doctor of Veterinary Medicine graduates choose to work exclusively with food animals," Brett, a clinical professor and large animal veterinarian, said.

Mississippi Farm Bureau President Mike McCormick agrees that this issue has become increasingly important to resolve.

"Farmers and ranchers rely on these veterinarians to provide preventive medical care and manage any illnesses or injuries their animals experience," McCormick said. "This issue is also tied to public health, food safety, and food security."

That's why the Mississippi State University College of Veterinary Medicine is moving the classroom to the farm. Hands-on learning is a significant part of the curriculum for all MSU veterinary students, and the college's ambulatory and field services rotation provides students a unique opportunity to see firsthand the challenges facing farmers, horse owners, and others in need of large animal veterinary services.

"Each farm call is a teaching opportunity," Brett said. "We use patient cases and herd services to reinforce classroom lectures. We allow them to take on the primary role with the case and the client and only step in to assist when needed."

Services rendered include everything from routine herd work to disease or production investigations to emergency services, which are of utmost importance to clients and also

provide outstanding experiential learning opportunities for students.

A unique aspect of the college's ambulatory service—and a vital one to the financial well-being of farmers—is the ability to serve clients across the state of Mississippi. The service focuses heavily on patients and clients in the Starkville area, but it is not uncommon for faculty to be called to any corner of the state.

Ambulatory and field services clinicians also work closely with Extension specialists in the MSU Department of Animal and Dairy Sciences, visiting farms across the state to provide education, hands-on instruction, and guidance.

"Every day is an adventure," Brett said. "Helping these folks—most of whom love animals and work hard sunup till sundown—is really gratifying. And preparing students for a career in large animal medicine while increasing awareness about the important role of large animal practitioners just makes it even better."

MSU veterinary students also gain hands-on training in large animal medicine through a new enhanced clinical practicum program, where they are assigned to work in veterinary clinics throughout the country. In addition, students are given the opportunity to participate in an advanced clinical rotation with the field services team and receive help securing large animal externships.

"Having the classroom on the farm enables students to be practice-ready at graduation to perform these services in a proficient and ethical manner," Brett said. "This is key to helping address the shortage of large animal vets and helping ensure life is truly better on the farm."

McCormick said this additional exposure to rural veterinary practice and experiential learning opportunities is crucial, but more needs to be done.

"To see this fully resolved, I believe legislative involvement is needed. By providing grants to veterinary graduates willing to stay in the state and practice in rural areas, we could further alleviate this issue and provide the agricultural industry the access to quality veterinary care it so desperately needs," he said.

BY MEL THURLOW & CLAIRE WILSON

PHOTO BY TOM THOMPSON

"Each farm call is a teaching opportunity."

DR. JIM BRETT

Abby Fleming, a student in the MSU CVM DVM Class of 2023, administers a drench dewormer to a calf during an ambulatory service call.

“Our Extension agents work one-on-one with growers, showing them how and where to install sensors and what to do with the data.”

DR. DREW GHOLSON

# Irrigation Efficiency

## MSU Educates to Conserve Water Resources

It may seem ironic that a state that gets about 60 inches of rain a year is working hard to conserve water in agriculture to maintain this resource for future generations.

Worldwide, agriculture is the single largest consumer of fresh water, accounting for 70 percent of the planet's freshwater withdrawals annually, according to The Nature Conservancy. In the U.S., irrigation accounts for more than 80 percent of total water use.

While Mississippi is not in the half of the continental U.S. that has regularly experienced drought over the last 20 years, water managers include the state among the 40 where water shortages are expected over the next 10 years.

Jeremy Jack, owner of Silent Shade Planting Co. in Belzoni, Mississippi, said technology allows his company to implement management practices impossible 15 years ago. Their efforts have focused on water conservation and the efficient operation of equipment. When good management leads to increased yields with less diesel used and fewer man-hours spent, the positives begin to stack up.

“These things generate more income, which means more conservation, which saves money and allows us to implement even more conservation practices,” he said. “Money encourages the adoption of conservation practices. It does not happen instantly, but money allows an operation to be sustainable and run long-term.”

Dr. Jason Krutz, director of the Mississippi Water Resources Research Institute (MWRRI) at Mississippi State University, said cropland irrigation is necessary because much of Mississippi's rainfall does not occur during the growing season.

“Irrigation is the chief insurance policy for yield stability,” Krutz said. “It sets the base floor for yield and allows growers to reliably market their crop.”

In the 1980s, much of Mississippi's crop acreage moved from non-irrigated to irrigated systems. Today, about half of the state's ag land is irrigated, with 40,000 to 50,000 more acres of irrigation added annually.

Since 2012, MSU has been researching, advocating, and educating on ways to improve water use.

“We are looking at the technology, tools, and approaches to irrigation to make it as effective and efficient as possible,” Krutz said.

The Mississippi Delta is home to the majority of the state's row crop agriculture, and irrigated acres there are supplied by private wells that draw from the underground alluvial aquifer. Water levels in this vast water supply are declining, and the MWRRI is one of the agencies focused on reversing this trend by adopting more efficient water use practices.

“We have published data showing the effectiveness of the technologies we are advocating for, and the U.S. Geological Survey has modeled our data and showed significant, positive slowing of the decline,” Krutz said.

MSU efforts primarily focus on the adoption and correct use of soil moisture sensors, which make it possible to schedule irrigation efficiently, and the use of computerized hole selection and surge valves so water in furrow irrigation is dispersed at the appropriate rate.

“We have shown water savings up to 40 percent and yield improvement up to 5 percent when these technologies are properly implemented,” said Dr. Dave Spencer, an assistant professor in the Department of Plant and Soil Sciences and Extension pivot irrigation specialist.

Soil moisture sensors are a key tool in irrigation efficiency. These sensors are strategically placed underground to measure the amount of moisture in the soil at the plant's root zone. Knowing how much water is available to the plant allows the grower to postpone irrigation even if the top of the ground is very dry. This ability to accurately predict how many days remain before water is needed allows growers to postpone irrigation if rain is likely in the forecast.

Mississippi has a 20 percent adoption rate for soil moisture sensors, second only to Nebraska, which is marginally ahead. The regional and national average is less than 2 percent adoption.

Dr. Drew Gholson is an assistant professor in plant and soil sciences, Extension irrigation specialist at MSU's Delta Research and Extension Center in Stoneville, and director of the National Center for Alluvial Aquifer Research. He said MSU Extension created Advancing the Adoption of Soil Moisture Sensors, a program to demonstrate in on-farm settings what a person needs to know and do to use soil moisture sensors to schedule irrigation efficiently.

"Our Extension agents work one-on-one with growers, showing them how and where to install sensors and what to do with the data," Gholson said. "We have to increase a person's trust in what the sensors are saying so they can

make decisions based off it. And we have to help them trust themselves to make the right decisions."

Participants stay in the program three years, and Gholson said 100 percent adopt the practices once the knowledge barrier has been removed.

While obviously important for farmers, water conservation affects every Mississippian, said Dr. Nico Quintana, Mississippi Agricultural and Forestry Experiment Station water economist at the Stoneville center and assistant research professor in the Department of Agricultural Economics.

"Irrigation efficiency is at the core of feeding a growing population," Quintana said. "These practices are relatively low cost and help slow down the rate at which the aquifer is depleted, which buys us time to develop the solutions that will ultimately preserve the aquifer."

BY BONNIE COBLENTZ • PHOTOS BY KEVIN HUDSON



(From left) Brian Andrus works with Extension Agent Alex Deason and Drew Gholson to maintain yields on his Sunflower County farm while using irrigation efficiently.

## Forest Products Forensics Researchers Use AI to Identify Wood Species

The chair you sit in. The floor you walk on. Even the utensils you use for cooking may contain misidentified wood.

The 2008 expansion of the U.S. Lacey Act and similar legislation in other countries have been credited with reducing illegal wood product imports; however, there is more work to be done. Although importers must declare the genus, species, and country of origin of all wood products entering U.S. borders, sometimes species are misidentified— inadvertently or intentionally. Wood identification experts, who are trained to identify species with a hand lens or microscope, are not always available when they are needed.

Dr. Frank Owens, sustainable bioproducts associate professor and Forest and Wildlife Research Center (FWRC) scientist, witnessed the practice of species fraud and misrepresentation firsthand when he was running a large lumber program in the United Arab Emirates earlier in his career.

"We struggled frequently with people trying to sell us adulterated lumber, which they claimed to be one species but would actually be a lower value material," he said.

In his current position at Mississippi State University, Owens, along with sustainable bioproducts professor and department head Dr. Rubin Shmulsky, has enlisted the help of artificial intelligence to fight this battle. He and his team of graduate students have spent the last few years working with a computer vision-based wood identification system called the XyloTron, invented by Dr. Alex Wiedenhoef, a research botanist with the USDA Forest Service Forest Products Laboratory.

Another close collaborator, Dr. Prabu Ravindran, a scientist at the University of Wisconsin—Madison, is the programmer behind the software.

Alberta Ebeheakey, forest resources doctoral student, and Dr. Frank Owens use the XyloTron to evaluate wood.



Central to the advancement of the XyloTron's capabilities is a wood collection almost 100 years in the making—the David A. Kribs Xylarium. It is thought to be the nation's fourth-largest wood collection, containing tens of thousands of specimens from the Americas, the Philippines, and the west coast of Africa. The collection was founded at Penn State University in 1925 and relocated to North Carolina State University in the late 1960s. MSU acquired it in 2020.

"We are still conducting a hand count and digitizing the information that came with the collection in an old-fashioned card catalog, so the final specimen count is pending," Owens said. "Under the guidance of Dr. Adriana Costa, an assistant professor in the department and FWRC scientist, we're about halfway finished with the electronic cataloging, and it should be completed by the collection's centennial in 2025."

One of the greatest challenges in developing the XyloTron's learning algorithms is the occasional but odd errors it makes.

"Most of our models identify samples with 85 to 90 percent accuracy," Owens said. "But when you start building bigger models with more classes, there are more opportunities for it to make mistakes."

To address these misclassifications, some of which originate in the preparation process, Owens and his team are now testing the XyloTron's capabilities to identify samples with various levels of surface preparation quality.

Owens also looks forward to bringing in two new graduate students later this year—one from Ghana and the other from Indonesia—both experienced in wood identification research.

"When you're dealing with international trade, you need to

build models for all areas of the world that export timber," he said. "Dr. Costa and I look forward to working with our graduate students and applying their expertise on species from their regions."

BY MEG HENDERSON  
PHOTO BY DAVID AMMON

# Growing on 50 Years

Experiment Station Marks  
Milestone Field Day

“I think people look to MAFES and Extension as the stalwart of reliable information.”

DR. CHRISTINE  
COKER

Each fall, plant professionals and enthusiasts take time to stop and smell the roses—and learn about them, too—at the Mississippi Agricultural and Forestry Experiment Station’s (MAFES) South Mississippi Branch Experiment Station in Poplarville. This year marks the 50th anniversary of the Annual Ornamental Horticulture Field Day.

“Today, people have access to so much information, but it’s one thing to look at horticultural research online and another to speak in person to the Mississippi State University scientist who has worked with the plants and see those plants firsthand,” said Scott Langlois, senior research associate at the Coastal Research and Extension Center (CREC). “And since most seed companies conduct their variety trials secretly, having open access to our trial gardens and researchers is a unique experience.”

The annual October event offers continuing education credits for producers and other industry professionals and features a keynote speaker. In the past, industry professionals, nursery owners, and scientists from out of state have lectured on a wide range of topics of interest in the profession, including pollinators, native plants, and, most recently, edible landscapes.

“We have a history of inviting guests who are in touch with what’s going on in the industry,” said Dr. Patricia Knight, director of coastal horticulture research at the CREC and research professor in the Department of Plant and Soil Sciences. “Our nurseries in Mississippi are mostly small, and the owners are busy with day-to-day operations. We want to provide information that will support them in their work.”

When he was hired in the early 1970s, Dr. Adolph “Sam” Laiche began to develop an ornamental horticulture research program at the station. Seeing the need to support a growing nursery industry in the region, he organized the inaugural field day in 1972 and continued each year until his retirement in 1996.

The following year, Knight stepped in and took over planning the annual event. Wanting to build on a long-standing partnership with the USDA Agricultural Research Service (ARS), she brought them in to present their horticultural research in 2002. Four years later, both Mississippi State University and USDA-ARS scientists moved into the newly constructed Thad Cochran Southern Horticultural Research Laboratory—located on the southern end of the South Mississippi Branch Experiment Station.

“There’s always been an excellent partnership between the scientists at USDA-ARS and Mississippi State,” Knight said.

The station has missed hosting the event only twice during its long tenure—once in 1996 after Laiche’s retirement and again in 2005 after Hurricane Katrina caused significant damage to South Mississippi. Thanks to advancements in technology, the field day was able to go on—virtually—through the pandemic years of 2020 and 2021.

While the event has evolved with the times and the needs of commercial growers and home gardeners, the faculty and staff work hard to keep it engaging and relevant.

“I think people look to MAFES and Extension as the stalwart of reliable information, and they look to us to continue to provide the science to the industry and the public,” said Dr. Christine Coker, an Extension and MAFES research professor in the Department of Plant and Soil Sciences stationed at the CREC.

BY MEG HENDERSON • PHOTOS BY JENNY RYALS



# MSU Announces Nation's First Institute Dedicated to Agricultural Autonomy

Mississippi State University scientists in the newly created Agricultural Autonomy Institute will develop research and training essential to the global agricultural autonomy market.

While precision agriculture maximizes productivity and profitability through the right inputs in the right place at the right time, agricultural autonomy—an industry expected to more than double its value from \$5 billion in 2021 to \$12 billion in 2026—focuses on automating labor-intensive processes like planting, harvesting, and post-harvest processing, which saves time, labor, and money.

“As the world population surpasses eight billion, we need to grow more food on a fixed amount of land with less labor, which we can do with agricultural autonomy,” said Dr. Alex Thomasson, professor and head of MSU’s Department of Agricultural and Biological Engineering. “MSU has a tradition of excellence in agricultural research and the advanced technologies that drive agricultural autonomy. That leadership position will only grow as we launch the first institute in the U.S. dedicated to this emerging field.”

The institute, which includes scientists in the university’s Office of Research and Economic Development and the Division of Agriculture, Forestry, and Veterinary Medicine, seeks to improve on-farm efficiencies to address labor

shortages and enhance profitability in the short term. Long-term goals include developing sensing and analytic capabilities of autonomous machines to make input decisions in the field at the level of a square meter or even a single plant.

Thomasson said the institute also hopes to create an agricultural autonomy hub in the region.

“The MSU Agricultural Autonomy Institute aims to make Mississippi a hub for the autonomous industry by attracting manufacturers, advancing research and start-ups, and developing and training a workforce in the state,” Thomasson said.

The institute is built on the foundation Thomasson, who is also the William B. and Sherry Berry Endowed Chair in Agricultural and Biological Engineering, has laid over the past three years through the agricultural autonomy working group. The work of scientists across the College of Agriculture and Life Sciences, Mississippi Agricultural and Forestry Experiment Station (MAFES), MSU Extension Service, Bagley College of Engineering, and multiple research centers and institutes will now help inform the institute.

“Automated agriculture is a wide-open space, and MSU is ready to help bring businesses to Mississippi, develop related intellectual property through research, and build a capable workforce in this new sector,” Thomasson said.

Thomasson serves as the institute’s founding director, and Madison Dixon, former research director of the Raspet Flight Research Laboratory, is the team’s new associate director.

Several agricultural autonomy research projects in row-crop and livestock agricultural systems are in process.

## IN THE FIELD

- Thomasson, who is also a MAFES scientist, is developing and refining collaboration between uncrewed aerial vehicles (UAVs) and uncrewed ground vehicles (UGVs). In partnership with the University of Nebraska, Texas A&M, and South Korea-based Kangwon National University, Thomasson and his team developed a UGV that mobilizes ground references and communicates its position with a UAV at multiple waypoints under the flight path, providing for highly accurate aerial-image data with minimal labor.
- Researchers are controlling herbicide-resistant weeds using artificial intelligence and automated mechanical technologies to build a machine that chooses which weeds to spot spray and which weeds to till.
- MAFES entomologists developed a UAV sampling platform that collects insects in a sweep net attached to the bottom of the drone, aimed to help overcome the limitations of manual insect sampling in soybeans.

## IN THE PASTURE

- Researchers in the MSU Center for Advanced Vehicular Systems, Raspet Flight Research Lab, and Department

of Animal and Dairy Sciences are evaluating UGVs as a safer and more efficient means of herding dairy cows compared with traditional methods.

- MAFES scientists have also partnered with the Noble Research Institute to develop models to optimize animal production and pasture management. The team used UAVs to capture pasture images and fitted grazing steers with accelerometers to determine the net energy of grazing cattle.

## IN THE CLASSROOM

The College of Agriculture and Life Sciences offers training in automated and precision agriculture, including precision ag certificates and a precision ag concentration. Courses include these:

- Precision Ag I and II
- Ag Flight I, II, and III, where students build and fly UAVs and prepare to become Federal Aviation Administration-certified UAV pilots
- Agricultural Remote Sensing I and II
- Geospatial Management
- Virtual Greenhouse
- Virtual Tractor
- New courses in robotics, data analysis, and sensing for ag applications

BY VANESSA BEESON • PHOTO BY DAVID AMMON



A Clearpath Robotics Warthog uncrewed ground vehicle equipped with cameras and sensors herds dairy cows at MSU’s Bearden Dairy Research Center.



# The Buzz about Bee Health

Project Addresses Viral Infection of Queen Bees

**H**oneybee hives with ailing queens are bad for business, not just for purveyors of honey and beeswax, but any producers whose crops benefit from pollination.

The U.S. Department of Agriculture estimates \$15 billion in added crop value is linked to the labor of these insects,

but beekeepers have few options to prevent viral diseases from being transferred to queens. Two apiculturists with the Mississippi State University Extension Service and Mississippi Agricultural and Forestry Experiment Station (MAFES) are taking on the challenge of identifying and curtailing transmission routes.

Spearheading the research are Dr. Esmail Amiri, assistant Extension and MAFES research professor at the Delta Research and Extension Center in Stoneville, and Dr. Jeff Harris, MSU Extension bee specialist and MAFES scientist, both in the Department of Biochemistry, Molecular Biology, Entomology, and Plant Pathology.

Because antibiotics are not effective against viruses, there are limited therapeutic approaches, and none of them can be readily incorporated into honeybee management, Amiri explained.

“However, recent genetic and molecular biology developments may provide future directions for limiting virus loads in honeybee populations,” he said. “Based on the current lack of preventive or curative medication, bee management and breeding are currently the most promising approaches in mitigating viral diseases in honeybees.”

Queen health and quality have been a longstanding issue in beekeeping operations, so queen producers are interested in obtaining more information about the health status and quality of the queens they produce and sell.

They now have that opportunity. The bee researchers will host a workshop to connect with queen breeders, and then collect samples from volunteer queen producers in two years to evaluate the health status of the young queens they produce.

The project has received financial backing from the Specialty Crop Block Grant Program. Overseen by the Mississippi Department of Agriculture and Commerce, the program helps state agricultural departments enhance the competitiveness of U.S.-grown specialty crops, including honey.

“While developing the proposal, we contacted several queen producers in the state and listened to their needs and ideas,” Amiri said. “We also heard similar calls for investigations into viruses and queen health from regional and national beekeeping organizations. Finding solutions for their needs is our priority.”

More than 30 viruses have been detected in honeybees, and many of them, such as deformed wing virus, sacbrood virus, black queen cell virus, and acute bee paralysis virus have been detected in queens. The most problematic vector is the Varroa mite, and minimizing its presence in a honeybee colony lightens the viral impact on honeybee health.

“These viruses have been known for a long time due to their observable symptoms and are a major concern throughout different stages of a queen’s life,” Harris said. “They have a direct impact on the queen’s health and survival, but they also indirectly affect the health and vigor of the colonies she leads.

In addition, since queens are sold nationally and internationally, they arguably play a role in long-distance distribution of viruses.”

Harris said understanding viral transmission routes is a crucial step to manage honeybee viruses. Hive spacing, visual landmarks, and entrance reducers can reduce drift between routes. High-quality diets, which ensure proper nutrition and foraging throughout the active season, can mitigate the impact of viruses.

“In local beekeeping communities, the health of colonies in one yard depends partly on the health of the colonies maintained by neighboring beekeepers, because viral diseases can be transmitted by drifting foragers, shared floral resources, or mating,” he said. “The queen is central for vertical virus transmission, so queen

breeders who produce most of the honeybee queens used in the U.S. have a crucial role to play in virus control.”

Harris and Amiri have started collecting queen samples from different queen breeding operations across Mississippi. The free service will provide the participating beekeepers information about viruses that are circulating and their main transmission routes.

“This provides useful information for queen breeders and will allow them to make informed decisions and improve product quality,” Amiri said.

BY NATHAN GREGORY • PHOTO BY KEVIN HUDSON

“Recent genetic and molecular biology developments may provide future directions for limiting virus loads in honeybee populations.”

DR. ESMAEIL AMIRI

Birds of a Feather Guard Flocks Together

# Teamwork Helps Protect

*Mississippi's #1 Commodity*

Egg prices reached an all-time high in late 2022 and early 2023, the result of a nationwide outbreak of the highly pathogenic avian influenza (HPAI). The highly contagious form of avian influenza virus rarely affects humans, but it can infect backyard chicken flocks and commercial poultry.

Dr. Ken Macklin, head of Mississippi State University's Department of Poultry Science, said this disease poses a significant economic threat to the state's \$3.8 billion poultry industry.

"This disease easily spreads from bird to bird, and the response is euthanizing the entire flock on the impacted farm," Macklin said. "This, of course, impacts the farmer and company, but it goes beyond that as our trade partners usually place a trade embargo on poultry and other ag products from our state."

Mark Leggett, president of the Mississippi Poultry Association, said biosecurity to protect their flocks is a priority for Mississippi's poultry companies and growers.

"MSU's faculty and staff are involved in educating both groups about the best research-based practices," Leggett said. "The testing done by the College of Veterinary Medicine is a key factor in identifying HPAI and other poultry diseases to quickly prevent their spread."

The Mississippi poultry industry's battle against the devastating virus is supported at every step by numerous experts working together.

**"The testing done by the College of Veterinary Medicine is a key factor in identifying HPAI and other poultry diseases to quickly prevent their spread."**

MARK LEGGETT

commercial and backyard poultry for the state of Mississippi. Since 2022, we have also performed avian influenza testing of wild bird samples submitted by USDA Wildlife Services from Mississippi and four other southeastern states," Manginsay said. "This surveillance testing serves as an important early warning system for the poultry industry."

She said the cases that occurred in Mississippi in late 2022 and early 2023 were diagnosed within hours of samples or birds being brought to the MSU laboratory.

"This facilitated a rapid outbreak response by the Mississippi Board of Animal Health, which prevented the disease from spreading," she said. "We closely coordinated with the state veterinarian and the Board of Animal Health to conduct extensive surveillance testing of poultry in the resulting control zones."

This response enabled the state's poultry industry to continue business in the face of an unprecedented event,

When suspicious deaths are found in a poultry flock, the MSU College of Veterinary Medicine's Mississippi Poultry Research and Diagnostic Laboratory in Pearl diagnoses the cause. Dr. Natalie Armour Manginsay, an associate clinical professor of avian medicine at the Pearl facility, said it is part of a network of 60 U.S. animal disease diagnostic laboratories that conduct surveillance and outbreak response for high-consequence diseases like avian influenza.

"This lab performs all avian influenza surveillance testing of



**"Backyard owners should follow basic biosecurity measures such as disinfecting feeders and having clothing and footwear exclusively for use around poultry."**

DR. JESSICA WELLS

Manginsay said. It also ultimately allowed Mississippi to self-declare itself free from HPAI in poultry in May.

The battle against HPAI begins with biosecurity measures taken to prevent the disease from entering a facility or spreading.

"Poultry companies in Mississippi participate in the National Poultry Improvement Plan, which has standards for biosecurity programs," said Extension poultry specialist Jonathan Moon. "Most producers have different levels of biosecurity and will add precautions when a disease becomes geographically close to their operation."

MSU Extension experts help owners of backyard flocks keep their birds safe. Dr. Jessica Wells, Extension poultry specialist and assistant teaching professor in the Department of Poultry Science, said owners of backyard flocks must participate in the battle against HPAI.

"When the threat level to backyard and commercial flocks is heightened by the spread of an avian virus, keeping visitors

away from your birds and cleaning feeders and houses is a must," Wells said. "Backyard owners should follow basic biosecurity measures such as disinfecting feeders and having clothing and footwear exclusively for use around poultry."

In the current state of heightened security against avian influenza, producers should purchase birds only from registered flocks and avoid swapping poultry with other flock owners.

MSU poultry science experts and veterinarians are available to offer support for both commercial poultry producers and owners of backyard flocks. In addition to on-farm visits to commercial facilities to provide advice one-on-one, the MSU Extension Service offers a variety of resources to help owners keep their chickens safe.

BY BONNIE COBLENTZ & NATHAN GREGORY  
PHOTO BY KEVIN HUDSON



“This research will increase the availability of locally grown produce in the market as well as help growers diversify their crops.”

DR. GUIHONG BI



Sage Smith, senior landscape contracting student, and Dr. Guihong Bi, plant and soil sciences research professor, evaluate freshly harvested ginger at the MAFES R. R. Foil Plant Science Research Center.

Adding Variety to the Spices and Herbs of Mississippi

# MSU Researchers Help Producers

Grow in a Niche Market

America's taste for fresh flavor in the form of culinary herbs and spices has grown over the past several years. A promising growth of 4 percent per year between now and 2030 predicts that it will become a \$1.6 billion industry, according to a recent report from Market Research Future.

Researchers with the Mississippi Agricultural and Forestry Experiment Station (MAFES) are discovering new ways to help Mississippi's farmers diversify and improve their crops to increase availability of local herbs and spices. Dr. Guihong Bi, research professor in Mississippi State University's Department of Plant and Soil Sciences and a MAFES scientist, is researching the best herbs to grow in the South and how to improve sustainability practices.

Bi and Dr. Tongyin Li, associate professor in plant and soil sciences and MAFES scientist, are currently growing basil, parsley, garlic, turmeric, and ginger.

“This research will increase the availability of locally grown produce in the market as well as help growers diversify their crops,” Bi said. “Consumer demand for culinary herbs and spices continues to grow, creating opportunities for local growers.”

In 2021 and 2022, the team studied twelve basil, eight parsley, nine garlic, one ginger, and three turmeric varieties, evaluating growth habits, vigor, leaf color, size, and biomass.

“For the basil and parsley, we start the seedlings in the greenhouse and transplant into containers outside after the last spring frost. We're able to harvest all summer long into the fall,” Bi said. “We plant garlic in the fall and harvest the next summer.”

Even though garlic can tolerate mild cold, it can be damaged if temperatures get too low. For this reason, the garlic in raised

beds performed better than garlic in containers, which have less volume and more surface.

The ginger and turmeric are planted after the last frost in the spring, sprout around May and June, respectively, and grow all summer. The crops flourish throughout the summer and into the fall before being harvested in late fall or brought into greenhouses to be protected from frost over the winter. After that, plants are harvested the following spring.

“Containers provide flexibility of utilizing soilless substrates, adjusting planting density, and moving containers around,” Bi explained. “The use of growing media instead of soil in the ground makes managing pH and nutrients easier. Producers can also adjust the production scale, so the space is easier to manage. Also, containers can be moved into protected areas to prevent cold damage.”

Continued research in 2023 includes a series of experiments that will be carried out over multiple growing seasons to evaluate container size, cultivars, and fertilizers on turmeric growth, yield, and quality.

Results from this project will be circulated through grower direct contacts, workshops, field days, regional and national meetings, websites, and publications.

“We're interested in learning about vegetable crops that aren't widely grown in our area to figure out if and how we can grow new offerings here. Besides trying to find alternative crops, we also want to explore alternative production practices to give growers options, especially when they have limited space,” Li said.

BY LILY GRADO • PHOTO BY DAVID AMMON

# VetAspire

## Offers Guidance, Support to Students

**H**ands-on exploration and mentorship—that’s what aspiring veterinarians get in Mississippi State University’s VetAspire program.

Dr. Brittany Moore-Henderson, now an assistant clinical professor and director of admissions and recruitment at the MSU College of Veterinary Medicine, created the program in 2014 as a third-year student.

“Students from underserved areas lack exposure to STEAM (science, technology, engineering, agriculture, and mathematics) education and, therefore, tend not to consider careers in these fields, especially underrepresented minorities,” Moore-Henderson explained. “I wanted to give them the unique opportunity of being a veterinary student for a day to get a glimpse of what the veterinary profession has to offer. And at the same time, they can see the real-world impact of science and agriculture.”

The program has grown over the years, with more than 150 students attending since 2018.

“We have reached a wide variety of students from different backgrounds and have been able to share what opportunities are available at MSU and the veterinary college,” said Meredith Nagel, admissions outreach manager. “This program gives students veterinary experience and the opportunity to interact with admissions staff to gain insight on the best ways to prepare to apply to vet school. It also helps them understand the many options available to them within the field.”

“I wanted to give students from underserved areas the unique opportunity of being a veterinary student for a day to get a glimpse of what the veterinary profession has to offer. And at the same time, they can see the real-world impact of science and agriculture.”

**DR. BRITTANY MOORE-HENDERSON**

VetAspire is offered throughout the academic year to high school and undergraduate students. It is organized and delivered by professors and first- and second-year veterinary medicine students. Participants attend lectures and clinics and get hands-on experience in a variety of skills and settings.

Some of the activities for attendees include suturing, performing eye exams, dressing for surgical procedures, assisting with shoeing horses, performing large and small animal physical exams, and staining bacteria for microscopic observation.

Sylmia Shepherd, a second-year student, attended VetAspire in March 2022 as a senior undergraduate student. She planned to apply to the veterinary college and knew the program could help her be competitive among thousands of applicants.

“I’ve been a lifelong Mississippi State fan, and it was my number one choice at the time I was applying,” said Shepherd, a Cleveland, Mississippi, native. “Attending VetAspire

further confirmed that MSU was where I wanted to be. The atmosphere was incredibly encouraging, involved, and educational. The experience gave me much-needed insight on what would be required of me as a student.”

Anna Claire Allison, a first-year veterinary student and Ocean Springs native, assisted with the program twice this academic year and said VetAspire is popular because of its unique focus.

“The labs we set up give attendees a unique experience of working directly with our doctors at the college who could



VetAspire attendees get hands-on experience in a wide variety of skills and settings, including surgeries, laboratory procedures, and physical exams.

very well end up teaching them during their first year of vet school,” she said. “They also have some great hands-on experiences to talk about during their interviews. We as students try to be very transparent with them about our vet school experience and what it looks like to be a first-year student.”

VetAspire is open to any student considering a veterinary medicine career.

“I personally applied for vet school three years after I graduated with my master’s at the age of 26,” Allison said. “It took me a while to figure out exactly what medical path I wanted to follow, so age doesn’t matter. If you are interested in becoming a veterinarian, we want to see you at VetAspire!”

Program participants are not the only ones who benefit. “Our current veterinary medicine students often tell me how this opportunity rejuvenates them and reminds them of the joys of veterinary medicine,” Nagel said. “The program also gives VetAspire student coordinators a chance to grow their communication, organizational, and leadership skills, which is beneficial to their education and careers.”

Priority is given to students who are educationally, economically, and/or socially disadvantaged, but all applicants are considered. Find out more about VetAspire online.

BY SUSAN COLLINS-SMITH  
PHOTO BY TOM THOMPSON



# Smart Fashion

## Student Aims to Engineer Better Clothing

Life jackets probably aren't top-of-mind when you think about fashion. But as a fashion design and merchandising graduate student at Mississippi State University, Amit Talukder is combining textile engineering and fashion to create smarter life-saving flotation devices.

"We are studying ways to equip solar cells—electronic equipment that converts light energy into electricity—into the lining of life jackets. This will help fishermen charge their devices while working and increase productivity," Talukder said.

Known as "smart textiles," the project includes researchers from the departments of kinesiology, industrial and systems engineering, and mechanical engineering in addition to the fashion merchandising and design major. Dr. Charles Freeman, associate professor in fashion design and merchandising and Mississippi Agricultural and Forestry Experiment Station scientist, is a member of the Athlete Engineering Research Program and is Talukder's major professor. He spoke about the complementary work of engineers and fashion designers.

"We have taken the textiles used in the engineering work and assessed their comfort for the end users. We then can modify the wearables to improve comfort and see if we can use any enhanced textile materials that can better provide engineering data collection," Freeman said.

Talukder's career ambitions began when he was a student in Bangladesh, where he earned a bachelor's degree in textile engineering from the University of Chittagong in 2016.

"When I finished high school, I thought about studying a basic field of engineering. However, I chose textile engineering for better job security. The government in Bangladesh patronizes the textile engineering sector, and there are huge job prospects and good universities in the field," Talukder said.

After college, Talukder gained hands-on work experience in his field

Fashion design and merchandising graduate student Amit Talukder wears a smart life jacket.

of interest as a trainee at Fakir Knitwears Ltd. and senior executive at Envoy Textiles Ltd. He earned a Master of Business Administration in marketing from Jahangirnagar University in 2021, but a desire to expand his knowledge of fashion and textile engineering led him to MSU.

In addition to research with smart textiles, Talukder has an ergonomic assessment project to evaluate potential risk factors for employees at ABB Motors and Mechanical Inc., a motor manufacturer in Columbus, Mississippi. Talukder and a colleague interviewed employees to identify how continued bending and posture affect them physically.

The team then assessed the ergonomics of 60 job operations and categorized the jobs into low, moderate, or high risk for ergonomic injury. Researchers determined that 21 job operations indicated high-risk factors, so specific solutions like raising the heights of working tables and wearing safety equipment were suggested.

Dr. Lesley Strawderman, International Paper chair and professor in the Department of Industrial and Systems Engineering, was principal investigator.

"Anytime we're in extreme postures for an extended period, we're at a risk of injury. In ergonomics, we know that poor posture leads to strain and fatigue on muscles, which then eventually might lead to a repetitive trauma injury or a stretch and strain injury. What's interesting is how simple changes can make a substantial difference with the correct assessment," said Strawderman.

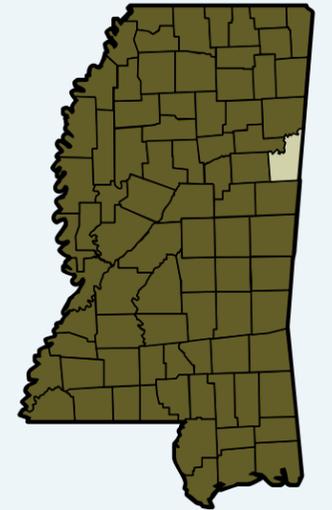
Talukder said both projects have brought him closer to his next goals.

"My short-term goal will be working on smart textiles as a doctoral student at the University of Georgia. After that, I would like an industry job where I build my career on innovations in smart textiles," Talukder said.

BY TREY BARRETT  
PHOTO BY DAVID AMMON



The vibrant Tennessee Williams Home is a National Literary Landmark. (Photo by Michaela Parker)



## 1/82: Lowndes County

### MSU in Lowndes County:

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vivian.cade@msstate.edu

"From its rich history and well-preserved antebellum homes to its scenic landscapes, Lowndes County is a charming place to put down roots."

VIVIAN CADE,  
MSU Extension County Coordinator

**County seat:** Columbus

**Population:** 58,896

**Municipalities:** Columbus, Artesia, Caledonia, Crawford

**Communities:** Artesia, Bent Oak, Billups, Caledonia, Columbus, Columbus Air Force Base, Crawford, Flint Hill, Forreston, Hill City, Kolola Springs, Mayhew, McCrary, New Hope, Penns, Plum Grove, Steens, Trinity, Wells, Whitebury, Woodlawn

**Commodities:** agriculture, poultry, livestock, timber, clay and gravel, recreational and hunting services

**Industries:** manufacturing, healthcare, retail trade, construction, accommodation and food service, education

**Natural resources:** timber, water, agriculture, minerals, wildlife

**Attractions:** Lake Lowndes State Park, Columbus Arts Council, Tennessee Williams Birthplace, Lee Park, Friendship Cemetery, Stennis East Bank Recreation Area, Columbus Speedway, Magnolia Motor Speedway, Columbus Riverwalk, R. E. Hunt Museum, Dewayne Hayes Recreation Area and Campground, Old Waverly Mansion and Gardens, Tenn-Tom Waterway Transportation Museum

**History notes:** Lowndes County was formed in 1830 and named after William Jones Lowndes (1782–1822), who was from South Carolina and a U.S. Congressman. Lowndes County is home to the nation's first public university for women, Mississippi University for Women.

**Did you know?** Columbus Air Force Base, home of the 14th Flying Training Wing of Air Education and Training Command is in Lowndes County. In addition to the flying training mission, Columbus Air Force Base maintains more than 900 highly trained individuals capable of deploying at a moment's notice.

*Editor's note: 1/82 is a regular feature highlighting one of Mississippi's 82 counties.*

# NewsNotes



Frank

**Dr. Nicholas Frank** is the new dean of the College of Veterinary Medicine. He previously was associate dean for academic affairs and professor at Tufts University's Cummings School of Veterinary Medicine in North Grafton, Massachusetts. Frank earned his DVM from Purdue University and PhD in equine endocrinology and nutrition, also from Purdue. He is a diplomate of the American College of Veterinary Internal Medicine in large animal internal medicine.



Macklin

**Dr. Ken Macklin** is the new head of the Department of Poultry Science. He previously was a research professor and Extension specialist at Auburn University. Macklin's current research involves determining the effect of feed additives on common foodborne bacteria and pathogens in poultry.



Rangappa

**Dr. Raju Bheemanahalli Rangappa**, assistant research professor in the Department of Plant and Soil Sciences and MAFES scientist, received the American Society of Agronomy's Early Career Award. The award recognizes individuals who have made an outstanding contribution to the field of agronomy within seven years of completing their final degree.



Burke

**Caitlyn Burke**, a third-year Doctor of Veterinary Medicine student, was named a Vet Fellow by the Foundation for Food and Agriculture Research and the American Association of Veterinary Medical Colleges. The FFAR Vet Fellows program creates opportunities for veterinary students worldwide to conduct research under the direction of a qualified mentor. Burke's research focuses on dystocia, or difficult calving. She is being mentored at MSU by Drs. Amelia Woolums and Peter Ryan.



Bratcher

**Dr. Christy Bratcher** is the new head of the Department of Animal and Dairy Sciences. She previously served as associate dean of research and graduate students in Texas Tech University's College of Agricultural Sciences and Natural Resources.



Khaita

**Dr. Margaret Khaita**, CVM professor in the Department of Pathobiology and Population Medicine, received the 2023 Excellence in Community Partner Engagement Award from the Engagement Scholarship Consortium for her work in East Africa through Higher Education Resource Services-East Africa (HERS-EA). HERS-EA is an educational nonprofit organization with the goal of raising the proportion of women in leadership and management positions in higher education institutions in East Africa to at least 50 percent.



Buys

The Mississippi Board of Trustees of State Institutions of Higher Learning awarded **Dr. David Buys** the 2023 overall IHL Diversity Educator of the Year award for his efforts supporting diversity and inclusion. Buys is an associate professor in the Department of Food Science, Nutrition, and Health Promotion and Extension state health specialist. He provides community-based health education and training for Extension agents in Mississippi's 82 counties.



Oakley

**Graham Oakley**, an agronomy doctoral student in the College of Agriculture and Life Sciences and project manager with the Mississippi Water Resources Research Institute, was selected for the Foundation for Food and Agriculture Research Fellows Program. He joins approximately 25 students from across the U.S. in the sixth cohort of the program.



Reddy



Rangappa



Bowman

The USDA National Institute of Food and Agriculture awarded \$970,000 to three MAFES scientists to develop climate-resilient rice: **Dr. Raja Reddy**, research professor in the Department of Plant and Soil Sciences, **Dr. Raju Bheemanahalli Rangappa**, assistant research professor in Plant and Soil Sciences, and **Dr. Hunter Bowman**, assistant professor in Plant and Soil Sciences based at the Delta Research and Extension Center. The project is part of a four-year, \$10 million grant.



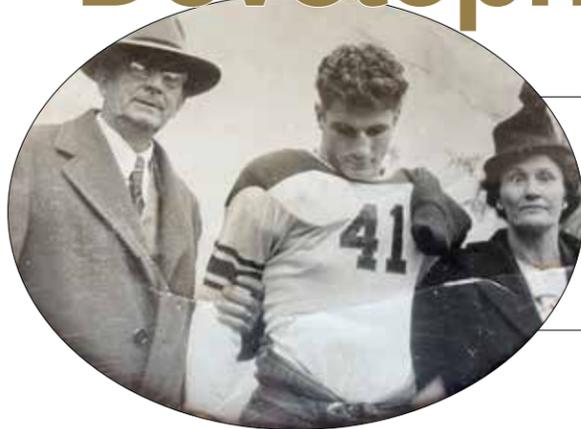
Shankle



Harvey

**Dr. Mark W. Shankle**, Plant and Soil Sciences research professor, and **Dr. Lorin M. Harvey**, assistant Plant and Soil Sciences professor and Extension sweet potato specialist based at the Pontotoc Ridge-Flatwoods Branch Experiment Station, are taking the lead on a \$4.8 million grant from the USDA National Institute of Food and Agriculture to address virus, pest, and disease problems in U.S. sweet potato seed programs. The Mississippi Agricultural and Forestry Experiment Station-directed CleanSEED Project is one of six Clean Plant Centers of the National Clean Plant Network for sweet potatoes.

# DevelopmentCorner



## Generations of Giving McWilliams Family Supports MSU

Giving to Mississippi State University is as much of a tradition for the McWilliams family as spending gamedays at Davis Wade Stadium, where they once cheered on their family member and football hall-of-famer Thomas “Shorty” McWilliams.

The tradition of giving began in 1990 when brothers Major Leon McWilliams and Shorty McWilliams joined other family members to establish an endowment that supports faculty and student development in the College of Agriculture and Home Economics, now known as the College of Agriculture and Life Sciences.

“This endowment was unique in that so many members of the family participated,” said Charlie Weatherly, the director of development for agriculture, forestry, and veterinary medicine in 1990.

“Daddy got his brothers and sisters to contribute and started the endowment in memory of their parents,” said Clay McWilliams, the eldest of Major Leon McWilliams’s children. “We’ve made small gifts to the endowment every year, and the earnings have helped grow the account.”

More than three decades later, the initial gift of \$10,000 has grown to an \$84,000 endowment and contributed to scholarships and research awards for undergraduate students in the College of Agriculture and Life Sciences.

“This is a way to help offset some of the costs for students and support the next generation of agriculture leaders in our state,” said Clay McWilliams, adding that his father understood the cost associated with a college education. All four McWilliams children, Clay (Class of ’71), Gordon (’76), Cathy (’76), and Tom (’78), graduated from Mississippi State.

Agriculture roots run deep in the McWilliams family. Clay McWilliams’s grandfather, Leon Clayton McWilliams, for

whom the endowment was established, earned a degree in agriculture in 1915 when the university was called Mississippi A&M. After graduation, he became one of the state’s first county Extension agents. Major Leon McWilliams, who started the endowment, graduated from Mississippi State College in 1949 with a degree in agriculture and worked for the Mississippi Department of Agriculture and later for Mississippi Chemical Corporation. Both were active in the MSU Alumni Association, another family tradition passed down.

In 1989, Clay McWilliams was serving as the National Alumni Association president and spoke at the commencement ceremony at Scott Field, along with President George H. W. Bush.

“The individual accomplishments of the members in this family are noteworthy on their own, but together, the family is making an investment in future generations through their continued giving. The McWilliams Family Endowment is a great example of the power of an endowment,” said Will Staggers, director of development for the College of Agriculture and Life Sciences.

Although Clay and Tom McWilliams had successful careers in finance, they chose to continue to give to the College of Agriculture and Life Sciences.

“People have asked me, ‘Why are you so loyal to Mississippi State?’ That’s easy. I was born a Bulldog.”

CLAY MCWILLIAMS

“Mississippi is a rural state dependent on agriculture, and it plays such a big role in our state’s economy. We want to continue the McWilliams name, and, hopefully, folks will remember the traditions started by our grandfather and father,” Clay McWilliams explained.



Tom McWilliams

In March 2022, Tom McWilliams passed away. Friends and family celebrated his life through gifts made to the McWilliams Family Endowment.

Tom’s siblings visited MSU in October 2022 like they have countless times, but this trip was unique. They presented a gift to the College of Agriculture and Life Sciences from their brother’s estate—Tom’s final gift that will make a lasting impact.

“Our dad would be really proud to see that we’ve continued what he started,” said Clay McWilliams. “People have asked me, ‘Why are you so loyal to Mississippi State?’ And I tell them—that’s easy. I was born a Bulldog.”

BY MARY KATHRYN KIGHT • PHOTOS SUBMITTED



Gordon McWilliams (seated) presents a gift to Dr. Scott Willard, dean of CALS. From left are Lacey Gordon, CALS assistant director of development; Cathy (McWilliams) Kerr; Clay McWilliams; Will Staggers, CALS director of development; and Mathis McGee, associate director of annual giving.

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For more information on giving in support of Mississippi State University, visit the MSU Foundation website.

[msufoundation.com](https://msufoundation.com)



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The MSU CVM curriculum is designed to ensure DVM students gain a variety of hands-on, experiential learning opportunities in large animal medicine to be prepared upon graduation to help address the current shortage of these practitioners here in Mississippi and across the nation. (Photo by Tom Thompson)

