

MISSISSIPPI

LANDMARKS

VOLUME 16, NUMBER 1



MISSISSIPPI STATE
UNIVERSITY™

DIVISION OF AGRICULTURE,
FORESTRY, & VETERINARY MEDICINE

RESEARCH, EDUCATION, AND EXTENSION

MISSISSIPPI LANDMARKS

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VICE PRESIDENT'S LETTER



As we embark on this new year and new decade, we are excited about the changes on the horizon for the MSU Division of Agriculture, Forestry, and Veterinary Medicine (DAFVM).

We launched a new website designed to feature our six units more prominently. Our

goals were to create a more user-friendly experience while also increasing the value of the information provided to the public and internal users. With such a wide range of clients and employees, we wanted to make it easy for everyone to find the information they need. If you haven't already, please visit www.dafvm.msstate.edu to see the site and update your Mississippi LandMarks subscription preferences.

No matter how much things change, we remain committed to our clients, students, and staff, as well as to the original land-grant mission. In my opinion, we would not be where we are today without the visionary leadership of the late Senator Thad Cochran. During his long and admirable career, he did so much for MSU and DAFVM. He promoted the funding of facilities, operations, and agricultural research to benefit Mississippians, and we will miss his advocacy. For our tribute to him, see pages 4-9.

One of our annual highlights, the Row Crops Short Course, welcomed more than 740 agricultural producers, crop consultants, researchers, Extension agents, and faculty to Starkville. This event brings attendees from across the Southeast, and we are proud of the high-quality education and outreach offered.

We also welcomed two international delegations to Mississippi. A group of Moroccan fellows spent a week at MSU discussing agricultural research. MSU and Farm Bureau worked with a Taiwanese delegation, and this visit culminated in a signed letter of intent to purchase more than \$3 billion in U.S. agricultural products. Ongoing partnerships and new relationships are required to address the needs of Mississippi producers and the world's growing population.

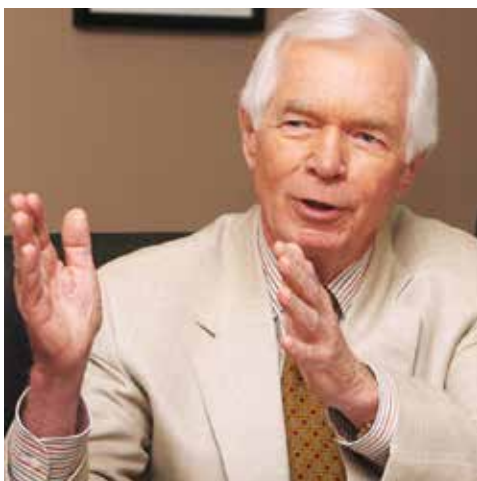
Finally, I was honored to represent MSU and the division at a roundtable organized by the Mississippi Farm Bureau Federation. Key leaders, including U.S. Department of Agriculture Under Secretary Greg Ibach and American Farm Bureau Federation President Zippy Duvall, met with representatives from a broad range of related fields to discuss the future of our state's agricultural associations, agencies, and industries. Now more than ever, we value our partners across the state and nation who are committed to excellence in agricultural research, education, outreach, production, finance, and economic development.

Thank you for your continued support as we grow and change to meet the needs of this next decade.

REUBEN MOORE
Interim Vice President

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ON THE COVER

A Mississippi sunset is seen through the doors of the Illinois State Memorial at the Vicksburg National Military Park. (Photo by Michaela Parker)

A Tribute to
**THAD
COCHRAN**
a Great Friend to Mississippi
Agriculture and Education

BY SID SALTER

To say that I liked, appreciated, and admired U.S. Senator Thad Cochran is a gross understatement. I think most Mississippians—rich and poor, black and white, Democrat and Republican—shared my affection for the senator.

Cochran was, much like John C. Stennis before him, tailor-made to represent Mississippi on Capitol Hill. He understood agriculture both as an economic force in Mississippi and as a vital part of our culture. Cochran held no racial animus, no petty hatreds. He treated everyone with dignity and deference.

He believed in education at all levels, particularly higher education. Cochran held great compassion for the poor, the infirm, and the forgotten. While his own work ethic was high and his expectation for the work ethic of the able-bodied was equally high, he refused to build his political success on the backs of those on the margins of society.

Mississippi State University and the rest of Mississippi's colleges and universities owe Cochran an immeasurable debt of gratitude. He made so much vital research in Mississippi possible.

Quiet, thoughtful, extremely intelligent, and possessed of that rare ability to disagree agreeably, Cochran broke the mold of loud, bellicose Southern demagogues and effectively conducted his 46 years of service to the people of Mississippi on Capitol Hill as what *Time* magazine cogently called in 2006 "the quiet persuader."





WILLIAM “THAD” COCHRAN

December 7, 1937–May 30, 2019

UNITED STATES SENATOR

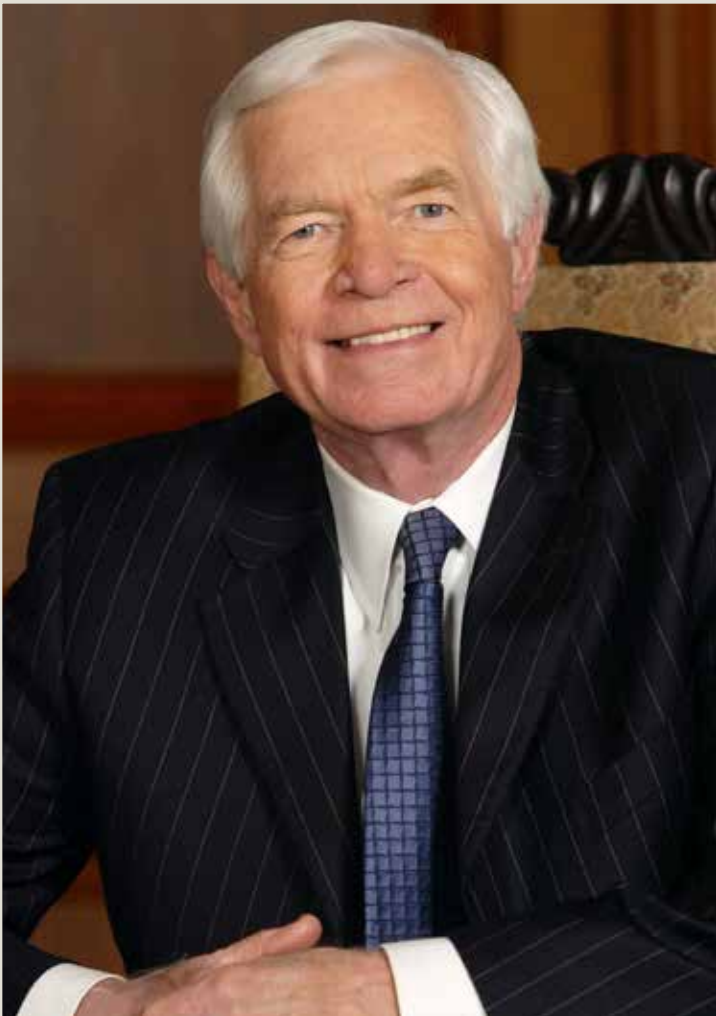
1978–2018

Photo by Frontier Strategies

THAD COCHRAN NATIONAL WARMWATER AQUACULTURE CENTER MISSISSIPPI STATE UNIVERSITY



Photo by Kenner Patton



Submitted Photo

In an article identifying Cochran as among America's best senators, *Time* observed of our state's senior senator, then fresh from literally saving Mississippi and the rest of the Gulf Coast by wrestling a \$29 billion Hurricane Katrina relief package from his Senate colleagues:

"As chairman of the Senate Appropriations Committee, which decides how Congress doles out money, Cochran wields considerable power on Capitol Hill, particularly on budget issues. But along with that post, Cochran has gained the trust of the Administration and Capitol Hill for his quiet, courtly manner that is evident whether he is playing the piano in his office or using his experience and mastery of the issues to persuade his colleagues privately rather than making demands on them in public. 'I don't call lots of news conferences,' Cochran said. 'I just don't see that as a necessary part of my responsibilities.'"

One policy area in which Cochran successfully battled the more conservative wing of his own party was in the battle over the 2013 federal farm bill. The Tea Party wanted to break the nation's food-stamp program or Supplemental Nutrition Assistance Program away from the farm bill. Doing so would have made food stamps more politically vulnerable.

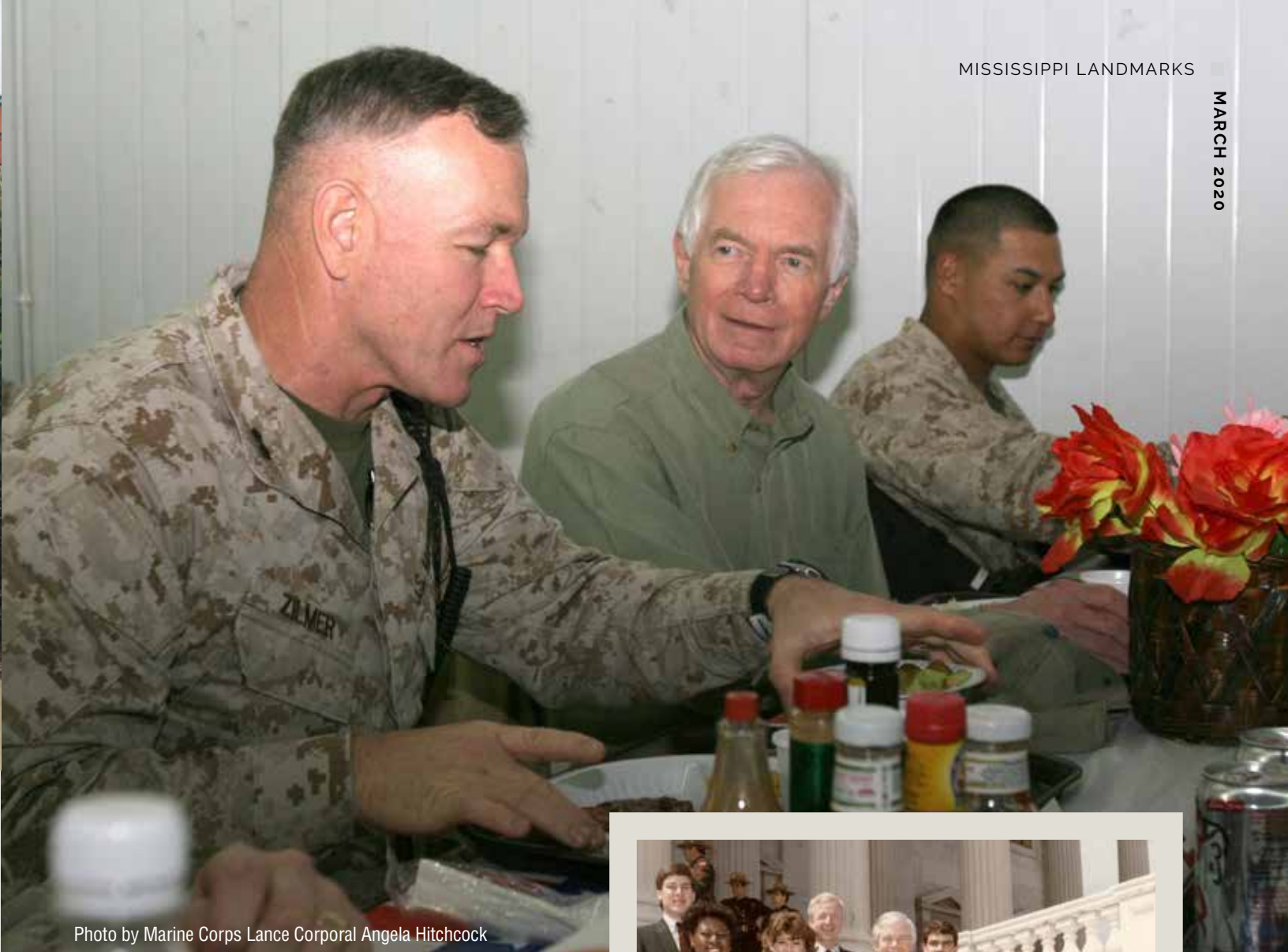


Photo by Marine Corps Lance Corporal Angela Hitchcock

So, Cochran made himself more politically vulnerable—as the senior senator from the poorest state in the union—by using his clout on Capitol Hill to scuttle that effort.

Why? There are places in Mississippi where, without food stamps, grocery stores would close, and food would be scarce for people who can't afford to drive to buy it. Some 20.8 percent of Mississippians are food insecure, 19.4 percent of Mississippi households utilize food stamps, and 36 percent of those SNAP recipients are in working families.

Age and failing health finally took their toll on Thad Cochran. It was time for him to come home. But his courage, compassion, and character endure, and he deserves our thanks for his service.



Submitted Photo



Photo by Beth Newman Wynn



Photo by Russ Houston



Submitted Photo

Mississippi State University President Mark E. Keenum released the following statement May 30, 2019, regarding the death of Senator Thad Cochran:



“I was blessed to have the honor of working with Senator Cochran for nearly 18 years in Washington, D.C., including 10 years as his chief of staff. I am grateful for our time together and for his service to our state and nation. He was truly a statesman and a man of the highest integrity. He provided extraordinary leadership and walked with giants, yet remained humble and true to his Mississippi roots. Senator Cochran had a tremendous influence on my life. He taught me how to respect people, how to listen, how to make decisions based on facts and then to move forward. My wife, Rhonda, and I extend our deepest sympathies to the family during this difficult time.”

PRESIDENT MARK E. KEENUM



PILOT PROGRAM

Promotes Plant Science Careers

Dr. Bill Burdine wants to find the next generation of agricultural producers, but he also wants young people to know about the wide range of careers in agriculture that do not involve driving a tractor or working cattle.

He is spearheading a new youth agronomy event that he hopes to develop into a new 4-H program. A regional agronomy specialist for the MSU Extension Service, Burdine began the new project by hosting more than a dozen middle schoolers for a one-day agronomy camp at the North Mississippi Research and Extension Center in Verona.

"There is a risk of not having enough trained professionals to serve as sales representatives, crop consultants, agronomists, Extension agents, entomologists, and scientists to continue feeding the world," Burdine said. "We want young people interested in agriculture, but I'm targeting the next generation of plant-science professionals."

Extension agents and faculty members showed campers research plots and flew unmanned aerial systems (UAS) during the camp, in addition to introducing them to several plant-science topics. Subject areas included water quality, insect management, UAS in agriculture, and corn, soybean, and cotton development.



Louis Wasson, a senior Extension associate with the Geosystems Research Institute, shows students how to fly an unmanned aerial system.

Attendees also received take-home science projects. They were supplied with pots, soil, seed, markers, and notebooks for recording data. These supplies were also available to young people who could not attend the camp.

"Maybe some young people don't know it now, but they may be interested in plants or science, so we are giving them an opportunity to do basic research at home," Burdine said. "We



Dr. Bill Burdine (wearing a blue shirt) and Alex Mayfield of PhytoGen Cottonseed discuss cotton development with students.

“We put a lot of resources and effort into our 4-H livestock programs. Kids learn a lot of life lessons from that, and it’s very successful. This new focus in youth development and STEM using hands-on agronomy lessons strengthens our 4-H programs.”

DR. JANE PARISH

help them set up a simple, replicated science experiment where they keep up with data such as temperature, rainfall, emergence, and bloom dates on their own. This gives them an idea of what conducting research is like.”

North Mississippi Research and Extension Center Head Jane Parish encouraged Burdine to develop Youth Agronomy Day to meet a need for a 4-H program that positioned young people into a promising agricultural career path.

“We have strong industry support for row-crop education and research, but a lot of that is focused on adults, and there is so much potential with the youth side that hasn’t been tapped,” she said. “We put a lot of resources and effort into our 4-H livestock programs. Kids learn a lot of life lessons from that, and it’s very

successful. This new focus in youth development and STEM using hands-on agronomy lessons strengthens our 4-H programs.”

Burdine said the endgame is to configure the program for delivery by Extension agents across the state.

“I grew up on a farm but had no clue what being a scientist was,” he said. “I got lucky in high school with a job at an experiment station. That’s where I learned about science in agriculture, and it changed my career. I hope to do the same thing with these young people.”

The Mississippi Soybean Promotion Board and William M. White Special Projects program awarded grant funding to jumpstart the project.

BY NATHAN GREGORY • PHOTOS BY KEVIN HUDSON



EMOTIONAL SAFETY

Equine Therapy Examined as Treatment for Addiction

“I want a holistic equine certification so I can help anyone who walks through my doors. I don’t want to say no to anyone.”

KATIE CAGLE-HOLTCAMP

Katie Cagle-Holtcamp has worked in equine therapy for nearly a decade, but it wasn’t until 3 years ago that she began to see how it can be used to treat drug addiction.

The doctoral student in animal physiology in the MSU School of Human Sciences and College of Agriculture and Life Sciences has drawn on her experience working with patients at Oxford Treatment Center to form the basis for her dissertation. She hopes her findings will prove the effectiveness of equine therapy in rehabilitation from substance abuse.

“Thus far, equine therapy can’t be measured quantitatively,” Cagle-Holtcamp said. “We’ve got all the feel-good stories in the world, but I’m trying to put numbers behind it so advocates for insurance coverage can have solid research to show insurers. I want to help more people get access to the treatment they need.”

Cagle-Holtcamp is evaluating the links between emotional safety and the confidence patients gain from cognitive learning about interacting with a horse.



Katie Cagle-Holtcamp is working to quantify the impact of equine therapy in the treatment of substance abuse disorders.

She defines emotional safety as a combination of four conditions: connectivity, self-worth, respect, and personal security. To measure these factors, Cagle-Holtcamp designed a survey for patients to numerically measure how they feel before and after petting a horse.

“Due to horses physiologically being natural addicts, their

behavioral responses to intentional stimuli mirror behaviors seen in active addiction,” she said. “Without a prefrontal cortex, horses have no reasoning ability. They can make decisions, but they are based on trial and error with positive reinforcers. Therefore, when a horse is introduced to grain, survival instincts kick in. With no reasoning ability, it equals eat or die in the brain. When they get the grain, the brain’s pleasure center is reinforced and consequently reinforces the survival behavior.

“On the human side, when addiction takes hold, there is a physiological or psychological dependence formed, and reasoning is inhibited,” she explained. “This is why addictive behaviors mimic those of survival. Do what it takes to get the thing your body and brain think they ‘need’ to survive. Being able to recreate these patterns allows our clients to revisit past experiences and process healthy outcomes to achieve behavioral change due to cognitive understanding. This is done because horses have the ability to mirror human thought processes and emotions.”

Cagle-Holtcamp has worked with several MSU faculty members and other researchers to design her research model, including Dr. William Sansing, a licensed professional counselor in the Golden Triangle region of Mississippi.

“Katie’s work will go a long way in quantifying the impact of equine therapy in substance use disorder treatment,” Sansing said. “She brings an extremely high level of passion and knowledge of the subject and is dedicated to documenting the impact of equine therapy in multiple environments in the treatment world.”

For her dissertation, Cagle-Holtcamp is focusing on an 18- to 25-year-old age group, but she wants to expand her study to adults in the future. The only similar study was done in Norway and consisted of eight participants. Cagle-Holtcamp said she wants at least 100 participants. She is scheduled to finish research by summer 2020.

In addition to her dissertation research, she has acquired numerous certifications that will benefit her as she opens her own clinic.

“I want a holistic equine certification so I can help anyone who walks through my doors,” she said. “I don’t want to say no to anyone.”

A portion of her tuition is funded by a scholarship from the Gamma Sigma Delta Honor Society of Agriculture, the largest such society for the discipline.

BY NATHAN GREGORY • PHOTOS BY KEVIN HUDSON

Promising Nerve Agent Antidote

CLOSER TO SUCCESS

Research associate Erle Chenney works in the CVM Department of Basic Sciences lab developing the antidote.



Scientists around the world have been looking for a better antidote to nerve agent poisoning for years, and a team of MSU scientists have gotten one step closer.

Dr. Jan Chambers, a toxicologist in the Center for Environmental Health Sciences at the MSU College of Veterinary Medicine, leads a seven-person team. They developed molecules, called oximes, that can cross the blood-brain barrier, a protective layer of cells around the brain. A drug that can cross this barrier and stay there can do a better job of removing the harmful chemicals that interfere with the brain's ability to communicate with nerves, muscles, and organs.

The current antidote, 2-PAM, can remove only some nerve agent that is outside the brain. This treatment can save lives but leaves survivors likely to experience long-term seizures that can lead to brain damage.

"If our antidotes continue to provide positive data that leads to FDA approval, then we will have produced a superior antidote that will allow a poisoned victim, be it a war fighter, an innocent civilian attacked by terrorists, or a victim of an accidental chemical spill, to retain brain function," Chambers explained.

Urged by a visiting former graduate student in 2010, who at the time worked for the Defense Threat Reduction Agency of the Department of Defense, Chambers and her late husband and collaborator, Dr. Howard Chambers, began studying a molecule he thought could enter the brain. Howard Chambers was a scientist in the Mississippi Agricultural and Forestry Experiment Station.

The team uses surrogate chemicals that mimic the effect of nerve agents but are much safer to work with.

"In addition to the ability to save lives and brains, this work has a personal aspect for me," Chambers said. "Howard invented this chemical platform with the assumption that the molecules

might be able to cross the blood-brain barrier and be effective, but he was not optimistic because other labs have tried to do the same thing without success. Our research team was pleasantly surprised when we got positive data from our tests a few years ago. If we succeed with this work, it will be a legacy to Howard's creativity."

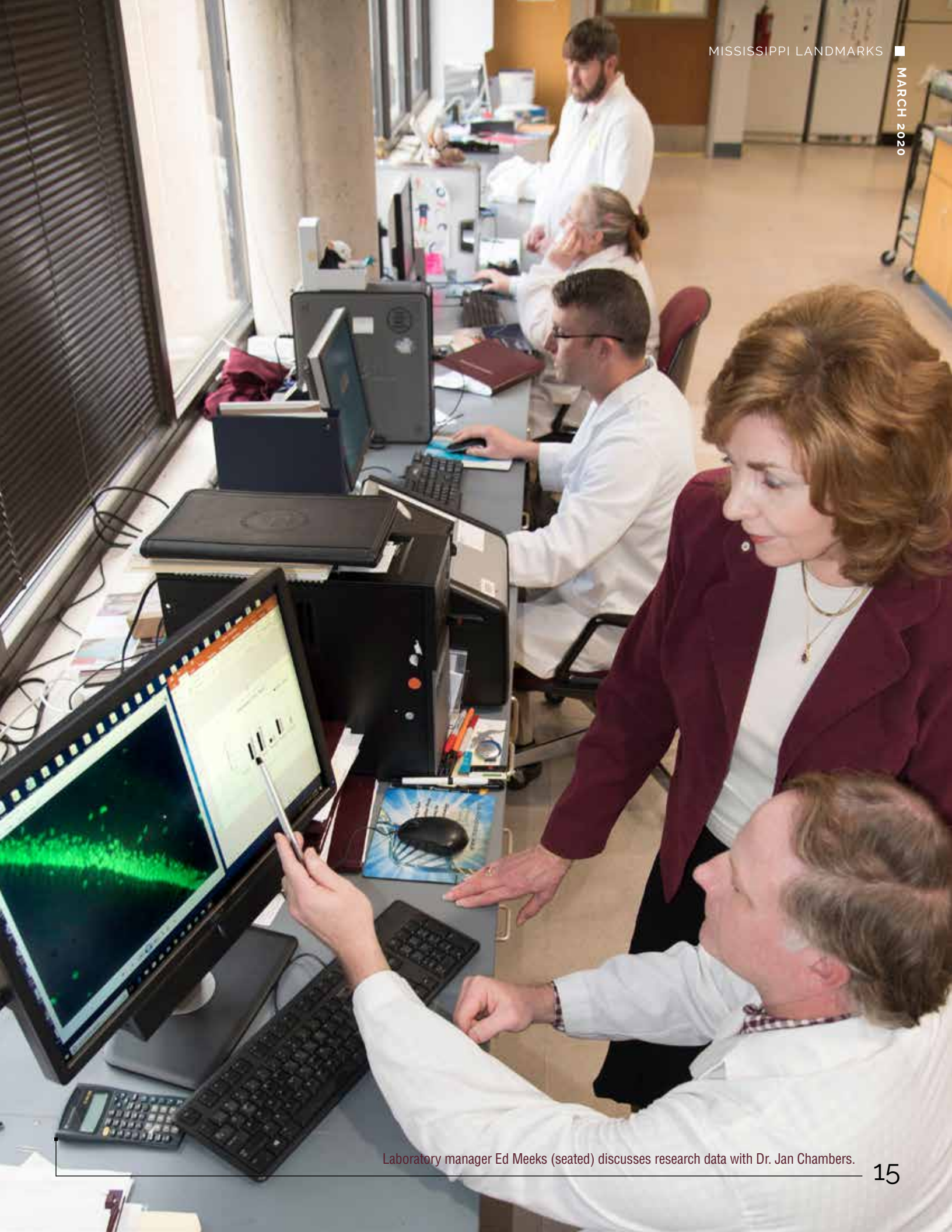
Dr. Bob Wills, professor and head of the CVM Department of Basic Sciences, said Chambers's research findings are encouraging.

"Dr. Chambers has leveraged her distinguished research program focusing on pesticides to provide innovative and novel compounds that show great promise in countering the effects of deadly nerve agents," he said. "This cutting-edge research brings national recognition to MSU not just for its importance scientifically, but for the impact it can have on the health of civilians and military personnel in the face of chemical warfare and terrorist attacks."

Chambers and her team are expanding their research on the oximes and investigating other questions, including whether these compounds can provide additional protection to the brain. Approval as a new antidote by the U.S. Food and Drug Administration is many years down the road. Multiple efficacy and safety tests would be required to determine such things as dosage, best delivery method, and adverse side effects.

MSU holds a patent on the oxime platform in the U.S., United Kingdom, Germany, Italy, and France. Defender Pharmaceuticals licensed it to protect the chemistry and is partnering with MSU to develop the compounds. Highly competitive funding was awarded to Chambers and her group from the National Institutes of Health CounterACT Program.

BY SUSAN COLLINS-SMITH •
PHOTOS BY TOM THOMPSON



Laboratory manager Ed Meeks (seated) discusses research data with Dr. Jan Chambers.



ANIMAL AND DAIRY SCIENCE BUILDING

Opens for Business

Mississippi State officials recently commemorated the completion of the new, 34,500-square-foot Animal and Dairy Sciences Building.

This facility is part of a complex at the corner of Blackjack Road and Hail State Boulevard, which also includes the newly constructed, 15,000-square-foot Meat Science and Muscle Biology Laboratory that opened previously. A 27,300-square-foot Poultry Science Building is anticipated for completion in spring 2020.

“The new Animal and Dairy Sciences Building provides our students and faculty with an exceptional teaching and learning environment,” said MSU President Mark E. Keenum. “This building, as well as the recently completed Meat Science and Muscle Biology Lab and the Poultry Science Building under

construction, will further enhance Mississippi State’s national and international leadership in agricultural sciences research and education.”

Dr. George Hopper, dean of the College of Agriculture and Life Sciences and director of the Mississippi Agricultural and Forestry Experiment Station (MAFES), emphasized how the building positions the department for the future.

“The Department of Animal and Dairy Sciences has a legacy of training future leaders in animal agriculture,” Hopper said. “This facility will allow department faculty and staff to expand teaching, research, and outreach efforts to assist the more than 16,000 livestock farmers in Mississippi.”

The state is home to approximately 16,000 cattle and calf operations, 400 hog farms, and 65 dairies. In 2019, these



Participating in the ribbon-cutting ceremony are David Howell (left), Mississippi Agricultural and Forestry Experiment Station engineer; Dr. David Shaw, MSU provost and executive vice president; Dr. Gary Jackson; Amy Tuck, vice president of MSU Campus Services; Dr. George Hopper; Dr. Mark Keenum; Dr. Reuben Moore; Colin Maloney, president and CEO of Century Construction; Justin Harrington, architect at McCarty Architects; and Dr. John Blanton. (Photo by Michaela Parker)

Photo by David Ammon

enterprises had a combined production value of almost \$400 million. Additionally, the state's equestrian activities continue to have about \$1.15 billion in economic impact annually.

In addition to Keenum and Hopper, administrators speaking at the ceremony included Dr. Reuben Moore, interim vice president of the Division of Agriculture, Forestry, and Veterinary Medicine; Dr. Gary Jackson, director of the MSU Extension Service; and Dr. John Blanton, department head and MAFES interim associate director. Representatives from general contractor Century Construction and Tupelo-based McCarty Architects also were on hand.

The Animal and Dairy Sciences Building will serve the department's growing student body, which includes approximately 420 undergraduates and 30 graduate students. The facility also will house about 40 faculty and staff members who serve in the department. It includes classrooms, laboratories,

faculty offices, conference rooms, and a graduate assistant suite. A food retail space on the first floor, adjacent to the main lobby, has been named by the Mississippi State Equine Association. A 7,000-square-foot connector building between the Animal and Dairy Sciences Building and the Poultry Science Building also is under construction.

The Department of Animal and Dairy Sciences offers a bachelor's degree with concentrations in business and industry, production management, and science/veterinary science. Master's and doctoral degrees are offered in agriculture and agricultural sciences. The department includes faculty members in MAFES, the College of Agriculture and Life Sciences, and the Extension Service.

BY VANESSA BEESON

NEW ONLINE PROGRAM

Helps Students Change Lives

“The demand for qualified professionals in the early-intervention field is high. We are pleased to be able to offer this advanced program for those who wish to become trained professionals with expertise in working with very young children with disabilities and their families.”

DR. JULIE PARKER

MSU's new online graduate degree program, the Master of Science in Early Intervention (MSEI), prepares graduates to work with young children from infancy through kindergarten who demonstrate developmental challenges so they may reach their full potential.

"The demand for qualified professionals in the early-intervention field is high," said Dr. Julie Parker, associate professor and coordinator of the online program in the College of Agriculture and Life Sciences School of Human Sciences. "We are pleased to be able to offer this advanced program for those who wish to become trained professionals with expertise in working with very young children with disabilities and their families."

Students interested in pursuing the MSEI degree should have a background in child development, early-childhood education, or special education, or they should be in a related health-care profession. These backgrounds allow the program to build on the needed foundational understanding of typically developing children.

Graduates of the program, the only one offered in Mississippi, are groomed to play a unique role in maximizing the benefits of therapy in the natural environment of children with special needs and their families.

"Because research supports the theory that very young children make the most progress in their natural environments—home or childcare—the most important role of an early interventionist is serving as a collaborator in those natural environments with families and childcare professionals," Parker explained.

Early interventionists draw on strong interpersonal abilities and specialized skills to support parents and siblings of children with special needs. The well-being of the family can be affected by stress, frustration, and helplessness, which may further affect the development of the child with disabilities. The role of an early interventionist is to collaboratively build a nurturing and



Dr. Julie Parker and lead infancy teacher Micaiah Chenier

supportive environment for the entire family.

Some children with special needs are limited in their ability to participate in inclusive childcare activities. In those cases, it greatly enhances their experience if the childcare professional has the collaborative support of an early interventionist who can provide suggestions for proper modifications and ways to include these children that become part of their daily routines.

"The important thing about the inclusion childcare model is that we see significant benefits to young children with special needs, as well as their typically developing peers," said Parker. "Children with special needs are motivated to work hard to keep up while their peers begin to understand that we are more alike than we are different."

In addition to her work at MSU, Parker is active on the Mississippi Interagency Coordinating Council, which advises and assists in implementing requirements of Part C of the Individuals with Disabilities Education Act. Through these efforts, Parker recognized that many people see the limitations regarding early intervention in their communities, making the decision to offer the MSEI degree a simple one.

When asked why the program is offered online, Parker said that many potential students looking for this advanced degree cannot leave their jobs or families to relocate to the university to become traditional students.

"The online option gives students the opportunity to train in place," Parker said. "They can work, take care of their families, earn their degree, begin to better meet the special needs of the children and families in their own communities, and change lives in the process."

More information is available at www.online.msstate.edu/msei/.

BY JONI W. SEITZ • PHOTOS BY JONAH HOLLAND

A wide-angle photograph of a construction site at sunset. The foreground is dominated by a vast, flat expanse of wooden planks or mats laid out in parallel rows, receding into the distance. In the background, two large cranes with long jibs are visible against the orange and yellow sky. Various pieces of heavy machinery, including trucks and a trailer, are parked or moving in the distance. The overall scene conveys a sense of large-scale industrial or construction work in a natural setting.

UNSUNG HEROES

Timber Access Mats Protect the Environment

Without special precautions, the land around construction sites and road projects could take years to recover. These same precautions also protect heavy equipment and operators from hazardous environments.

A Department of Sustainable Bioproducts lab, part of the MSU Forest and Wildlife Research Center, is testing a commonly used precaution: large mats of huge pieces of timber bolted together to protect land and allow safer access for equipment. The goal is to ensure these mats are the strongest,

best, and longest lived so that this renewable resource can be used repeatedly to protect the environment.

Dr. Rubin Shmulsky, head of sustainable bioproducts, said timber mats are critical tools in building and maintaining America.

“These mats are used extensively throughout the U.S. in industrial-scale developments, and they are particularly useful and necessary on soft, wet, or otherwise sensitive soil conditions,” Shmulsky said.



Photo by Kevin Hudson

“We helped a company build prototype laminated mats, and then we tested them for design stiffness and strength. Our involvement has grown from that one initial contact to working with many manufacturers, suppliers, and users.”

DR. RUBIN SHMULSKY

Reusable timber mats have been a part of the construction landscape for years. MSU became involved with laminated mat development about 15 years ago.

“We helped a company build prototype laminated mats, and then we tested them for design stiffness and strength,” Shmulsky said. “Our involvement has grown from that one initial contact to working with many manufacturers, suppliers, and users.”

MSU’s current main emphasis is to develop manufacturing standards to further enhance mat quality and safety, which will then help with marketability.

Pat Thomasson, CEO of the Thomasson Company in Philadelphia, Mississippi, said the state produces a significant quantity of all types of access mats.

“Mat performance depends on not only the type of mat used, but also the environment in which work is being performed,” Thomasson said. “This includes the load the mat is required to carry, and the proficiency and skill of the contractor performing work.”

The Department of Sustainable Bioproducts has equipment able to perform bending tests on full-scale mats, Shmulsky said.

“Testing at this scale is totally new, and MSU is at the cutting edge,” he said. “For cranes to operate safely as they lift things that may weigh hundreds of tons and be worth millions of dollars, it is critically important that engineers and construction personnel know the stiffness and strength of the timber mats on which the cranes operate.”

Tedrick Ratcliff Jr., executive vice president of the Mississippi Forestry Association, explained why this strength testing is vital.

“These products are sold into markets where consumers will use them to withstand very tough conditions and heavy loads,” Ratcliff said. “Having a detailed understanding of what the product is capable of helps both the manufacturer as well as the end user.”

These mats are constructed from both hardwood and pine, and hundreds of timberland owners in the state supply the wood for this industry. Ratcliff said the production of access mats is a significant opportunity for timber landowners to market traditionally low-value hardwoods.

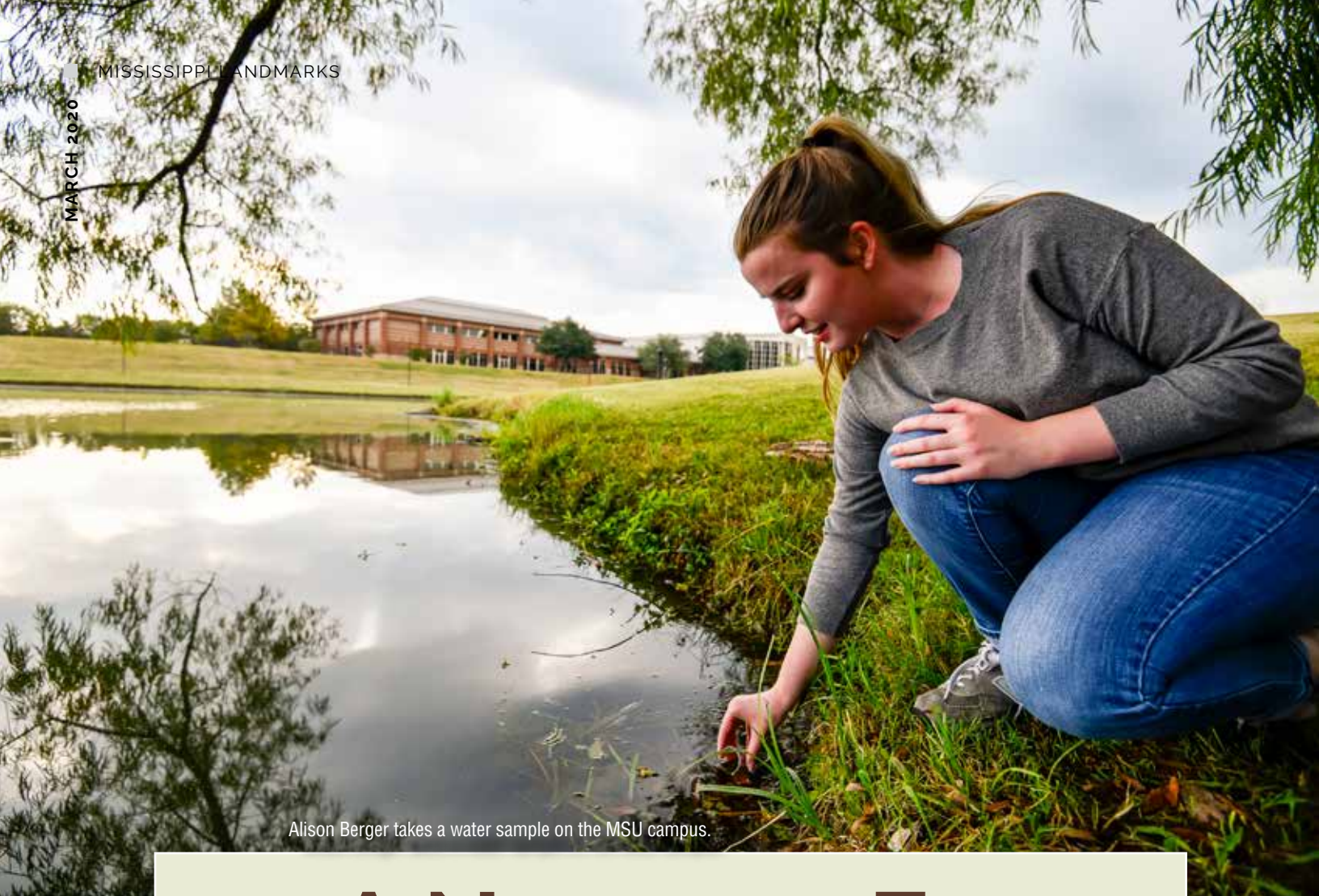
“Without markets like these, there would be very few economic reasons to grow many of these species to maturity,” Ratcliff said.

Shmulsky said forest-product manufacturers treat some of these mats to protect them from termites and decay, which helps them last longer.

“Some mats are sold, others rented,” Shmulsky said. “Mats are often used on a job, then rehabilitated if they get damaged, and then reused. Some are tagged with radio-frequency identification so they can be tracked as they move around the nation.

“Timber mats are one of the unsung heroes in America, and MSU is very proud to play a role in their ongoing success,” he said.

BY BONNIE COBLENTZ



Alison Berger takes a water sample on the MSU campus.

A NATURAL FIT

Major Offers Options for Environmentalists

Alison Berger, a senior natural resource and environmental conservation major, grew up at the intersection of agriculture and conservation. The Jonesboro, Arkansas, native comes from a farming family. Her grandfather, a plant breeder, started a seed company focused on growing soybeans for deer forage. Berger said growing up as a part of the Eagle Seed family helped ignite an interest in both agriculture and conservation.

"I remember banding doves with the Arkansas Game and Fish Commission, going with my father to the U.S. Department of Agriculture office, and attending meetings for the development of a rainwater reservoir to enhance conservation on the farm," Berger shared.

A memorable family trip to Washington, D.C., centered around her family's work with the Farm Bureau. On the trip, they connected with lawmakers to lobby for soybean producers.

This exposure to agricultural policy inspired Berger to want to become a lawyer, but first she wanted an undergraduate degree that would provide technical expertise in agriculture or natural resources.

That's when the MSU College of Forest Resources caught her eye with its natural resource and environmental conservation major.

"In this major, we learn about law and policy, but we also learn about forestry and natural resources," said Berger, whose concentration is natural resource law and administration. "Law students often have a policy background without field experience. This major and concentration provided both. Plus, it's a competitive program that's nationally recognized."

The major was established in 2014. In 2017, MSU became one of nine universities nationally to be accredited by the Society



Dr. Courtney Siegert helps Berger analyze the water sample.

“We focus on teaching our students about the regulatory compliance that is required as part of land management. They gain in-depth knowledge of the National Environmental Policy Act, or NEPA.”

DR. COURTNEY SIEGERT

of American Foresters. The program boasts 20 graduates and 12 current students. Additional concentrations include natural-resource technology for students who want to learn more about geospatial information systems, as well as resource-conservation science for students who are most interested in science.

Dr. Courtney Siegert, an associate professor in the MSU Department of Forestry, was instrumental in developing the major.

“We focus on teaching our students about the regulatory compliance that is required as part of land management,” Siegert said. “They gain in-depth knowledge of the National Environmental Policy Act, or NEPA.”

NEPA, landmark legislation passed in 1969, requires any government or private enterprise to conduct a study to determine the potential environmental impact of proposed development projects. One of two documents is produced in this process: a brief environmental assessment or a more in-depth environmental impact statement.

While the students learn about the history of the legislation and aspects of both documents as part of the major’s capstone course, all students are required to write an environmental assessment and formally present their findings to faculty members and fellow students.

“While all majors in the college teach students about NEPA, this major really delves into all aspects of it,” Siegert said. “The coursework provides the natural resource and environmental conservation majors with a very unique skill set of understanding what it takes to be NEPA compliant. As a result, graduates from this program are highly competitive in the field of environmental consulting and in NEPA groups within federal agencies.”

To learn more about the major, visit https://www.cfr.msstate.edu/prospective_students.

BY VANESSA BEESON •
PHOTOS BY DAVID AMMON

EXTENSION AGENTS

AIM FOR CHANGE

Just as small seeds grow into big trees, two MSU Extension Service agents in the Mississippi Delta are forming small coalitions to create big changes.

Marven Cantave, an Ohio-licensed nutritionist from Massachusetts, and Alexis Hamilton, an Indianola, Mississippi, native and longtime high-school teacher, are living, working, and connecting in eight Delta counties as they implement the Advancing, Inspiring, and Motivating for Community Health (AIM for CHangE) grant. Their goal is to make healthy living easier in each of the target counties.

Cantave works with stakeholders from Holmes, Humphreys, Leflore, and Quitman Counties, while Hamilton networks with leaders from Sharkey, Issaquena, Washington, and Sunflower Counties.

They gather community stakeholders, determine local strengths and weaknesses, and create individual plans to make infrastructural improvements that enhance healthy living in each community.

Cantave and Hamilton are forming 10- to 15-person local coalitions of residents who want to make healthy living easier and more affordable where people live, work, and play. Stakeholders include a range of leaders, including elected officials, religious leaders, and local entrepreneurs.

The agents want to address and implement policies and systems that support healthy behaviors, especially as related to

diet and exercise. Improving walkability, increasing recreational opportunities, enhancing public recreation spaces, and increasing accessibility to healthy, fresh foods are the focus.

“We’re aiming to make sustainable change in these communities,” Hamilton emphasized. “Each coalition in each county is self-sustained, with its own chair. As agents, we’re just facilitators.”

Currently a resident of Rolling Fork, Mississippi, Hamilton is married and has four children. While he stays busy with his family, Hamilton also makes time to pastor two churches, one in Leflore County and the other in Sunflower County.

Hamilton has more than a decade of experience teaching physical education and health in Delta middle and high schools. He is not only well acquainted with many local stakeholders, but also well versed in the culture and background of each community.

Cantave is new to the Delta and enjoys playing basketball and guitar, as well as meeting new people and forming new relationships to benefit Delta communities.

“I get to know the people and their values, and I ask them, ‘How do you see your community benefiting from us working together?’” Cantave explained. “Each coalition works together a



Alexis Hamilton and Marven Cantave



“We’re aiming to make sustainable change in these communities. Each coalition in each county is self-sustained, with its own chair. As agents, we’re just facilitators.”

ALEXIS HAMILTON

little differently, but, generally, we have a broad structure where we identify strengths and weaknesses in a needs assessment.

“Then, I push them to consistently refine,” he continued. “We’re here to address weaknesses, assets, needs, and relationships. Then, we work to leverage the relationships and the assets to address the weaknesses and the needs.”

The coalitions in place have begun important work that will make a difference, Cantave and Hamilton agree. According to Dr. David Buys, Extension state health specialist and project

director of the AIM for CHangE grant, local residents are best positioned to leverage local resources to make healthy living easier and more affordable.

The small seeds of change that Cantave and Hamilton have sown are germinating. To learn more, visit <http://extension.msstate.edu/food-and-health/health/aim-for-change>.

BY LEAH BARBOUR • PHOTOS BY MICHAELA PARKER



Clockwise from left: Sean Boe, Will Smythe, Christian Good, Kirby Mauldin, Noble Guedon, Josh Miller, Brett McCool, William White, and Amanda Hudson (Photo by Kevin Hudson)

COCHRAN

Leadership Program

Strengthens Mississippi Agriculture

The inaugural class of the Thad Cochran Agricultural Leadership Program (TCALP) graduated in 2019, and a second class has begun the 2-year educational and personal development experience.

Class members are selected through a competitive application process from applicants who represent the breadth and diversity of the agricultural industry across Mississippi. They may be farmers, ranchers, agribusiness owners or operators, or otherwise associated with agriculture. The MSU Extension

Service developed TCALP with support from the Mississippi Farm Bureau.

Participants develop team-building skills including collaboration and conflict management, and they enhance their communication and professionalism abilities. Class members gain exposure to successful and innovative businesses to improve economic literacy and community decision-making practices, and they sharpen their awareness of policy-making and legislative processes through governmental analysis coupled with an investigation of influence.

The 2019 class included Sean Boe of Moselle, owner and operator of Boe Farms; Christian Good of Macon, partner in Philip Good/Christian Good Farms; Noble Guedon of Natchez, corporate manager at Goldman Equipment; Amanda Hudson of Wiggins, vice president of loan operations for Southern Ag Credit; Kirby Mauldin of Laurel, owner and operator of Mauldin Poultry Farm; Brett McCool of Bailey, harvesting and transportation manager for Weyerhaeuser; Josh Miller of Yazoo City, owner and operator of Little Onward Plantation; Will Smythe of Leland, partner in F. J. Smythe and Sons Farm; and William White of Starkville, research station manager of the Mississippi Agricultural and Forestry Experiment Station H. H. Leveck Animal Research Center.

The second class includes Tyler Anderson of Starkville, vice president of branch lending for Mississippi Land Bank; David and Rebekkah Arant of Minter City, owners of Arant Acres and Delta Blues Rice; Rob Baker of Leland, partner of Bourbon Plantation; Hillary Ball of Oxford, seed specialist for Helena Ag; Joseph Erickson of Madison, crop insurance agent with Diversified Services Agency; Jared Freeman of Forest, pullet manager with Koch Foods; Alex Holtcamp of Crawford, farm manager of Holtcamp Farms; Matthew and Kayla Poe of Pontotoc, owners of Poe Farms; Amanda Stone of Starkville, MSU Extension dairy specialist; and Cala Tabb of Eupora, co-owner of Old Walthall Farms.

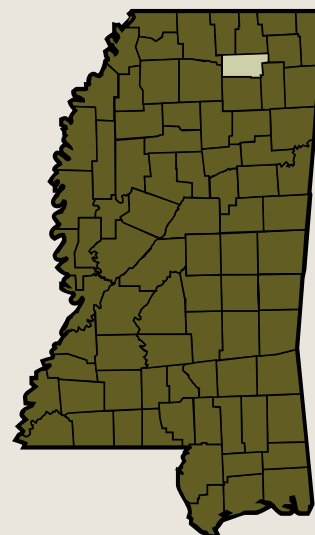
"We think this program is vitally important to the future of agriculture in the state of Mississippi," said MSU Extension Director Gary Jackson. "Participants are going to be traveling around Mississippi learning more about our state and the importance of our rural communities. They will also study the U.S. farm bill and gain in-depth knowledge in agricultural public policy in the nation's capital."

For more information, see the TCALP website at <http://extension.msstate.edu/tcalp>.

COMPILED BY ROBYN HEARN



The Union County Courthouse in New Albany was constructed in 1909.
(Photo by Kevin Hudson)



1/82: Union County

MSU in Union County:

112 Fairground Circle
New Albany, MS 38652
Gina.wills@msstate.edu

“Located in the hills of northeast Mississippi, Union County is a vibrant, active locale that values its past while also building toward its future.”

GINA WILLIS, MSU Extension County Coordinator

County seat:	New Albany
Population:	28,097
Municipalities:	Myrtle, Blue Springs, New Albany, Etta
Communities:	Ingomar, Blythe, Glenfield, West Union, Pinedale, East Union, Jericho, Macedonia, Keownville, Pleasant Ridge, Poolville, Alpine, Lone Star, Center, New Harmony, Wallerville, North Haven, Enterprise, Bald Hill, Liberty, Fairfield, Martintown, Ellistown
Commodities:	corn, cotton, soybean, beef, forestry
Industries:	Baptist Memorial Hospital, Kevin Charles, Wal-Mart Distribution Center, Master-Bilt, Toyota, Diversity Vuteq
Natural resources:	timber, wildlife, fishing, pine plantations
History notes:	Because the state wanted to form more counties, Union County was formed on July 7, 1870, with portions of Pontotoc, Tippah, and Lee Counties making up the new county. The county name and seat were chosen at a citizens' meeting at Charles Bond's store. Nimrod Wilkins suggested that it be named Union because of the "union" of the counties as well as the fact that many of the early settlers came from Union, South Carolina.
Attractions:	Tanglefoot Trail, Faulkner Garden, Ingomar Indian Mound, Union County Heritage Museum
Did you know?	The biggest news in Union County in 1949 was when Stratford Furniture was dedicated. This manufacturing plant grew through the years to initiate north Mississippi's large furniture industry. At one time, the massive furniture complex had 26 acres under one roof.

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

NewsNotes



Fountain

Dr. Brent J. Fountain, a longtime faculty member in the College of Agriculture and Life Sciences (CALS) Department of Food Science, Nutrition, and Health Promotion, will become MSU's next faculty athletics representative (FAR) in July 2020. Fountain, a former president of the Robert Holland Faculty Senate, now leads the MSU Career Center as interim director and is an assistant vice president intern in the Office of the

Provost and Executive Vice President. Dr. Steve Turner, director of the Southern Rural Development Center and a professor in the CALS Department of Agricultural Economics, has served as FAR since 2005. The FAR plays a strategic role at the university, ensuring the academic integrity of the intercollegiate athletics program, facilitating institutional control of intercollegiate athletics, enhancing the student-athlete experience, and advising the president and director of athletics. The FAR represents MSU in the NCAA, provides significant leadership in the governance of MSU's intercollegiate athletics programs, represents the president in academic and student-athlete matters to the athletic department and MSU's faculty, and chairs the university's Athletic Council.



Stallworth

Shandrea Stallworth, a weed-science doctoral candidate in the CALS Department of Plant and Soil Sciences, has been elected to serve as the national graduate student president of Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS). For Stallworth, a Biloxi, Mississippi, native who joined MANRRS in 2013 while pursuing her master's at Auburn University, the position is a dream 6 years in the making. In her

role with MANRRS, Stallworth serves as a liaison between regional graduate officers, professional officers, and the national office. Stallworth has served MANRRS as vice president of the Auburn chapter and as vice president for Region III, which includes Mississippi, Alabama, Arkansas, Kentucky, and Tennessee. She came to Mississippi State, in part, to help grow the university's MANRRS chapter. She is credited with growing the MSU chapter significantly. She now serves as a leader and innovator for an organization that represents more than 2,000 students and professionals focused on feeding the world and protecting natural resources.



Garay

Eduardo S. Garay, a master's student in the Department of Plant and Soil Sciences, has been named a Kirchner Food Fellow as part of an extremely competitive international program that connects student leaders who are working toward long-term, global, sustainable food-security solutions. Garay earned a bachelor's degree from Zamorano University-Honduras in agricultural

production. He then joined the university as a research associate working with small-holder producers and learning about capital investment needs in underserved regions. A member of the Gamma Sigma Delta International Honor Society of Agriculture, Garay now works with Dr. Jac Varco, MSU professor and Triplett Endowed Chair in Agronomy, as part of a soil-fertility research program focused on management strategies for improving nutrient utilization. The fellowship gives participants an opportunity to engage in investment decisions regarding agriculture-oriented businesses with cutting-edge technologies. It is an initiative of the Kirchner Impact Foundation, which promotes capital efficiency and sustainable enterprises while advocating that every business should contribute to a positive human future. Kirchner fellows aim to provide both environmentally and economically sustainable solutions to global food security.



Mochal-King

Dr. Cathleen Mochal-King, a board-certified equine surgeon, is the inaugural Terri Nusz Endowed Equine Professor in the MSU College of Veterinary Medicine. The associate clinical professor and equine service chief also was recently honored as the North American Veterinary Conference VMX 2019 Equine Speaker of the Year. A diplomate of the American College of Veterinary Surgeons, Mochal-King earned both her bachelor's and

DVM degrees at Iowa State University and completed an internship and residency at MSU in equine surgery before joining the faculty in 2010. Her teaching and research interests include equine ophthalmology, equine lameness and surgery, and equine sports medicine with clinical diagnostic ultrasound. The Nusz professorship will support Mochal-King's efforts to educate CVM students, interns, and residents; serve the clinical needs of horse owners and referring veterinarians; and represent MSU at a national level. The professorship is possible with a gift from 1982 MSU graduates Tommy and Terri Nusz of Houston, Texas. Terri Nusz oversees the family's various interests in equine sports, and the family wants to encourage MSU faculty efforts in equine study.

**Russell**

Christien Russell, a doctoral candidate in the College of Agriculture and Life Sciences, served as a fellow of the USDA Office of the Assistant Secretary for Civil Rights (OASCR). She worked as a special assistant to Deputy Assistant Secretary for Civil Rights Naomi C. Earp for nearly 3 months. The OASCR provides direction and leadership for the fair and equitable treatment of all USDA customers and employees while

ensuring the delivery of quality programs and enforcement of civil rights. A native of Louisville, Kentucky, Russell is pursuing a PhD in agricultural sciences with a concentration in agricultural and Extension education. Her research focuses on diversity, equity, and inclusion. Russell also serves as Region III graduate vice president for Minorities in Agriculture, Natural Resources, and Related Sciences. Dr. Carla Jagger, MSU assistant professor in the School of Human Sciences and Russell's major adviser, said the fellowship is a great opportunity that will open many doors for Russell in the future. Russell earned her bachelor's degree in community leadership and development from the University of Kentucky and master's in public administration from Auburn University.

**Tanger**

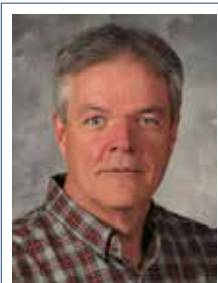
Dr. Shaun Tanger joined the MSU Extension Service in the southeast region as a forestry specialist with area and statewide duties. He also is a faculty member in the College of Forest Resources Department of Forestry. Tanger is located in the Coastal Research and Extension Center in Biloxi, Mississippi. As an Extension area forester, Tanger will conduct programs on all general forestry issues that influence landowner

decision-making processes specific to southeast Mississippi. His focus for statewide programs will include economics, taxes, timber stand management and finance, and local, state and federal policy. Tanger comes to MSU from the Louisiana State University AgCenter, where he served as an associate Extension professor of forest economics. He earned a bachelor's degree in wildlife biology, a master's degree in forestry economics, and a doctorate in forestry from Auburn University. He is a member of the Mississippi Forestry Association. He belonged to several local and statewide forestry organizations in Louisiana, serving on the board of directors for some groups.

**Goddard**

Dr. Jerome Goddard, an Extension professor of medical and veterinary entomology in the CALS Department of Biochemistry, Molecular Biology, Entomology, and Plant Pathology, received the Felix J. Underwood Award from the Mississippi Public Health Association. Given to individuals who are dedicated to protecting Mississippians' health, this award is the organization's most prestigious

honor. Goddard is also an affiliate faculty member at the University of Mississippi Medical Center. Before accepting his position at MSU, Goddard served as the state medical entomologist with the Mississippi Department of Health for 20 years. He was also a medical entomologist while serving as a captain in the U.S. Air Force. In his 30-year career as an entomologist, he has shared his expertise at conferences and training events nationwide. Goddard has published more than 200 scientific papers and 14 books. His medical textbook, *The Physician's Guide to Arthropods of Medical Importance*, was originally published 26 years ago and is used by physicians worldwide. In its latest edition, the publisher renamed the book *The Goddard Guide to Arthropods of Medical Importance*. Underwood, state health officer from 1924 to 1958, was a pioneer in public health.

**Avery**

Dr. Jimmy Avery, MSU Extension aquaculture specialist and director of the USDA Southern Regional Aquaculture Center at the Delta Research and Extension Center in Stoneville, Mississippi, was elected president of the World Aquaculture Society. Avery previously served as president-elect and as a member of the World Aquaculture Society Board of Directors. He was president of the organization's U.S. chapter. Former

society presidents include Dr. Louis D'Abramo, who was an aquaculture biologist with the Mississippi Agricultural and Forestry Experiment Station and dean of the MSU Graduate School until his retirement in 2013. Former MSU graduate students Bill Daniels and Jim Tidwell also served as presidents. D'Abramo and former MSU faculty members Dr. Craig Tucker and Dr. John Hargreaves currently serve as fellows of the organization. Established in 1969, the society promotes educational, scientific, and technological developments of aquaculture worldwide. It has more than 3,000 members in nearly 100 countries.

DevelopmentCorner



Dr. Bill Able and Kipp Brown (Photo by Beth Wynn)

ALUMNI AND FRIENDS Can Help Grow Brown Livestock Judging Scholarship

The Kipp Brown Livestock Judging Endowed Scholarship, named for the MSU agriculture alumnus and Extension livestock coordinator who retired in 2019, will help the university continue its rich history in 4-H Youth Development and livestock judging programs.

Dr. Bill Able, head of the MSU Department of Animal and Dairy Sciences from 1991 to 1996, established the endowment for the university's first scholarship for talented livestock judging students. Able hopes alumni and friends of Extension will help grow the endowment.

"By establishing the scholarship, I wanted to salute Kipp for his interest and encouragement of young people in Mississippi and give him credit for his longtime efforts of infusing energy and passion into the judging program," Able said. "The scholarship will help MSU recruit high-caliber students in Mississippi."

Able, who lives in Miami, Oklahoma, now oversees Able Publishing Company. In addition to his other degrees, Able has a master's from MSU. He was a professor and director of

the International Meat and Livestock Program at Kansas State University. He also served as executive secretary for the American International Charolais Association and vice president of academic affairs at Northeastern Oklahoma A&M College.

Able, a longtime mentor to Brown, has judged every livestock competition in the nation. Brown recalls trying to emulate Able as he developed his own style in the ring. Brown has more than 30 years of experience judging all species of livestock at all levels.

"Judging is the foundation of any 4-H livestock project, and MSU wants young people to judge livestock to learn accountability and life skills," Brown said. "Our university has a heritage of this success, and people want to engage with our judging teams because of their solid skill sets."

The MSU judging team is open to students in any major. Participating students invest nearly three-quarters of their weekends traveling across the country to hone their skills in judging cattle, goats, sheep, and swine.



Photo by Kevin Hudson

Kipp Brown (right) and Dr. Shawn Ramsey, 2019 Dixie National Junior Round-Up show judge, present a first-place goat showmanship award to Madison County 4-H'er Cassidy Turbville.

Recipients of the Brown Scholarship in the College of Agriculture and Life Sciences must be Mississippi residents and active members of the Animal Sciences Senior Livestock Judging Team who have finished in the top 10 at a national 4-H or FFA live-animal evaluation contest. Qualifying animal and dairy science students will have priority.

"It is an honor to work at something I love and be recognized with this scholarship that can help continue to grow the university's livestock judging program," Brown said. "The MSU program would not be possible without the support of past and present faculty, staff, coaches, alumni, livestock producers, and students. I believe strongly in this program and appreciate the benefits it can provide to our participants and the livestock industry as a whole."

A native of Winona, Mississippi, Brown worked with the USDA, Mississippi Department of Agriculture and Commerce, and Mississippi Cattlemen's Association before joining MSU in 1993 as an assistant livestock judging coach. He spent 15 years as an area agent before becoming Extension livestock judging coordinator in 2013. Brown has worked with the Dixie National Collegiate Beef Judging Contest since 1989 and has been an integral team member of the Mississippi Junior Livestock Program and the Livestock Judging Program.

"The Kipp Brown Livestock Judging Endowed Scholarship not only recognizes the significant contributions Kipp Brown has made to the Department of Animal and Dairy Sciences, it also opens new opportunities for our students," said Dr. John Blanton, current head of the department. "Because of Dr. Able's generosity, the livestock judging program will continue to gain stature."

Gifts to grow the scholarship endowment may be made online at www.msufoundation.com.

BY AMY CAGLE

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Governor Haley Barbour (left), U.S. Senator Thad Cochran, and MSU President Mark Keenum prepare for Keenum's October 2009 investiture as Mississippi State's 19th president. Barbour and Cochran spoke at the ceremony. See pages 4–9 of this issue of *Mississippi LandMarks* for a tribute to Cochran. (Photo by Megan Bean)

