MISSISSIPPI LANDMARKS

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MISSISSIPPI STATE UNIVERSITY

DIVISION OF AGRICULTURE, FORESTRY, AND VETERINARY MEDICINE

RESEARCH, EDUCATION, AND EXTENSION

MISSISSIPPI
LANDMARKS

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EXECUTIVE EDITOR
Elizabeth Gregory North

MANAGING EDITOR
Robyn Hearn

ART DIRECTOR
Kim Trimm

WRITERS
Vanessa Beeson
Bonnie Coblentz
Susan Collins-Smith
Kathleen Forman
Nathan Gregory
Meg Henderson
Grace Jones
Kenner Patton

PHOTOGRAPHERS
Megan Bean
Dominique Belcher
Kevin Hudson
Michaela Parker
Tom Thompson

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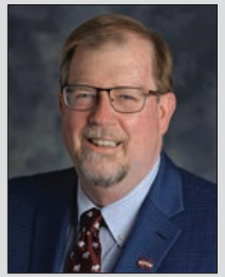

VICE PRESIDENT'S LETTER

When Mississippi producers speak, scientists and specialists in the MSU Division of Agriculture, Forestry, and Veterinary Medicine listen, especially each February when we meet with our stakeholders in person.

Since social distancing kept us from meeting in 2021, our administrators, faculty, and staff were eager to gather face to face in 2022 at our Research and Extension Centers and hear growers' ideas for research projects and educational programs.

Just in time for these crucial sessions, we were able to fill two administrative positions that had been under interim leadership for nearly 2 years. Dr. Wes Burger is the new dean of the College of Forest Resources (CFR) and director of the Forest and Wildlife Research Center (FWRC). Dr. Scott Willard is the new dean of the College of Agriculture and Life Sciences (CALS) and director of the Mississippi Agricultural and Forestry Experiment Station (MAFES).

Dr. Steve Bullard was named CFR associate dean and FWRC associate director. In CALS, Dr. Darrell Sparks is the new associate dean, and Cory Gallo was named interim assistant dean. In MAFES, Dr. Angus Catchot is associate director of operations, and Dr. Jamie Larson is the interim assistant director of research.

One topic mentioned repeatedly by Producer Advisory Council (PAC) members was the Carbon Offset Research and Education program. This initiative incentivizes landowners for implementing environmentally conscious practices. Our feature on page 10 explains how Extension specialists inform landowners about the emerging carbon-offset market.

I have had the privilege of meeting with our partners in the State Legislature and stakeholder groups to speak on behalf of DAFVM units. It is well-known that agriculture and forestry are the state's top two industries, but a recent economic study (see page 4) provides a holistic view of just how much they actually boost Mississippi's economy. The total impact goes well beyond the direct benefits of 120,000-plus jobs and $26 billion in sales.

I would be remiss not to brag on the College of Veterinary Medicine's continued success and growth. One example is the Veterinary Medical Technology program (see page 14), which allows students to work alongside DVM students and veterinary experts.

Finally, I'd like to quote Dr. Willard's comments from a PAC meeting. He summed up how vital your support is in keeping our agricultural, forestry, and veterinary industries strong: "Any time you can advocate for us, that would be appreciated. We want to help our faculty do as good a job as they can in trying to serve you. We can only do that if we give our faculty the best facilities available and the best research infrastructure that we can provide."

As always, thank you for your continued support of DAFVM.

KEITH H. COBLE
Vice President

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ON THE COVER

Mississippi State is an active Bee Campus USA. See the article on page 18. (Photo by Dominique Belcher)

Agriculture and Forestry

Boost State Economy by More Than $45 Billion

Agriculture and forestry are known to be Mississippi's top industries, but the total extent of their value goes far beyond the farm-gate value of production.

Based on data from 2019 (the latest year available for complete analysis), the direct effect of these two industries was nearly 124,000 jobs paying more than $5.6 billion in salaries and wages, earning more than $26 billion in sales, with a value-added generation of $7.6 billion.

However, according to a study by MSU forestry and agricultural economists, these contributions actually had a much larger effect on the Mississippi economy. An analysis of the value of production, primary processing activities, and value-added products revealed the total stimulative effects of these sectors on jobs, employee compensation, total output, and value-added.

After examining data from an economic input-output modeling system, the team found agricultural and forestry production processing to be an estimated $45.8 billion industry in Mississippi, accounting for more than 17 percent of the state's economic activity and more than 16 percent of its employment—approximately 264,135 jobs.

"Our goal was to show the bigger picture of how much these two industries contribute to income and employment statewide," said Dr. James Henderson, who led the study. "Direct effects are one component of the contribution, but indirect and induced effects also have to be considered."

Indirect effects represent economic activity of businesses and organizations that supply goods and services to

> "Our goal was to show the bigger picture of how much these two industries contribute to income and employment statewide."
>
> DR. JAMES HENDERSON

AG & FORESTRY INDUSTRIES SUPPORT STATE ECONOMY

$45.8 BILLION
generated by
direct & indirect sales
17.3% of all economic activity

264,135 JOBS
16.3% of all jobs

$11.7 BILLION
total compensation
for employees
16.3% of all wages & salaries

$18.1 BILLION
in value-added
to activities
15.2% of new wealth generated

$3.24 BILLION
total taxes
contributed
$1.05 billion food and fiber system revenues paid to state and local governments

agricultural businesses, explained Henderson, forestry economics professor and head of the MSU Coastal Research and Extension Center in Biloxi. It represents the interdependence between businesses and industries throughout the economy. Induced effects reflect spending by households in the form of wages and salaries earned by employees.

The study also found $11.7 billion in total compensation for employees, $18.1 billion in value-added to activities—which represents 15.2 percent of new wealth generated statewide—and $3.24 billion in total taxes contributed with more than $1 billion in tax revenues paid to state and local governments.

Soybean, cotton, grain, and other types of farms directly contribute $2.2 billion in sales with $956 million in value-added. These industries add 24,055 jobs to the state economy and $961 million in wages.

Direct logging, wood and paper products, and wood furniture manufacturing supplied 85,749 jobs that paid out $4.2 billion. The total industry value for these sectors is $21 billion with $6.1 billion in value-added.

With 14,178 Mississippi jobs, including cattle, dairies, poultry, eggs, aquaculture, and other animal production, the livestock production industry directly contributed $3.1 billion to the state, including $600 million in value-added. Workers received $453 million in wages and salaries.

According to the most recently available USDA Economic Research Service information, more than half of Mississippi's almost 3 million residents reside in 66 rural counties, and most of the state's 30 million acres of farmland, pastures, and forests are located in rural counties. There is one agricultural or forestry employee for every six other workers in the state.

The modeling system used is an annually updated computerized database known as Impact for Planning and Analysis (IMPLAN). The model consists of 536 sectors and is based on data from the U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, U.S. Census Bureau, U.S. Department of Agriculture, and U.S. Geological Survey.

These results were published in the MSU Extension Service publication, "Economic Contribution of Agriculture and Forestry Production and Processing in Mississippi: An Input-Output Analysis." In addition to Henderson, other contributors were MSU Extension forestry economist Dr. Shaun Tanger and MSU Extension agricultural economists Dr. James Barnes, Dr. Josh Maples, and Dr. Will Maples. The publication is available online at **https://extension.msstate.edu/publications/economic-contribution-agriculture-and-forestry-production-and-processing-mississippi**.

BY NATHAN GREGORY • PHOTOS BY KEVIN HUDSON

Hurricane Ida Response

Helps Landowners and Private Well Owners

MSU Extension personnel provide essential care and direction to Mississippians affected by weather-related disasters. Hurricane Ida was the latest example of Extension's disaster response.

In addition to being "boots on the ground" to ensure food and shelter for those who suffer losses, agents are regularly called on to assess agricultural damage. Agents conduct these evaluations in concert with the Mississippi Emergency Management Agency and the U.S. Department of Agriculture Farm Service Agency to record all disaster-related agricultural damages, including crops, equipment, structures, and livestock.

Two activities that stood out from routine emergency response actions in the case of Hurricane Ida were providing water testing to private well owners in coastal counties and information on soil management after the storm.

Private well owners in Greene, Hancock, Harrison, Jackson, and Pearl River Counties collected a total of 106 water samples for bacteria and heavy metals, including lead and arsenic, which were then sent for laboratory testing. The goal was to measure the effect Hurricane Ida may have had on private wells. The project was a collaboration between MSU Extension, the University of Alabama, and Northeastern University.

"From a knowledge standpoint, there's a heightened chance of bacteria present after hurricane-related flooding," said Dr. Jason Barrett, an associate Extension professor in the Mississippi Water Resources Research Institute. "One of our research goals is adding to the data of post-hurricane sampling. We want to see how much impact hurricanes and flooding events have on groundwater and how long it takes for contaminants to be flushed or removed.

"Colleagues conducting a national-scale research project added coastal Mississippi to their scope so we could offer this localized service at no cost to private well owners," Barrett said. "Along with the results, we provided educational materials, so well owners will know what to do if they have bacteria."

Hurricane-related flooding also affects soils. Dr. Larry Oldham, Extension soils specialist, published "Soil Management after Hurricane Ida" on the Mississippi Crop Situation blog.

He noted that the extent to which soil is affected by hurricane damage and rainfall depends on whether it was hit by a storm surge. Surge-flooded soils, as opposed to rainwater-flooded soils, have potential salt problems that will affect plant growth.

"Hurricane water originates either from storm surge from the adjacent ocean or from inland flooding from the copious rainfall," Oldham said. "Surge water physically moves salt from the surface water onto the land. Conversely, rain clouds are formed from water evaporated from the surface. Salts do not evaporate and remain in the originating water."

Given where Ida impacted Mississippi, salt issues in soils may arise near the shore and in areas with few or no agronomic crops. When the ground is sufficiently dry for soil sodium, gathering soil samples can help detect other available nutrients and pH.

BY NATHAN GREGORY

Dr. Jason Barrett (left) gives private well owner Todd Kruebbe of Pearl River County recommendations on well head protection. (Photo submitted)

When It Rains, It Pours

MSU Experts Help Soybean Producers Weather Flooding

> “One million of the 2.2 million acres of soybeans in Mississippi in 2021 were impacted by adverse weather, primarily flooding.”
>
> **DR. BRIAN MILLS**

Flooding can be one of the most frustrating aspects of farming because producers have no control over the potential devastation brought on by heavy rainfall. Worries about wet weather have been especially strong in recent years after historic flooding in southern portions of the Mississippi Delta.

A multistate research team from Mississippi, Missouri, Louisiana, and Arkansas has been assembled to address early-season soybean flooding. The Mississippi research is partially funded by grants from the Mississippi Soybean Promotion Board, Mid-South Soybean Board, and United Soybean Board.

In 2017, researchers at the MSU Delta Research and Extension Center began evaluating management practices to mitigate the effects of flooding on soybean fields.

“This research included planting soybeans on raised and flat beds across various soil types by scientists from the four participating states,” said Dr. Gurbir Singh, assistant research professor in the Mississippi Agricultural and Forestry Experiment Station (MAFES).

The research team also tested commercial soybean varieties for flood tolerance and evaluated flood-tolerant breeder lines developed by the University of Missouri and University of Arkansas for saturated conditions often found across the Delta.

“The extent of flooding injury on plants depends upon the growth stage of the plant at the time of flooding, flood duration, and soil temperatures,” said Dr. Gurpreet Kaur, a MAFES assistant research professor involved in the work. “There are also subsets of these effects that aren’t that obvious.

“Sometimes soils look dry at the surface,” Kaur added. “But waterlogging has occurred at the root level, causing an oxygen-deficient environment for roots, which hinders the respiration process and nutrient absorption by plant roots. Soil saturation also hinders nodulation, which slows down the nitrogen conversion process. Even soil and sediment deposits left on leaves from retreating water can slow down photosynthesis.”

Dr. Tessie Wilkerson, MAFES assistant research professor, has studied flood damage in soybean using the MAFES Official Soybean Variety Trial entries. Wilkerson has more than 200 varieties, commercial lines, and some experimental lines within these tests to determine flood tolerance.

“While participating in the MAFES trials, we discovered many commercial varieties are already exhibiting some resiliency to early flooding,” she said. “This is exciting because most of these varieties are already available to producers.”

Wilkerson said her research limits flooding to 3 days or less.

“After 3 days, chlorosis, a yellowing of the leaves, can be observed,” she explained. “Depending on the plant’s tolerance and length of flooding, the plants may recover. Or, in some cases, the result will be yield loss due to a reduced stand.”

Dr. Brian Mills, an assistant Extension professor of agricultural economics, points out the urgent need to address flooding in early-season soybeans for farmers across the Mississippi Delta.

“One million of the 2.2 million acres of soybeans in Mississippi in 2021 were impacted by adverse weather, primarily flooding,” he said. “Any improvements to flood tolerance would have a significant economic impact across the state. This research could be very beneficial to Mississippi producers.”

With current weather trends pointing toward wetter Southern fields, MAFES scientists are committed to finding the varieties that will withstand early flooding while also producing expected yields.

BY KENNER PATTON

Dr. Tessie Wilkerson (left), Dr. Gurpreet Kaur, and Dr. Brian Mills are a few of the members of a Delta Research and Extension Center team studying the problems of early-season soybean flooding in Mississippi. (Photo by Kevin Hudson)

Emerging Carbon Offset Market

May Benefit State

MSU Extension experts are helping Mississippians explore the relatively new carbon-offset market, which many forest landowners and row-crop producers are finding can fit into their management plans.

Normal, daily activities such as driving vehicles, manufacturing, and agricultural practices release carbon dioxide into the atmosphere. Elevated levels of carbon dioxide can trap heat.

Regulations adopted by industrialized nations aim at reducing carbon emissions and stabilizing or lowering the levels of carbon and other greenhouse gases in the atmosphere. While finding ways to reduce its carbon footprint, an industry that generates carbon also may purchase carbon credits as an offset.

A carbon offset credit is a transferrable instrument certified to represent an emission reduction of 1 metric ton of carbon dioxide, or an equivalent amount of other greenhouse gases. An individual or business that does not produce greenhouse gases may have a resource—carbon credits—that has financial value, said Dr. Larry Oldham, Extension soil specialist.

> “By knowing the carbon content of their soil, landowners can gauge the potential for increase through adopting certain best management practices.”
>
> DR. LARRY OLDHAM

“Carbon from anything formerly living is transformed into soil organic matter through biologically mediated decomposition,” Oldham said. “In plants, it is estimated that 20 to 70 percent of carbon recycled in the soil is taken up, or fixed, in the roots of annual crops.”

That means active farmland is potentially storing carbon rather than releasing it into the atmosphere. In developing markets, landowners can sometimes sell this asset as carbon offsets to industries trying to reduce their carbon footprints.

“Sellers should realize what is being brokered is not solely carbon, but data that includes the soil carbon, information about the tillage operations that may affect it, and nutrient management in the field,” Oldham said.

As the market situation evolves, the MSU Extension Service Soil Testing Laboratory can quantify the amount of organic matter in soil and detect both total carbon and nitrogen content in samples. Oldham said growers who want to enter the carbon market should immediately assess their current soil carbon levels.

“By knowing the carbon content of their soil, landowners can gauge the potential for increase through adopting certain best management practices, such as reducing tillage, using cover crops, and implementing crop rotations that can increase carbon content,” Oldham said.

Dr. Shaun Tanger, an MSU Extension forestry economics specialist based at the Coastal Research and Extension Center, said timberland is another potential source of carbon credits.

“Existing carbon exchanges offer landowners the opportunity to monetize their forests through timber conservation, with some paying a price annually for postponed harvests, while others purchase certain management practices above and beyond that commonly seen in working forests,” Tanger said.

Trees are rich sources of carbon, with carbon accounting for 50 percent of the dry weight of wood and 25 percent of the green weight.

“Standing trees reduce some of the impacts from climate change, and forest landowners can be paid for this carbon capture,” Tanger said.

In 2021, Tanger hosted a webinar with a representative of the San Francisco, California-based carbon exchange company NCX, which has mapped the entire country with the goal of paying landowners for the ecosystem services they have been providing for free in the past.

Recent payments to Mississippians who participated in this form of carbon marketing ranged from $15 to $70 per acre for marketable timber where harvest was deferred for 1 year.

MSU Extension continues to be involved in this emerging market as a source of information and education for landowners.

BY BONNIE COBLENTZ • PHOTO BY KEVIN HUDSON

Diving Deep into Aquatic Learning

Summer Internships Equip Students for Future

A new partnership with the Mississippi Aquarium in Gulfport is immersing students in the MSU College of Agriculture and Life Sciences (CALS) and the College of Forest Resources (CFR) with learning opportunities.

Opened in August 2020, the Mississippi Aquarium delivers aquatic education, conservation, research, and entertainment. The aquarium's indoor and outdoor facilities house multiple animal and plant species that enlighten and educate Mississippians.

In summer 2021, the aquarium offered internships to CALS and CFR students who were looking to immerse themselves in hands-on experience with wildlife. Five MSU students took part in the professional experience, gaining a better understanding of working with aquatic wildlife.

CALS Dean Scott Willard noted that programs and internships like this enhance and broaden a student's knowledge about a potential career field.

"The new Mississippi Aquarium offers great experiential opportunities for our students to hone their skills and interests in a unique environment in areas ranging from veterinary medicine and research to public outreach, education, marketing, and interpretation," Willard said. "We look forward to partnering with the aquarium for years to come, to provide even more students with these expanded learning opportunities."

Mya Dixon, a senior pursuing a double major in biological sciences and animal and dairy science, worked as a researcher and interpreter during her internship. Dixon's daily duties consisted of assisting scientists and veterinarians while also educating guests about the animals and exhibits. Dixon said the experience shaped her in unanticipated ways.

"This internship helped me realize how to represent myself, dedicate myself to hard work, and diversify my exposure to multiple facets of animal science, health, and care," Dixon said. "I encourage others to apply. While it is competitive, students will benefit from it in unimaginable ways."

Throughout the internship, students experienced field work that equipped them with the professional and educational skills necessary to work with aquatic animals. Real-world applications during the internship included assisting a turtle release, witnessing shark necropsies, and observing a Cesarean section on a stingray. The students also collaborated on research projects focused on specific animals or habitats.

Yvanna Paez Mendez, a senior working on a double major in animal and dairy science and wildlife, fisheries, and aquaculture, interned as a research interpreter. Mendez communicated with the public about various exhibits and animals.

"Getting the behind-the-scenes exposure to the aquarium was my favorite part of this experience," Mendez said. "I have always wanted to work with aquatic animals, so learning how important educating the public on what aquariums do, how they operate, and how crucial they are to caring for aquatic animals was a remarkable experience and solidified my decision to pursue an aquaculture career."

As the Mississippi Aquarium continues to educate the public on the animals that inhabit the Mississippi Sound and beyond, future Mississippi Aquarium/MSU internships will allow students the opportunity to enhance and broaden their knowledge of aquatic life and research.

"I am so appreciative with how this internship helped educate me, along with the public, on how important aquariums are for animals," Mendez said. "The Mississippi Aquarium is a nonprofit research facility that strives to create awareness for different species and protects the animals they rescue from harmful environments. I am grateful to have had the opportunity to work with the aquarium staff, who research and provide medical care for some of the ocean's most vulnerable species."

BY GRACE JONES

Mya Dixon examines Kemp's ridley sea turtles before their release in summer 2021. The Mississippi Aquarium has rehabilitated several of these turtles—considered the most endangered species of sea turtles—that were found stranded off the coast of New England due to an event called cold-stunning. The New England Aquarium sends cold-stunned turtles back to Mississippi for rehabilitation and release in their native waters. (Photo submitted)

Veterinary Technology Program Equips

Graduates to Serve

Martianna Cameron, a graduate of the VMT program, learns how to monitor anesthesia during surgery.

> “This degree is designed for the individual who has an interest in disease prevention, patient care, public health, practice management, surgical and anesthetic nursing, and client education. Not only can they assist in animal care at a clinic, but this degree can get them into pharmaceutical sales, biomedical research, education, and other industry-related jobs.”
>
> DR. MARALYN JACKSON

Few careers are as limitless as those of veterinary technicians who trained at the MSU College of Veterinary Medicine (CVM).

By law, a certified vet tech cannot prescribe medicine, diagnose a patient, or perform surgery. Under the direction of a veterinarian, they can perform every other job required for the care of animal patients, making them absolutely indispensable to clinic operations and patient well-being.

Dr. Maralyn Jackson became director of the CVM Veterinary Medical Technology (VMT) program in 2021. She called vet techs an integral part of the veterinary clinic who do everything needed to keep the doctors working effectively and efficiently.

“This degree is designed for the individual who has an interest in disease prevention, patient care, public health, practice management, surgical and anesthetic nursing, and client education,” Jackson said. “Not only can they assist in animal care at a clinic, but this degree can get them into pharmaceutical sales, biomedical research, education, and other industry-related jobs.”

Although a 2-year veterinary technician degree is available elsewhere in the state, CVM offers a 4-year veterinary technologist degree. The first 2 years are spent in general education courses to meet bachelor’s degree requirements, and the remaining time is spent in specific veterinary courses.

Certified veterinary technicians can earn specializations in 16 areas, such as anesthesia, dentistry, or critical care.

Nationwide, there are 22 4-year VMT programs, but not all are associated with a college of veterinary medicine. MSU students benefit from learning from veterinary experts and working alongside DVM students.

Getting into the program is competitive. While some students choose this degree as a stepping-stone to eventually earning a DVM, others see it as the fulfillment of a life’s career calling.

“This is a rewarding career for individuals who have a desire to be more in a nursing role for animals,” Jackson said. “Some people want to make the diagnosis and do the surgery, but others want to be more involved in the nursing care role of the patient with a focus on continuity of care for that patient.”

Being at a patient’s side from when they walk in the door to when they are discharged makes the job of veterinary technician unique.

“As a veterinarian, we have to do the surgery or make the diagnosis, then move on to the next patient that needs us,” Jackson said. “As much as we’d like to, we cannot stay with one patient. But that is where our technicians come in.”

Kyla Wilcher is a 2020 CVM veterinary technician graduate who now works in the CVM intensive care unit/emergency room. She said the preparation and confidence she gained from the CVM program of study is unmatched.

“To go into a new job setting can be nerve-wracking, but it was a great feeling knowing I am adequately skilled to know exactly what needs to be done for my patients,” Wilcher said. “Learning never stops in this career, whether I am learning a new technique or teaching something to students or other veterinary technicians early in their own careers.”

In 2021, CVM graduated a record 31 veterinary technicians. Salaries for a vet tech average $36,000, and those working in regulatory or research areas average $50,000.

BY BONNIE COBLENTZ • PHOTO BY TOM THOMPSON

A Greener Forest

Economic Model Increases Value of Mississippi Timber

Two-thirds of Mississippi, nearly 20 million acres, is forested land. The Magnolia State has 125,000 forest landowners, and forestry's harvested timber generated a $1.3 billion value of production in 2021 alone. Scientists in MSU's College of Forest Resources and Forest and Wildlife Research Center (FWRC) are dedicated to increasing the value of the state's forestland for both timber producers and the forest products industry.

Toward that end, the Department of Sustainable Bioproducts developed Mill Site, an economic model that aids in forest products business recruitment and expansion across the state.

"This economic development tool's goal is to increase Mississippi's timberland value," said Dr. Rubin Shmulsky, FWRC researcher and sustainable bioproducts professor and head. "Every day, we wake up and ask, 'How do we make our trees worth more money?'"

Mill Site was developed in partnership with the Mississippi Forestry Association (MFA), whose staff use it when a forest-products manufacturing company is interested in opening a new facility or expanding an existing operation in the state. MFA staff members find pockets of Mississippi timber that are not near a manufacturing facility. Mill Site then assesses potential site locations on a county-by-county basis and factors in variable costs such as raw materials, labor, transportation, and electricity.

The program also quantifies market potential using either truck or rail transportation to selected markets to determine a potential location's equitable market share. Mississippi locales can then be compared to any potential sites in any county across Texas, Arkansas, Louisiana, Tennessee, Alabama, Georgia, Florida, South Carolina, North Carolina, and Virginia.

Mill Site was born from a conversation between MSU researchers and Dr. Tedrick Ratcliff, MFA executive vice president and MSU alumnus.

"It's one more tool in our toolbox that makes Mississippi attractive," said Ratcliff, noting that Mill Site has helped MFA win the business of forest-products companies moving into or expanding in Mississippi. "As companies weigh advantages and disadvantages when considering where to make an investment, this tool gives Mississippi better recruiting ability."

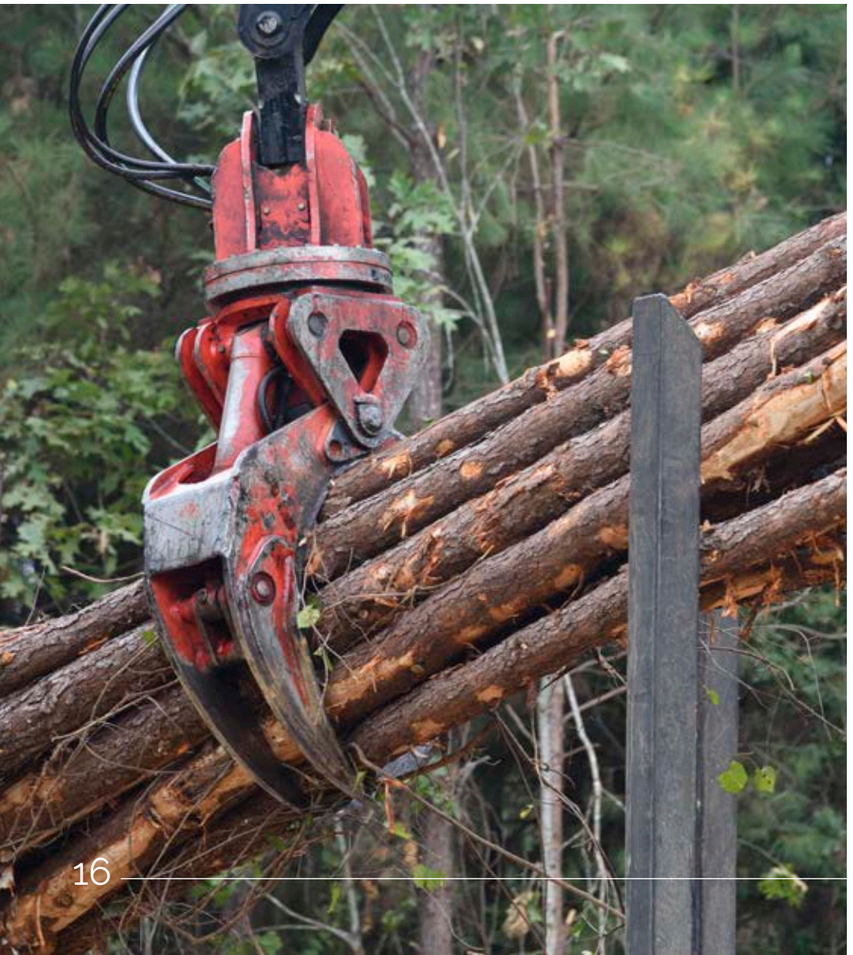
Ratcliff, a 2007 forestry, 2008 MBA, and 2020 sustainable bioproducts doctoral alumnus, credited the MSU team for directly answering an MFA need that positively impacts industry and the association alike.

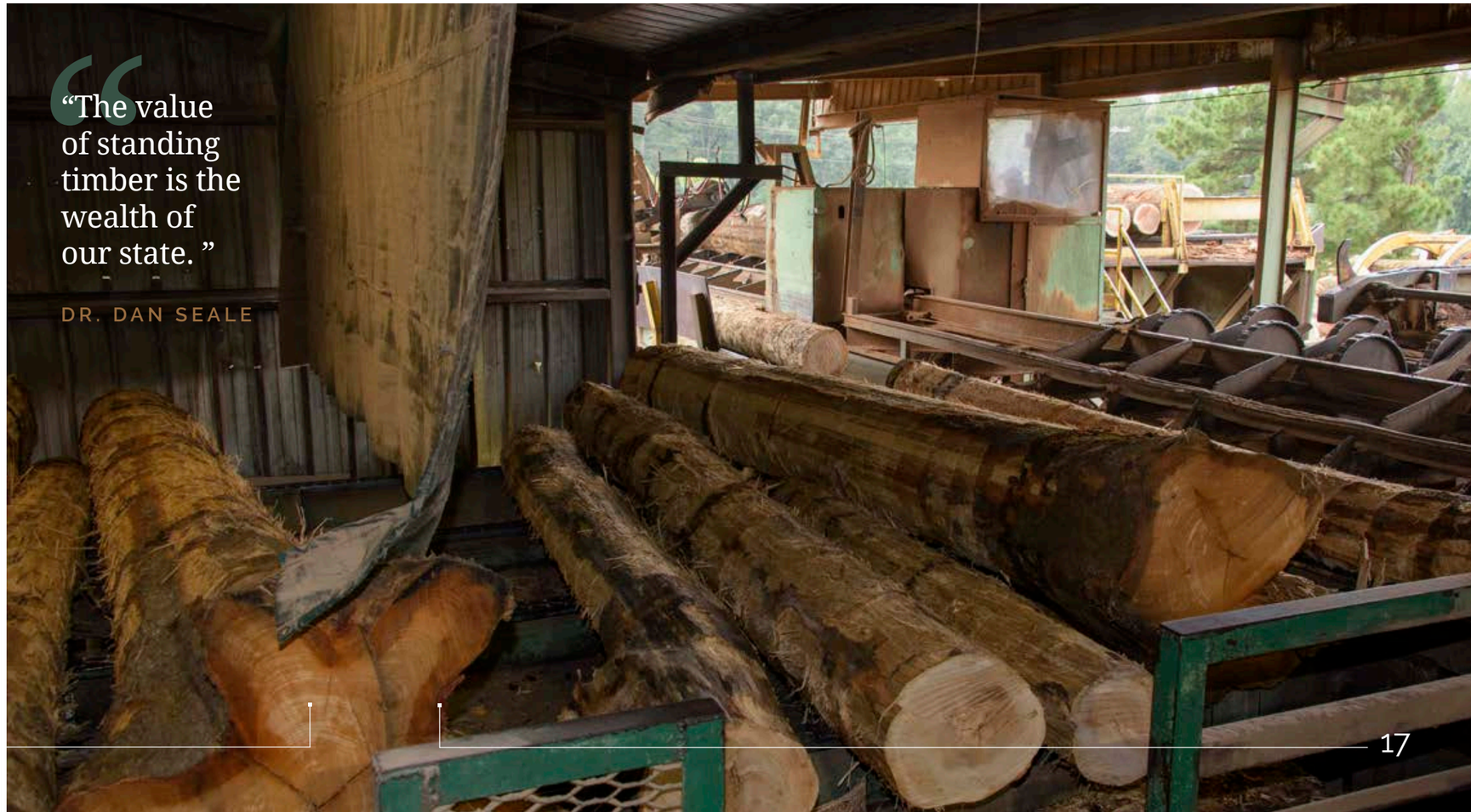
"We appreciate the university providing exactly what the industry needed, and we cannot say thank you enough from both a manufacturing and landowner standpoint," he said. "This tool positions Mississippi as a front-runner in site selection because no other state has a tool like this."

Dr. Dan Seale, sustainable bioproducts professor and FWRC scientist, developed the technology with William Griffin, a 2020 sustainable bioproducts master's graduate. Seale said the model, which yields results in minutes, takes the guesswork out of opening or expanding a forest-products facility in an industry that employees nearly 70,000 Mississippians.

"The value of standing timber is the wealth of our state. If we can make that timberland worth more, it raises the standard of living of everyone here," Seale said.

BY VANESSA BEESON • PHOTOS BY KEVIN HUDSON





> "The value of standing timber is the wealth of our state."
>
> DR. DAN SEALE

Bee Campus USA Paves Way for

Pollinators at MSU

MSU is abuzz as a new Bee Campus USA.

The university joins 122 campuses across 44 states recognized by the Xerces Society for Invertebrate Conservation for benefiting pollinators.

Despite their importance, pollinators face population declines. Bees, butterflies, moths, beetles, flies, hummingbirds, and other species are dwindling, primarily due to loss of native plants and habitat, among other factors.

To combat this decline, the MSU Bee Campus committee established pollinator habitat over the last several years. Native plantings have been installed at the Clay-Lyle Entomology Complex, the R. R. Foil Plant Science Research Center, and the Wildlife and Fisheries Research and Educational Center, among other campus sites.

"We are excited to inform and engage our community in understanding the role pollinators play in food production," said Dr. Wes Burger, dean of the College of Forest Resources (CFR) and director of the Forest and Wildlife Research Center. "This committee's formation and the designation of Bee Campus USA consolidates our pollinator activities to educate the public about their importance."

Plans for the MSU Bee Campus include development of an integrated pest management plan for future pollinator plantings, educational events, and student service-learning projects.

The MSU Bee Campus committee, chaired by Dr. JoVonn Hill and consisting of faculty and staff in CFR and the College of Agriculture and Life Sciences, led the effort.

Land-grant universities must take the lead in promoting pollinator conservation, said Hill, an assistant professor in the Department of Biochemistry, Molecular Biology, Entomology, and Plant Pathology and director of the Mississippi Entomological Museum.

"We have the resources and know-how, so it's vital that we communicate pollinator conservation best practices to our students, local landowners, and community as a whole," he said.

Dr. Shannon Westlake, 2019 wildlife, fisheries, and aquaculture alum, spearheaded the initiative to make MSU a Bee Campus USA. Westlake, now a social scientist for the U.S. Fish and Wildlife Service, has long been interested in how humans can help protect pollinators.

"My love for pollinators goes back as far as I can remember as a kid who grew up playing outside and chasing insects," Westlake said.

Westlake understood that engaging private landowners in practicing pollinator conservation was essential. As part of her doctoral work, she surveyed Mississippi landowners to assess pollinator conservation practice adoption across private lands. She determined attributes and barriers influencing

Photo by Karen Brasher

pollinator conservation practice adoption, which resulted in recommendations to better engage landowners and conservation professionals in the process. While at MSU, she discovered the university was involved in several pollinator conservation practices but wasn't a certified Bee Campus USA.

"The university was already engaged in pollinator work across several departments," Westlake said. "We formed a committee, and it was amazing. Each person brought their own knowledge and efforts that were ongoing. From the beginning, we had enough in place to satisfy the certification, so we pulled that together to explain how each initiative met different criteria and established a plan for moving forward."

She added that both universities and landowners can advance pollinator conservation in unique ways.

"Universities provide fertile ground for pollinator conservation research and engagement, whereas the sheer quantity of landowners provides the numbers needed to make essential progress," she said.

Westlake said everyone has the power to affect pollinator conservation.

"We want to turn food deserts into food buffets for wildlife species," she said. "While the practices may differ between universities and private lands, all of us can play a role and work toward pollinator conservation."

BY VANESSA BEESON

Photo submitted

Heirs' Property

Legal Issues Affect Many Mississippians

BY BONNIE COBLENTZ • PHOTO BY KEVIN HUDSON

Thousands of acres of family land in Mississippi are tied up as "heirs' property," which is owned by multiple people without clear titles, a situation that makes it almost impossible for landowners to profit from their assets.

MSU Extension and other organizations have begun an educational program to help landowners clear up the legal issues of owning heirs' property.

This problem often begins when an owner dies without designating a beneficiary. Heirs' property is inherited from one generation to the next without legal documentation of ownership. After generations of fragmented ownership, a parcel could have hundreds of owners. It is often difficult to identify all the owners. Without clear ownership, decision-making is hindered, and owners find themselves unable to capitalize on their assets.

In the South, much of the land owned by African Americans is held as heirs' property. According to the U.S. Department of Agriculture, since 1910, when African American land ownership was at its peak, the heirs' property system and associated challenges have caused considerable farmland loss.

According to the Southern Rural Development Center (SRDC), which is housed at MSU, at least 110,000 acres are tied up as heirs' property. In one county, an estimated 10 percent of the land is heirs' property. Many other Mississippi counties also have significant acreage trapped in this legal limbo.

"Making legally binding decisions about land use, such as selling land, harvesting timber, or borrowing against the land can be stalled or halted, limiting the use of the land's potential," said Dr. John Green, SRDC director. "Heirs' property issues have long been a barrier for many producers and landowners trying to benefit from their property.

"Connecting research and Extension across the region to improve the capacity of land-grant universities and nonprofit partners to address heirs' property will help improve the asset base and enhance quality of life," Green said. "Extension curricula will be critical to such an endeavor."

Dr. Mary Nelson Robertson, an Extension project manager, said MSU Extension is one of several organizations working to confront this problem. Legal organizations have formed to address heirs' property and other issues, and the federal government has recently set aside grant funds to help sort out land ownership problems.

"Extension has a long history of assisting agricultural producers, landowners, and families across the state, so it is important for Extension to start having more conversations around heirs' property," Robertson said.

Dr. Becky Smith, director of the MSU Extension Center for Economic Education and Financial Literacy, said resolving heirs' property requires the family to develop a plan and seek legal assistance. Common options include selling or gifting the property to family members or putting it into a trust.

"The plan should specify how the land will be transferred in the future, including being specific about which heirs get which pieces or parts of the property," she said. "Even people with wills create heirs' property when they gift the entire asset to multiple people."

Smith is part of a multistate team developing a curriculum to help people work through the steps necessary to clear up ownership issues. The effort has the support of MSU Extension, the SRDC, and the USDA National Institute of Food and Agriculture. The Socially Disadvantaged Farmers and Ranchers Policy Research Center, housed at Alcorn State University, also is involved with this issue and works with the SRDC to address solutions.

"We are creating a curriculum for Extension professionals and community educators so that more people understand the problem and can give accurate information to help landowners make the process of clearing land titles easier and cheaper," Smith said.

She said the curriculum will be created and delivered to Extension professionals in all 13 states and two territories in the SRDC's region.

"We will pilot webinars and written materials in Mississippi and then make needed revisions and do regional train-the-trainer workshops," Smith said. "Materials will ultimately be available on a website and within a course learning management system."

Autonomous Boat Analyzes

Water Quality

This technology, which has potential for numerous applications from studying waves in the ocean to monitoring conditions on catfish farms, can be accessed from anywhere in the world.

Mississippi State scientists have long pushed the boundaries of precision agriculture—using modern information technology to allow producers to be more productive while using fewer inputs. Now, scientists in the Mississippi Agricultural and Forestry Experiment Station (MAFES) are testing an unmanned boat that uses precision technology to monitor water quality.

This autonomous surface vessel (ASV), a self-driving boat equipped with water-quality sensors, frees personnel from manual testing while providing scientists with real-time data.

Dr. Daniel Chesser and Dr. Wes Lowe, MAFES assistant professors in the Department of Agricultural and Biological Engineering, teamed up with Dr. Gray Turnage, an assistant Extension and research professor in MAFES and the Geosystems Research Institute (GRI); Dr. Robert Moorhead, GRI director; and Dr. Padmanava Dash, an associate professor in the Department of Geosciences, to study ASVs used to monitor water quality in a variety of aquatic ecosystems. Dr. Alex Thomasson, professor and head of agricultural and biological engineering, leads the university-wide effort in agricultural autonomy.

The collaborative project began in 2018 with a request to GRI from the U.S. Army Engineer Research and Development Center in Vicksburg. The research facility wanted MSU scientists to develop and test a system to detect waterborne biochemical agents or water-quality issues like algae blooms.

The research team began by acquiring a 14-foot fiberglass, solar-powered ASV designed and manufactured by the Massachusetts-based SeaTrac Systems. The scientists then developed and integrated custom sensors to gather data on water-quality indicators such as temperature, salinity, dissolved oxygen, chlorophyll levels, pH, organic matter, and presence of toxic algae. These data also allow the team to make further improvements on the algorithms used by the sensors to capture information.

"The boat records each sensor reading along with georeferenced coordinates and a time and date stamp, which give us the ability to track each data point spatially and temporally and to home in on it," Lowe explained. "From these data, we can create guidance algorithms to steer the vessel toward the source of potential concern."

This technology is a game-changer not only because it provides immediate and detailed feedback, but also because the vessel can be monitored from anywhere in the world.

"We can sit here in Starkville and check the boat's location, the battery system, sensory package, and 360-degree-view cameras, so we can see what's going on and keep track of it," Chesser said.

So far, the team has launched the boat in a small lake near the MSU campus, the Tombigbee River in Columbus, the Mississippi River, and the Mississippi Sound to test and validate the craft's artificial-intelligence technology.

This technology has the potential for numerous applications, such as border and harbor security and closed-system aquaculture—for instance, catfish farming.

According to Turnage, future testing will involve installing new sensor packages.

"Once end users see that they can adapt the vessel to a use that will work for them, I think we'll see more and more users adopting this technology," he said.

"This work is part of a broader effort in agricultural autonomy, which applies AI to perform agricultural work without human involvement," Thomasson added. "ASV is a nice piece in the larger effort of agricultural autonomy."

BY MEG HENDERSON • PHOTOS BY DOMINIQUE BELCHER

Dr. Alex Thomasson (left), Geosystems Research Institute research associate Jessica Wolfe, Dr. Wes Lowe, and Dr. Daniel Chesser operate an autonomous surface vehicle from the shore of White's Creek Lake in Eupora, Mississippi.

Dr. Leslie Burger (center) and other faculty members launched Engaging Women and Minorities in Agriculture-Related STEM Disciplines Through Mentoring, Leadership, and Experiential Learning. Students Xavier Person (left) and Sophie Jones helped deliver the program’s Science Saturday. (Photo by Kevin Hudson)

STEM Mentoring Program Seeks to Increase

Minority Enrollment

A new mentoring program at Mississippi State seeks to encourage more women and minority students to study natural resource- and agriculture-related STEM curricula in college.

“One of the concerns that we hear from high-school students when we are recruiting is that they feel alone if no one else is like them,” said Dr. Leslie Burger, an associate Extension professor in the Department of Wildlife, Fisheries, and Aquaculture.

“It is a real concern,” she added. “I was the only girl at Murray State in most of my classes. That can be a real barrier for minorities when they are deciding what field to study.”

Burger and her colleagues launched the Engaging Women and Minorities in Agriculture-Related STEM Disciplines Through Mentoring, Leadership, and Experiential Learning program in summer 2021. The three-tier program offers high-school students hands-on research experiences and mentoring opportunities with current students and women and minority faculty working in food, agriculture, natural resources, and human sciences.

The program kicked off with an online class that provided students with an overview of various agricultural programs offered at MSU, including drones, wildlife, dairy science, wood science, and biomedical engineering.

Students then attended Science Saturday at MSU, an in-person field day where they learned more about each program and participated in hands-on learning activities with current students. The last tier paired faculty with high-school students and allowed them to spend a few hours a week in a professor’s lab.

“In some programs, such as veterinary medicine, minority enrollment has increased in part because of the high profile of the field,” Burger said. “But in less familiar programs, such as wildlife science and wood science, minority numbers are still low.”

Mishael Wema Nyatta, a junior at Starkville High School who participated in the program, said he has never had any reservations about being a minority in a classroom or career but said the program opened his eyes to how many opportunities there are in agriculture-related STEM areas.

“My parents have always encouraged me to do anything I wanted,” said Nyatta, who plans to study biomedical engineering at MSU. “I’ve always gravitated toward health sciences and biology. But I never realized there were so many things I could do with that [interest].”

Xavier Person and Sophie Jones, both junior biomedical engineering students in Dr. Lauren Priddy’s lab who helped deliver Science Saturday, say raising awareness is important to them.

“In high school, I wanted to be a teacher or nutritionist,” Jones said. “Engineering was never something I thought I would be interested in. When I pictured engineers, I envisioned hard hats and gears. I had no idea that biomedical engineering even existed.”

Person, who knew he wanted to be a doctor, chose biomedical engineering to diversify his educational background. He said he wants to encourage other minorities to follow their dreams.

“As a biracial college student, I think it’s important for younger minority groups to see others they can relate to doing the things that they want to do,” Person said. “I want my participation in this program to show that MSU is a place for all students to excel and grow.

“I never expected to make a huge impact, but when I heard a female, African American student say that she could see herself being a biomedical engineer, it was truly heartwarming,” he said.

The program is supported through a U.S. Department of Agriculture National Institute of Food and Agriculture grant.

BY SUSAN COLLINS-SMITH

In the photo above, Dr. Amelia Fox, assistant clinical professor in the MSU Department of Plant and Soil Sciences, teaches students about unmanned flight in agriculture and natural resources. Students are stationed at flight simulators, a tool used in flight classes at MSU. (Photo by Leslie Burger)

CALS

Creates Certified Leaders in Competitive Job Markets

New certificate programs in the College of Agriculture and Life Sciences (CALS) are propelling students to the tops of their fields. These certifications equip students with the industry skills they need for careers in companion animal management, meat science, and retail.

The companion animal management certification provides in-depth knowledge for those interested in pursuing careers in veterinary clinics, 4-H animal and youth programs, mental-health and physical-therapy programs, and other related areas. With an emphasis on animal science, certification courses explore companion animal nutrition, behavior training, and the human-animal bond.

Erica Carroll, an instructor in the Department of Animal and Dairy Sciences, said this certification program attracts many veterinary-technology and preveterinary students, but it is open to any MSU students with a desire to learn about companion animals.

"The companion animal need is so great on this campus," Carroll said. "We've started a club on campus called Puppies with a Purpose, where students raise puppies and then send them to receive service-dog training."

Students interested in learning more about the meat-processing industry can receive a meat-science certificate through a 24-credit-hour program. Dr. Thu Dinh and Dr. Derris Devost-Burnett, both associate professors in the Department of Animal and Dairy Sciences, partnered with Dr. Wes Schilling, a professor in the Department of Food Science, Nutrition, and Health Promotion, to create this certification program.

MSU's Meat Science and Muscle Biology Laboratory, which is one of the only federally inspected processing facilities in the state, is the perfect home for this program. The state-of-the-art facility allows for a hands-on learning experience with industry-level production.

"I tell my students to treat this place not as a school, but as a job training site," Dinh said. "Come here to gain skills and knowledge to get a job. The ultimate goal of this certification is to make our students more marketable and employable."

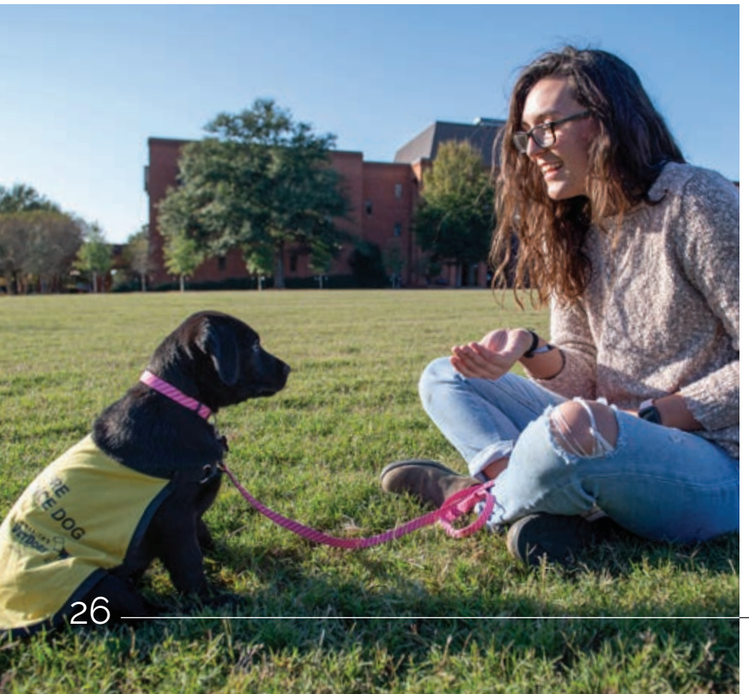
Using the standards set by the National Retail Federation, Dr. Caroline Kobia and Dr. JuYoung Lee, both assistant professors in the School of Human Sciences, created a retail-certification program that gives students invaluable training in the competitive field of retail and merchandising. Serving as the advisor for the National Retail Federation's Student Association at MSU, Kobia has in-depth knowledge on what skills students will need after graduation.

"My success is when my students succeed," Kobia said. "I'm excited that this certification gives our students better employability skills and more confidence to help them land jobs and get promoted in retail and beyond."

This certification program equips students with an industry-approved education that applies to all forms of retail. Fashion Design and Merchandising faculty Dr. Charles Freeman, Dr. Catherine Black, and Rachel Woodward support the 18-hour certification program.

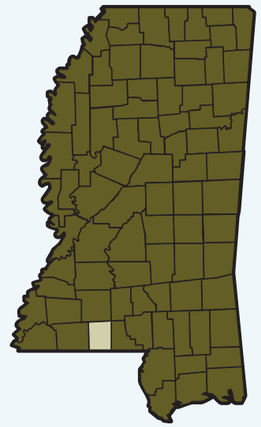
Across a variety of majors and disciplines, the CALS certificates equip undergraduate and graduate students to gain superior professional-level skills that expand job opportunities and better prepare them for careers.

BY KATHLEEN FORMAN



Maya Harlow, animal and dairy sciences major, spends time with Heidi, a service dog in training. Harlow earned an online certificate in companion animal management through the MSU Center for Distance Education. (Photo by Megan Bean)

This 7-ton, black-granite monument in Magnolia was dedicated in 2019 to the memory of those who died and those who lived through the 1977 plane crash of the rock band Lynyrd Skynyrd. The band's plane ran out of fuel and crashed into the woods near Gillsburg, Mississippi, killing six of the 26 people onboard. (Photo by Kevin Hudson)



1/82: Pike County

MSU in Pike County:
1140 North Clark Avenue
Magnolia, MS 39652
don.smith@msstate.edu

"Pike County is one of the most beautiful places in Mississippi. The sunsets are astounding, and one is sure to find some of the best qualities of life here."

DON SMITH,
MSU Extension County Coordinator

County seat:	Magnolia
Population:	40,324
Municipalities:	Magnolia, McComb, Osyka
Communities:	Chatawa, Fernwood, Holmesville, Kirkville, Progress
Industries:	healthcare, agriculture, paper, lumber, construction, manufacturing
Natural resources:	minerals, water, forest
Attractions:	McComb Railroad Museum, Percy Quin State Park, Quail Hollow Golf Course, Bogue Chitto Water Park, Pike County Courthouse, Southwest Mississippi Community College, Fernwood Country Club, many murals and historic homes
History notes:	Established in 1815, Pike County is known as one of Mississippi's original counties. It was formed from Marion County as an act of the Territorial General Assembly. Pike is named after explorer and U.S. Army officer Zebulon Pike. A few years after the county was founded, Colonel Henry Simpson McComb, then president of the New Orleans, Jackson, and Great Northern Railroad, decided to build a railroad maintenance shop in McComb, which was the start of the railroad industry in the area. During the 1960s, Pike County played a big part in the Civil Rights Movement. The Student Nonviolent Coordinating Committee held its first voter registration project in the county.
Did you know?	McComb is the birthplace of artists such as Bo Didley, Brandy Norwood, La'Porsha Renae, Britney Spears, and King Solomon Hill.

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

NewsNotes


Burger

Dr. Wes Burger was named dean of the College of Forest Resources (CFR) and director of the Forest and Wildlife Research Center (FWRC). Burger is a W. L. Giles Distinguished Professor of Wildlife Ecology in the Department of Wildlife, Fisheries, and Aquaculture. He also is a John Grisham Master Teacher and a 2016 recipient of the Ralph E. Powe Excellence in Research Award.


Willard

Dr. Scott Willard was named dean of the College of Agriculture and Life Sciences (CALS) and director of the Mississippi Agricultural and Forestry Experiment Station (MAFES). Willard served as head of the Department of Biochemistry and Molecular Biology and interim head of the Department of Entomology and Plant Pathology and later oversaw the merger of these departments. He became CALS associate dean in 2013.


Bullard

Dr. Steve Bullard stepped out of retirement to become the new CFR associate dean and FWRC associate director. Before retiring from MSU in 2004, Bullard rose through the professorial ranks and then served as interim head of the Department of Forestry and Department of Sustainable Bioproducts. After his retirement, he served as chair of the University of Kentucky Department of Forestry and dean of the Stephen F. Austin State University Arthur Temple College of Forestry. Bullard was later provost and vice president of academic affairs at Stephen F. Austin.


Sparks

Dr. Darrell Sparks, associate professor in the Department of Biochemistry, Molecular Biology, Entomology, and Plant Pathology, has been named CALS associate dean. Sparks also serves as the interim state chemist and director of the Mississippi State Chemical Laboratory.


Catchot

Dr. Angus Catchot, Extension professor in the Department of Biochemistry, Molecular Biology, Entomology, and Plant Pathology, has been named associate director for the Mississippi Agricultural and Forestry Experiment Station in charge of operations.


Martin

Dr. Steve Martin, former associate director for Extension's agriculture and natural resources programs, is now associate director for county operations. He leads all programmatic efforts of Extension at the county level and oversees the regional Extension coordinators, Center for 4-H Youth Development, Office of Nutrition Education, Mississippi Homemaker Volunteers, MSU Horse Park, and Boll Weevil Program.


Woodrey

Dr. Mark Woodrey, an assistant research professor and MAFES scientist at the Coastal Research and Extension Center, was selected for a U.S. Fish and Wildlife Service Regional Director's Honor Award for his work with the Gulf of Mexico Avian Monitoring Network.


Harvey

Dr. Lorin Harvey is the new MSU Extension sweetpotato specialist and MAFES scientist. Harvey earned a bachelor's degree in agronomy from Iowa State University, as well as master's and doctoral degrees in plant breeding and genetics from Texas A&M University. He completed postdoctoral work at the MAFES Pontotoc Ridge-Flatwoods Branch Experiment Station.


McLaughlin

Dr. Ron McLaughlin, College of Veterinary Medicine (CVM) associate dean for administration, was named president-elect of the American College of Veterinary Surgeons. He served the college as chief of surgery, hospital director, and head of the Department of Clinical Sciences before being named associate dean in 2015.


Reddy

Dr. Raja Reddy, a William L. Giles Distinguished Professor in the CALS Department of Plant and Soil Sciences and MAFES scientist, was elected to serve a consecutive second term as president of the Mississippi Academy of Sciences—a first in the history of the organization.


Simpson

Dr. LaShan Simpson, an associate professor in the CALS Department of Agricultural and Biological Engineering, won the Biomedical Engineering Society's Diversity Lecture Award, which recognizes impactful contributions toward improving gender and racial diversity in the field.


Mulvaney

Dr. Michael Mulvaney is the new Edgar E. and Winifred B. Hartwig Endowed Chair in Soybean Agronomy in the CALS Department of Plant and Soil Sciences. Mulvaney joins MSU after serving as a cropping systems specialist at the University of Florida.


Shmulsky

Dr. Rubin Shmulsky, Warren S. Thompson Professor of Wood Science and Technology and head of the CFR Department of Sustainable Bioproducts, has been named a fellow of the International Academy of Wood Science.


França

Dr. Tâmara França, assistant professor in the CFR Department of Sustainable Bioproducts, was selected as a woman ambassador of wood science by the Society of Wood Science and Technology. The Women Ambassadors Creating the Future of Wood Science program encourages women to pursue careers in wood science and technology.


Chambers

Dr. Jan Chambers, a William L. Giles Distinguished Professor and director of the CVM Center for Environmental Health Sciences, was named a fellow of the American Association for the Advancement of Science biological sciences section.


Staggers

Will Staggers, director of development for CALS, Extension, and MAFES, was appointed to the National Agricultural Alumni and Development Association board of directors.

DevelopmentCorner

MSU Extension Prepares

4-H HomeGrown Scholarship Campaign

Harry Martin helped create the blueprint for major industrial and economic development in Lee County, and now he is laying another foundation for something big—this time for a Mississippi 4-H statewide scholarship campaign.

Martin partnered with the MSU Extension Center for 4-H Youth Development to establish the Harry Martin 4-H Youth Leadership Endowed Scholarship for Lee County 4-H'ers. His support was recognized in September 2021, when he was presented a commemorative football during the game between MSU and North Carolina State University.

Now, Extension is introducing the Mississippi 4-H HomeGrown Scholarship fundraising campaign to create a similar endowed scholarship for 4-H'ers in the remaining 81 counties. A gradual rollout of the program will begin in 2022.

"The setup will be similar to a GoFundMe, and you can donate to whatever county you choose," says Dr. Linda Mitchell, interim head of the 4-H center and Extension coordinator for the northeast region. "You can donate a dollar here or $10 there; you won't need large amounts of money to participate. We encourage past 4-H members, club leaders, and volunteer leaders to donate. It's a great opportunity for everyone to participate and support 4-H."

Mitchell said she was encouraged to hear of interest in the new scholarship program even before its official launch.

"I have spoken to a lot of people already, especially the 4-H'ers, who want to give back and donate, so they can feel like they are helping younger 4-H'ers like people helped them," she said. "I've already had several people tell me they want to donate because it's something they can do now."

While Martin committed more than the required $25,000 minimum to endow the scholarship for Lee County, anyone will be able to donate online to endowments for other counties once the campaign is launched.

Each year, Martin's scholarship will be awarded to a 4-H member from Lee County or an adjacent county. The student must be enrolled in the MSU College of Agriculture and Life Sciences or College of Forest Resources.

Martin himself was the beneficiary of a 4-H scholarship. He enrolled at what was then Mississippi State College in 1942 as a 16-year-old, but his service in World War II interrupted his studies. Martin graduated in 1948 with a degree in agricultural administration.

After a stint as an assistant Extension agent in Lee County, Martin was named head of the Community Development Foundation, the economic development organization for Tupelo and Lee County, in 1956. During his 43 years at the helm of the foundation, 226 manufacturing plants located there, and the organization's budget grew from $40,000 to $1 million upon his retirement in 2000.

Martin said his experiences in 4-H and as an MSU student were instrumental in his eventual success steering industry to northeast Mississippi.

"My pipeline to Mississippi State was through my 4-H activities. The people at the university that admitted me stayed with me and directed me down a course to a job where I helped Lee County become the No. 1 industrial county in the state," he said. "I hope this scholarship will help another student with that kind of potential finish school the way my scholarship helped me."

If you're interested in contributing to your county's scholarship fund, contact your MSU Extension county agent. You may also contact Will Staggers at (662) 325-2837 or wstaggers@foundation.msstate.edu or Lacey Gordon at (662) 325-3612 or lgordon@foundation.msstate.edu.

BY NATHAN GREGORY

Harry Martin (center) partnered with the MSU Extension Center for 4-H Youth Development to establish a 4-H youth leadership endowed scholarship bearing his name. His support was recognized in fall 2021 when he was presented a commemorative football during the football game between MSU and North Carolina State University. Also pictured are his daughter, Janet Martin (left), 4-H State President Savana Ashley, past 4-H State President Conner Hidalgo, and 4-H center interim head Linda Mitchell. (Photo by Michaela Parker)

> "You won't need large amounts of money to participate, and it will be opened up for past 4-H members, club leaders, and volunteer leaders. It's a great opportunity for everyone to participate and support 4-H."
>
> DR. LINDA MITCHELL

JIMMY KIGHT
Director of Development
College of Veterinary Medicine
(662) 325-5893
jkight@foundation.msstate.edu
vetmed.msstate.edu

JEFF LITTLE
Senior Director of Development
Bulldog Forest
College of Forest Resources
(662) 325-8151
jlittle@foundation.msstate.edu
cfr.msstate.edu

WILL STAGGERS
Director of Development
College of Agriculture and Life Sciences
MSU Extension Service
(662) 325-2837
wstaggers@foundation.msstate.edu
extension.msstate.edu

LACEY GORDON
Assistant Director of Development
College of Agriculture and Life Sciences
MSU Extension Service
(662) 325-3612
lgordon@foundation.msstate.edu
cals.msstate.edu

MISSISSIPPI STATE UNIVERSITY™

DIVISION OF AGRICULTURE, FORESTRY, & VETERINARY MEDICINE

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Assistant dairy herder Colby Hardin checks on calves at the Mississippi Agricultural and Forestry Experiment Station's Joe Bearden Dairy Research Center. (Photo by Kevin Hudson)