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DAFVM

Annual Report

DIVISION OF AGRICULTURE, FORESTRY,
AND VETERINARY MEDICINE



TAKING CARE OF WHAT MATTERS

DAFVM *Administration*



MARK E. KEENUM

President

Mississippi State University



LOREN (WES) BURGER JR.

Dean

College of Forest Resources

Director

Forest and Wildlife Research Center



KEITH COBLE

Vice President

Division of Agriculture, Forestry,
and Veterinary Medicine



SCOTT WILLARD

Dean

College of Agriculture and
Life Sciences

Director

Mississippi Agricultural and
Forestry Experiment Station



ASHLI BROWN

Associate Vice President

Division of Agriculture, Forestry,
and Veterinary Medicine



NICHOLAS FRANK

Dean

College of Veterinary Medicine



GARY B. JACKSON

Associate Vice President

Division of Agriculture, Forestry,
and Veterinary Medicine



ANGUS CATCHOT JR.

Director

Mississippi State University
Extension Service



Dear friends,

You may have noticed a few new faces in our administration. In 2023, Nick Frank joined our team as the dean of the College of Veterinary Medicine when Kent Hoblet retired from the position after 17 years of service. Angus Catchot was selected to serve as the director of the Mississippi State University Extension Service, and many of you already know him from his nearly 20-year professional career at MSU. We have a strong team of deans and directors who are passionate and energized about the work we're doing.

Our administration understands the importance of teamwork in carrying out our land-grant mission of learning, service, and research, and you are a part of that team. Together, we are solving some of the biggest challenges facing the agricultural industry. Our faculty are doing groundbreaking work with fewer resources than our peers. We are ranked by the National Science Foundation as one of the top 15 agricultural and natural resources research institutions in the country. Every university ahead of us has at least 30 percent more faculty.

We're leading the way with new initiatives like launching the nation's first institute dedicated to agricultural autonomy to help our state's number one industry compete in a global market. In the fall of 2023, we welcomed a record class of first-time MSU students. As our state's leading university, we are training the next generation to fill the workforce needs of our state.

This report highlights our progress, but it's only a snapshot of the impact we're making throughout our state. I look forward to seeing all we accomplish together in 2024.

Thank you for your partnership!

KEITH COBLE
DAFVM VICE PRESIDENT

We are TAKING CARE OF WHAT MATTERS.

Division of Agriculture, Forestry, and Veterinary Medicine



Our six units embody Mississippi State University’s land-grant mission of teaching, research, and service.

COLLEGE OF AGRICULTURE
AND LIFE SCIENCES

CALS

cals.msstate.edu

We don’t just create leaders, we create changemakers. By providing hands-on learning experiences, we are preparing our students to solve the world’s most pressing challenges. Whether it’s feeding the world, conserving our environment, or curing diseases, we’re equipping the next generation of leaders with the skills they need to make a real difference.

COLLEGE OF FOREST
RESOURCES

CFR

cfr.msstate.edu

We help our students turn their passion for preserving the environment into successful careers. Our alumni are leaders working in state and federal agencies, the forest products industry, nonprofit organizations, and more—all with a shared commitment to protecting our natural resources for future generations.

COLLEGE OF VETERINARY
MEDICINE

CVM

vetmed.msstate.edu

We are global leaders in veterinary medicine with a focus on serving our state. Our world-renowned teaching hospitals and diagnostic labs annually manage more than 53,000 animals and conduct more than 430,000 tests. As one of only 33 fully accredited colleges of veterinary medicine in the nation, we offer our students the most hands-on training of any CVM.





MISSISSIPPI AGRICULTURAL
AND FORESTRY
EXPERIMENT STATION

MAFES

mafes.msstate.edu

We support the success of our state's largest industry at our 16 branch experiment stations throughout Mississippi. By studying agriculture in varying soil types, climates, and topography, we're making strides in improving crop and animal production systems, enhancing food safety and quality, and improving human health and well-being.

FOREST AND WILDLIFE
RESEARCH CENTER

FWRC

fwrc.msstate.edu

We're dedicated to finding innovative solutions to managing Mississippi's natural resources. From developing new technologies for manufacturing wood-based materials to improving forest production management practices, we're committed to protecting and enhancing the environment while supporting the state's hunters and fishers.

MSU EXTENSION SERVICE

MSUES

extension.msstate.edu

We're located in every Mississippi county where we help communities thrive, extend research-based information to producers, and empower people to make informed decisions. With five program areas covering 4-H youth development, agriculture, natural resources, family and consumer sciences, and government and community development, we offer something for everyone.



RESEARCH & EXTENSION CENTERS

- 1. Hiram D. Palmertree North MS Research & Extension Center VERONA
- 2. Delta Research & Extension Center STONEVILLE
- 3. Frank T. (Butch) Withers Central MS Research & Extension Center RAYMOND
- 4. Coastal Research & Extension Center BILOXI

MAFES BRANCHES & UNITS

- 5. North Mississippi Branch HOLLY SPRINGS
- 6. Pontotoc Ridge-Flatwoods Branch PONTOTOC
- 7. Northeast Mississippi Branch VERONA
- 8. Black Belt Branch BROOKSVILLE
- 9. Delta Branch STONEVILLE
- 10. Coastal Plain Branch NEWTON
- 11. E.G. (Gene) Morrison Brown Loam Branch RAYMOND
- 12. Truck Crops Branch CRYSTAL SPRINGS
- 13. South Mississippi Branch POPLARVILLE
- 14. Seafood Processing Lab PASCAGOULA
- 15. Prairie Research Unit
- 16. Beaumont Unit
- 17. White Sand Research Unit
- 18. McNeill Unit

MSUES UNITS

- 19. Crosby Arboretum PICAYUNE
- 20. MSU Horse Park STARKVILLE

CVM DIAGNOSTIC LABS

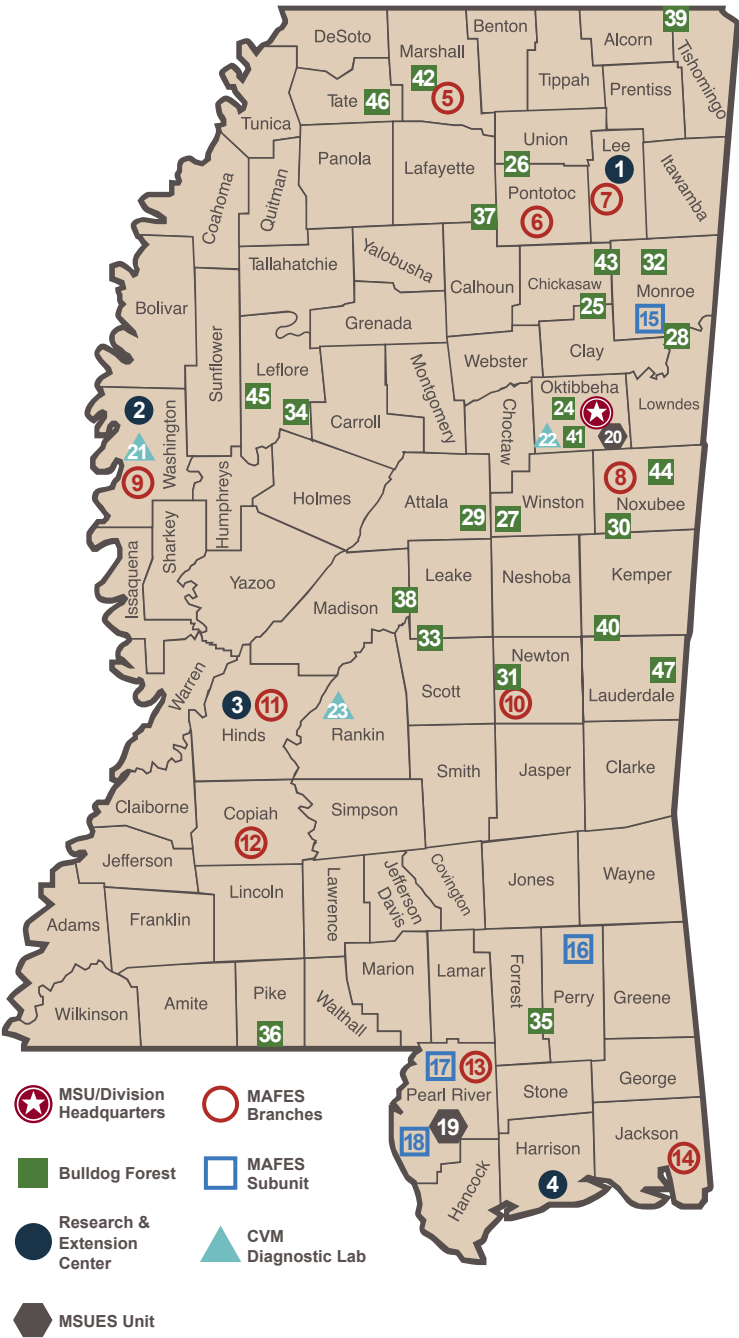
- 21. Aquatic Research & Diagnostic Laboratory STONEVILLE
- 22. CVM-Diagnostic Laboratory Services MSU
- 23. Research & Diagnostic Lab/ Poultry Lab PEARL

BULLDOG FORESTS

- 24. Andrews Forestry & Wildlife Laboratory
- 25. Brand Forest
- 26. Brooking Forest
- 27. C.M. Chafee Forest
- 28. Columbus Air Force Base Property
- 29. Gober Forest
- 30. Hall Timberlands Forest
- 31. Harris Forest
- 32. H.K. & J.K. Holloway Reserve
- 33. Col. K.D. Johnson Forest
- 34. McGeary Sidon Plantation
- 35. Mortensen Forest
- 36. Norma Lea O'Quin Forest
- 37. Phillips Memorial Forest
- 38. John & Jane Player Property
- 39. Sharp Forest
- 40. Shaw-O'Reilly Property
- 41. J.W. Starr Memorial Forest
- 42. Annie Seal Matthew-Porter Forest
- 43. Margaret Demoville Forest
- 44. The Triplett Forest
- 45. The Gulledge Forest
- 46. The Bowen Forest
- 47. Toomsaba Educational Forest

Three additional forests are unidentified at the request of anonymous donors.

DAFVM Map



An MSUES office is located in each of the 82 counties.

*I*nvesting in our faculty ensures they have the resources needed to provide the best possible education to our future leaders and to conduct relevant research to support industry in our state.

Currently, MAFES, MSUES, and CALS salaries fall **8% below** the regional average, and FWRC and CFR salaries are **6% below** the regional average. CVM must compete with salaries from the private sector to recruit and retain world-class faculty, but CVM salaries have historically been around **10% below** the regional average.

Additional support is needed to fund increases to the Public Employees' Retirement System of Mississippi.

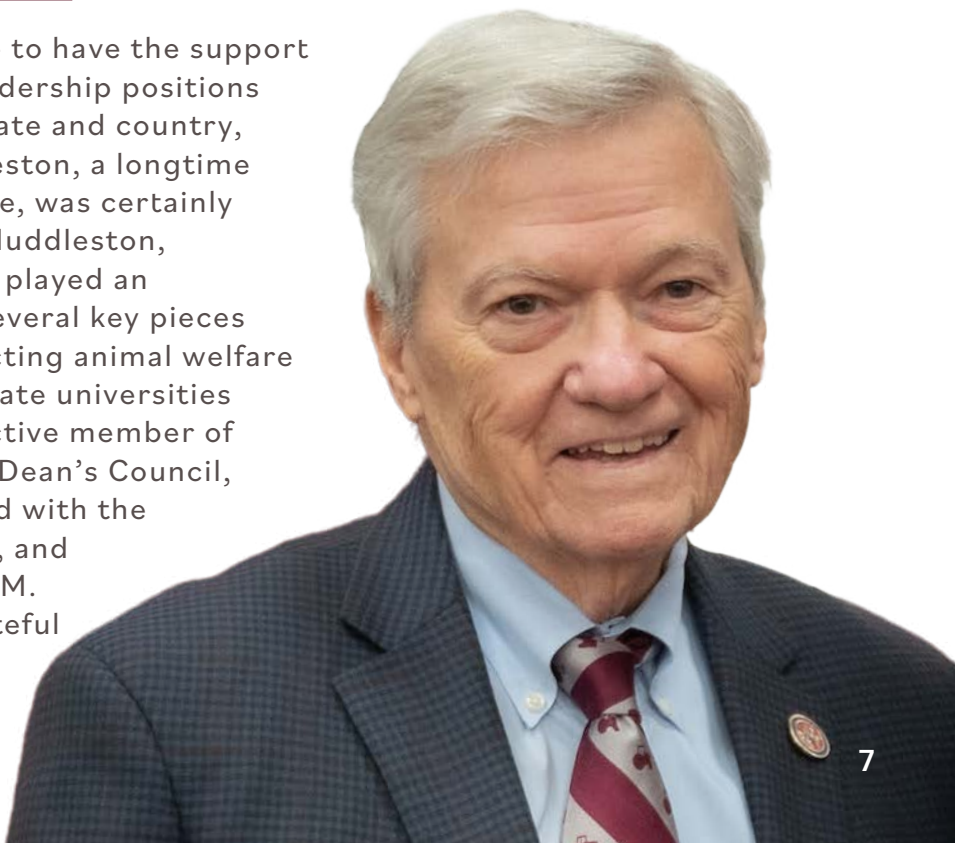
New funding will allow us to move closer to the Southern Regional Education Board average and provide facility, equipment, and technology upgrades.

TAKING CARE OF WHAT MATTERS

Remembering our friend,

DR. MAC HUDDLESTON
(1943-2023)

DAFVM is fortunate to have the support of individuals in leadership positions across our great state and country, and Dr. Mac Huddleston, a longtime state representative, was certainly one of them. Rep. Huddleston, also a veterinarian, played an important role in several key pieces of legislation impacting animal welfare and education at state universities and our CVM. An active member of the inaugural CVM Dean's Council, Huddleston assisted with the promotion, growth, and sustainability of CVM. We are forever grateful for his friendship and unwavering support.



ELEVATING *Our Communities*

You don't have
to be on MSU's
main campus to see
the impact we're
making.



We partner with communities statewide to support the agricultural and natural resources industries, train elected leaders and community stakeholders, and bring research-based education to everyone. Plus, MSUES offices are located in all 82 counties where our agents are connected with the communities they serve.

AIM for CHaNgE, short for Advancing, Inspiring, Motivating for Community Health through Extension, is making a difference in communities with high adult obesity rates. MSUES, MAFES, and CALS partner with local leaders and volunteers to create word art, storybook trails, and community gardens that encourage citizens of all ages to move more and eat healthier.

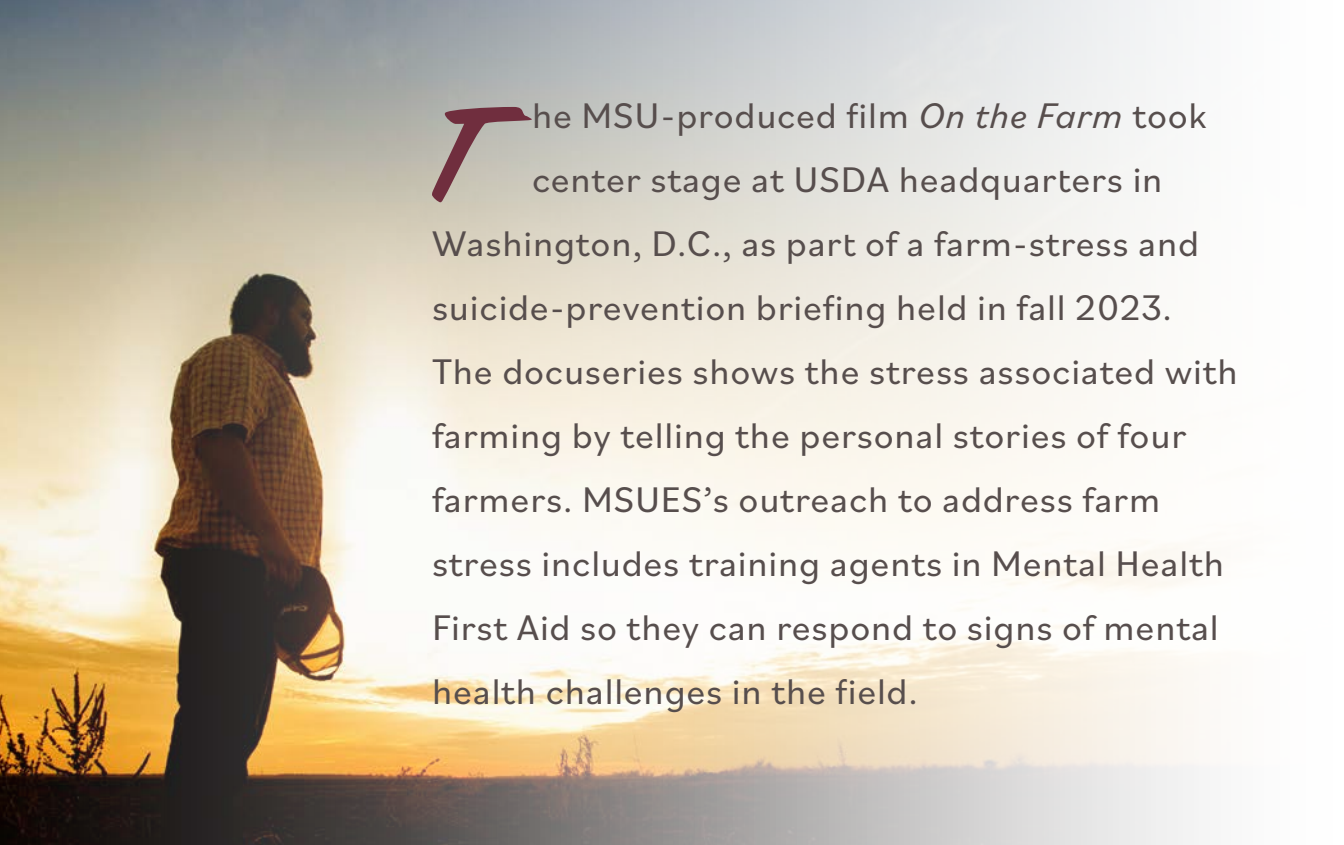
MSUES provided 280,000 consultations to business owners, community leaders, and elected officials in FY23.

The SipSafe project, backed by an Environmental Protection Agency grant and powered by MSUES professionals at the Mississippi Water Resources Research Institute, is on a mission to cut down lead exposure among children by testing water in daycare centers. Many older buildings still have lead water service lines and lead solder in their water pipes, and test results revealed the source of the lead contamination comes from the faucets, not from underground. The next steps are to replace the faucets that tested positive for lead.

The opening of CVM’s newly renovated and expanded Animal Emergency and Referral Center in Flowood provides additional patient examination and treatment areas, larger surgery suites, a full-time veterinary surgeon, and in-house physical rehabilitation services.

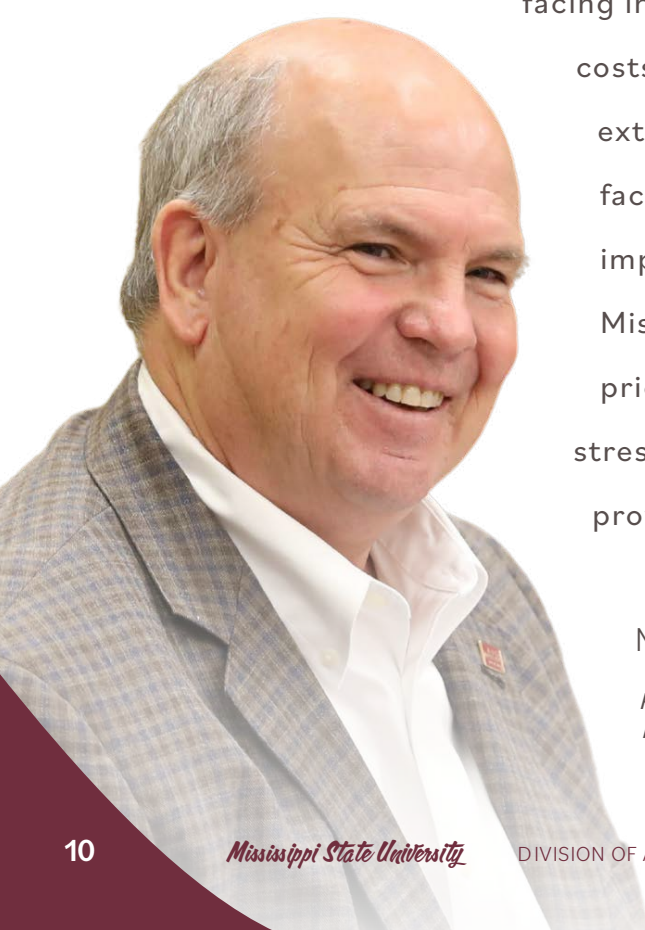
CVM continues to grow its Shelter Medicine Program, providing 8,000 spay and neuter surgeries across the state in 2023 to reduce euthanasia rates and the number of strays, while increasing the number of sterilized pets adopted. These efforts provide experience for Doctor of Veterinary Medicine (DVM) students who perform around 60 surgeries by graduation.





The MSU-produced film *On the Farm* took center stage at USDA headquarters in Washington, D.C., as part of a farm-stress and suicide-prevention briefing held in fall 2023. The docuseries shows the stress associated with farming by telling the personal stories of four farmers. MSUES’s outreach to address farm stress includes training agents in Mental Health First Aid so they can respond to signs of mental health challenges in the field.

TAKING CARE OF WHAT MATTERS



“Mississippi farmers and ranchers are constantly facing instability. Between market prices, input costs, and the weather, they are under extreme pressure. These uncontrollable factors create stress, which can seriously impact a person’s well-being. I appreciate Mississippi State University making it a priority to shed light on the impact of farm stress on our farmers’ mental health and provide resources for those seeking help.”

MIKE MCCORMICK

PRESIDENT OF THE MISSISSIPPI FARM BUREAU
FEDERATION



It's never too early to teach future leaders about our state's number one industry—agriculture!

Our colleges, research units, and outreach units teach Mississippi students how they play a role in the preservation and improvement of our state, while also helping them discover future job opportunities.

- Vet Camp
- CVM Open House
- Wood Magic Science Fair
- VetAspire
- Science Scholars Camp
- World Food Prize Foundation
- Mississippi Youth Institute
- Rural Medical & Science Scholars

GROWING *Leaders*

Learning goes beyond the classroom in CALS, CFR, and CVM where students explore their interests in real-world environments.



Top of Our Class

- In 2023, CALS celebrated 120 years of educating agricultural leaders in our state.
- CFR has Mississippi’s only nationally accredited natural resources educational program.
- CVM graduates have exceeded the national average passage rate for the North American Veterinary Licensing Examination for the past 9 years.

Students in plant and soil sciences now have access to a virtual greenhouse that allows them to learn how environmental settings such as light, temperature, and humidity impact plant growth.

Ensuring the success of small and mid-sized meat processing plants across Mississippi and the Southeast, the Meat Science Education and Training Apprenticeship, which benefits the community and MSU students, builds a capable workforce.

Recognizing the need for large animal veterinarians in rural areas, CVM began requiring an Enhanced Clinical Practicum program in 2023. Students spend two 4-week rotations providing large animal veterinary services at private practices in rural areas.

CALS hosted more than 600 students from 47 schools at the National Collegiate Landscape Competition, which started in 1977 at MSU and returned to its roots in 2023.

K-12 teachers are learning how to add poultry and food science instruction to existing curricula, introduce students to career pathways in these fields, and forge a university-driven support and mentorship system in our Agricultural Science Professional Development project, funded by the USDA National Institute of Food and Agriculture.

Transformative leadership opportunities like the Research and Extension Experiences for Undergraduates and the MSU/USDA Graduate Summer Research Experience program are supported by CFR and CALS faculty who are preparing MSU students for successful futures.



The Future of Farming Is Here!

We're committed to supporting producers by helping them operate with the cutting-edge technology that keeps them competitive.

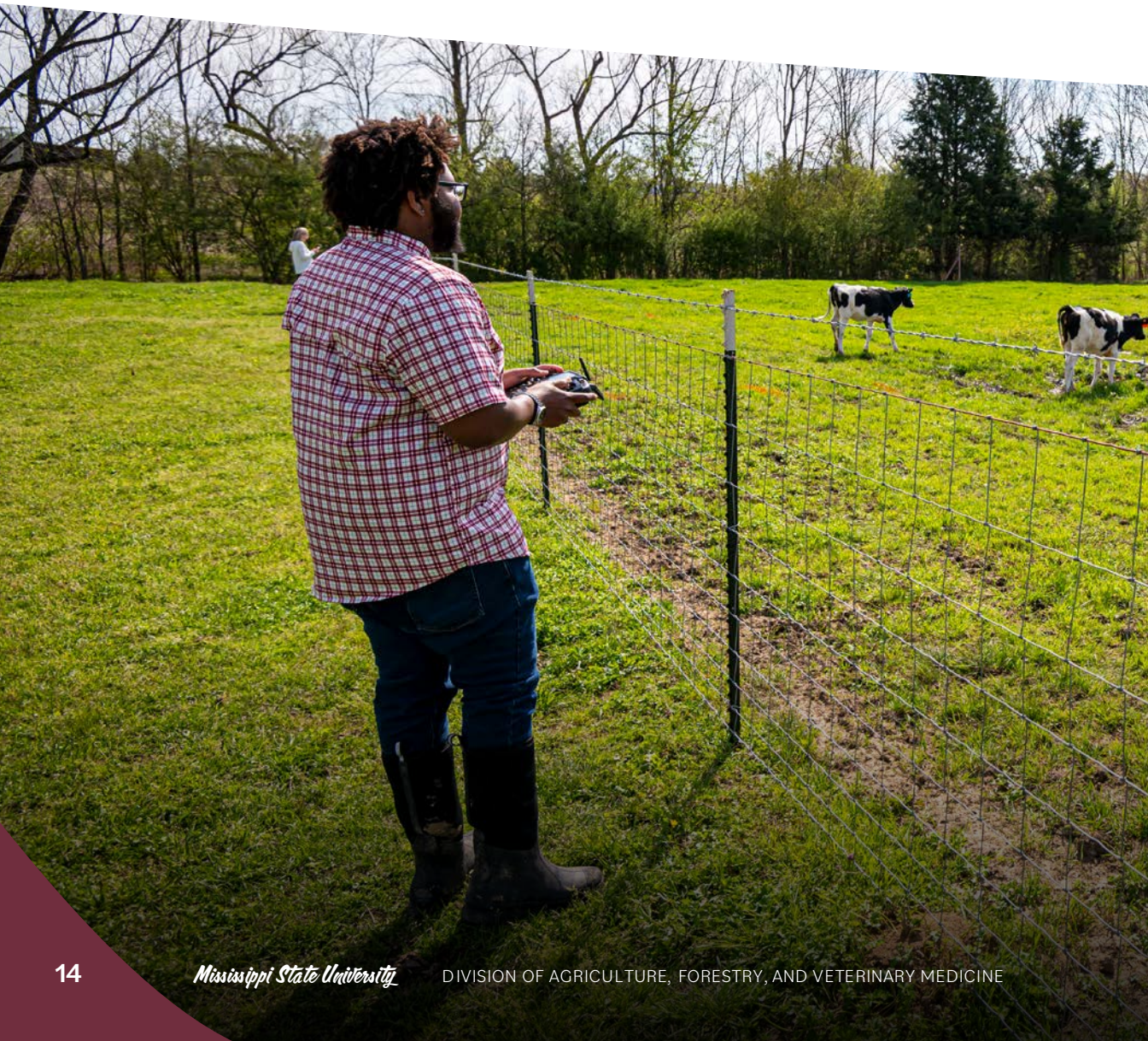
Data shows that the average age of farm workers in the U.S. is increasing because younger generations are not joining the industry. The lack

of labor is driving the move to autonomous systems that can multiply the productivity of a single farm worker.

The MSU Agricultural Autonomy Institute will focus on economic development and research, enabling the creation of new, technology-based startup companies with employees who understand the world of robotics,

mechatronics, and computer coding.

Pictured below, CALS faculty and MAFES scientists are collaborating with the MSU Center for Advanced Vehicular Systems and the Raspet Flight Research Lab to test a Clearpath Warthog Unmanned Ground Vehicle fitted with cameras and sensors to move livestock safely and more efficiently.



CALS assistant professors and MAFES scientists have developed a new way to harvest cotton. Inspired by the distinctive way a lizard's tongue reaches for its prey, the picking device plucks one cotton boll at a time, making earlier harvests—when cotton is at peak quality—possible.



MSU has launched the Agricultural Autonomy Institute—think self-driving tractors, cow-herding robots, and bug-spying drones.

STRENGTHENING *Our Bonds*

We value our
relationships
with our stakeholders.



Our ongoing communication

with the industries we serve gives us an inside perspective to ensure we conduct relevant research, prepare workforce-ready students, and serve our communities. By working together, we maximize our collective strengths and make progress for our state.

When tornadoes touched down in March 2023, the Mississippi Emergency Management Agency relied on DAFVM. MSUES conducted agricultural damage

assessments, helped clear debris and rebuild fencing, and coordinated donations and work relief teams. CVM students and faculty assisted local animal shelters with triage services and care for animals displaced by the storm.

Thousands attended the 35th biennial Mid-South Forestry Equipment Show, the longest-running, live, in-woods equipment demonstration in the South, hosted at MSU's John W. Starr Memorial Forest. The event is a partnership among the Mississippi Forestry

Association, the Mississippi Loggers Association, CFR, and MSUES to offer networking and educational opportunities for loggers, landowners, foresters, and equipment manufacturers.

FWRC scientists are collaborating with the Partnership for Gulf Coast Land Conservation to map out the best spots for land conservation along the Gulf Coast. The web-based software, developed by CFR faculty, was recognized by the U.S. Fish and Wildlife Service's Southeast Region.





MSU faculty, researchers, and outreach personnel are working with state and national agencies to address the Mississippi poultry industry's battle against highly pathogenic avian influenza (HPAI).

In late 2022 and early 2023, CVM's Mississippi Poultry Research and Diagnostic Laboratory (PRDL) diagnosed all the avian influenza cases that occurred in Mississippi within hours of specimens being brought to the lab.

Additionally, PRDL performs more than 100,000 HPAI serologic tests—about 2,000 each week—to satisfy preslaughter/processing requirements for broiler, breeder, and layer birds. MSUES agents educate owners of backyard flocks about biosecurity measures to keep their birds safe.




“MSU’s faculty and staff are involved in educating

both poultry companies and growers about the best research-based practices. The testing done by the College of Veterinary Medicine is a key factor in identifying HPAI and other poultry diseases to quickly prevent their spread.”

MARK LEGGETT

PRESIDENT OF THE MISSISSIPPI
POULTRY ASSOCIATION

 FR graduate students and
FWRC researchers developed
Mill Site, software that assesses
potential mill site locations by
factoring in raw materials, labor,
transportation, and electricity on a
county-by-county basis.

TAKING CARE OF WHAT MATTERS

“The Mill Site software is an excellent addition
to our economic development toolbox
that has helped attract new forestry
manufacturers to Mississippi. We are
confident this technology will help us
recruit even more manufacturers to
our state in the years to come.”

CASEY ANDERSON

EXECUTIVE DIRECTOR OF
THE MISSISSIPPI FORESTRY
ASSOCIATION



RESEARCHING *What Matters*

*Y*ear after year, the National Science Foundation ranks MSU as a top 15 institution for agricultural and natural resources and conservation research.



Our trusted scientists

are conducting research that improves efficiencies and increases yields for our farmers, supports our communities, and improves the sustainability of our resources for future generations.

CVM faculty have partnered with MAFES researchers to discover solutions for health issues that have long burdened the cattle industry, while simultaneously addressing the important issue of antimicrobial resistance. The MSU team is collaborating with scientists across the nation to investigate and address diseases like the bovine respiratory disease *Tritrichomonas foetus*, commonly called “trich,” and others that have significant economic impacts on beef production.

The MSU Deer Lab, housed within FWRC and MSUES, is studying how scrapes left by deer may document chronic wasting disease (CWD) before noticeable physical symptoms surface. The University of Minnesota and the MSU Veterinary Research and Diagnostic Lab are partnering with the Deer Lab to develop tests to detect CWD in samples gathered from scrapes.

Trusted partners in public and private research are:

- teaming with Cotton Inc. to design a tool that tackles herbicide-resistant weeds in cotton.
- conducting variety trials to provide unbiased, comprehensive information to assist farmers in making pivotal decisions about variety and hybrid plant selection and management.

- improving the sustainability and profitability of rice farming in the face of climate change.
- discovering how melatonin can help support cattle health and may be used to control animal body temperature.
- developing a high-tech tool to take the guesswork out of soil sampling and give farmers field-wide information from multiple points in time.
- participating in the National Institutes of Health-funded Clinical and Translational Research Scholars Program at the University of Mississippi Medical Center School of Medicine to understand antibiotic resistance, especially in bacteria shared between humans and their companion animals.



Taking Care of our State

DELTA RESEARCH AND EXTENSION CENTER

DREC

In the Mississippi Delta, cotton, corn, soybean, and rice production is valued at more than \$3.1 billion. But growers in the region face intense pressure from insects, weeds, and diseases, costing them hundreds of millions of dollars in control costs and losses every year. At DREC, entomologists, plant pathologists, and weed scientists are conducting innovative research to tackle these challenges. Through the *Crop Doctors* podcast and direct communication, DREC faculty provide producers and pest managers with non-biased applied research information to help them produce safe, sustainable, and affordable food and fiber.



CENTRAL MISSISSIPPI RESEARCH AND EXTENSION CENTER

CMREC

CMREC supports sustainable agriculture and producers by combining cover crops and grazing. This approach not only increases livestock weight but also minimizes environmental impacts. Ongoing research at the MAFES Coastal Plain Branch Experiment Station in Newton and the MAFES Brown Loam Branch Experiment Station in Raymond evaluates the soil benefits of using cereal rye as the cover crop treatment. Continued research aims to provide insights that can help improve profits for producers.



NORTH MISSISSIPPI
RESEARCH AND EXTENSION
CENTER



NMREC researchers are addressing virus, pest, and disease problems that jeopardize the sustainability of U.S. sweet potato seed programs. Collaborating with experts across the nation, the MSU-directed CleanSEED Project operates from the MAFES Pontotoc Ridge-Flatwoods Branch Experiment Station. Nationally, Mississippi ranks second in sweet potato production, with 29,500 acres of the crop valued at \$112 million in 2022. As one of six centers in the National Clean Plant Network for sweet potatoes, NMREC provides virus-tested, clean plant material to industry stakeholders.



COASTAL RESEARCH AND
EXTENSION CENTER

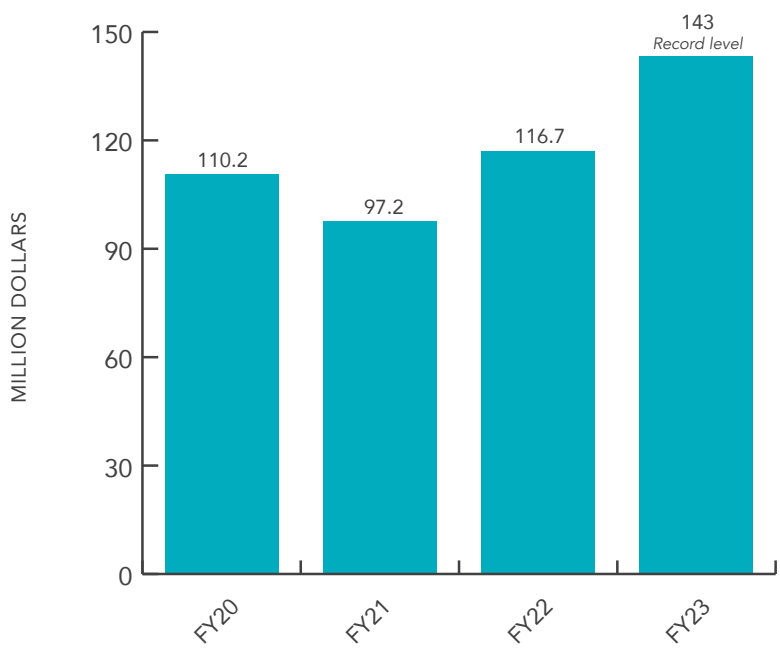


As one of the most productive ecosystems in the world, estuaries provide an abundance of resources to flora, fauna, and humans. Estuaries are also one of the most altered ecosystems in the world, with nearly 40 percent of the world's population living in coastal regions. CREC protects our state's coastline with the Mississippi Sound Estuary Program, which prioritizes and facilitates community-driven conservation, restoration, and stewardship of the Mississippi Sound.

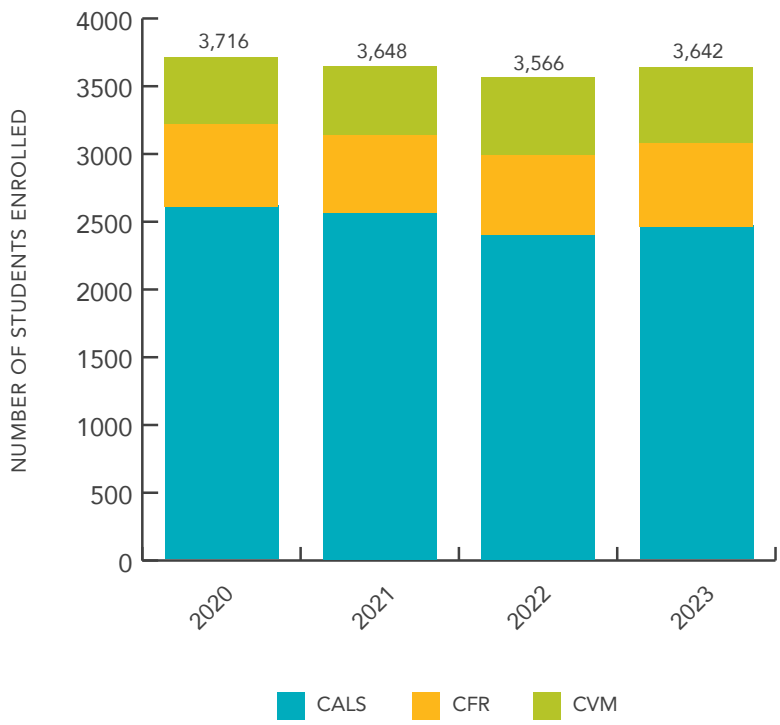


Budget Overview

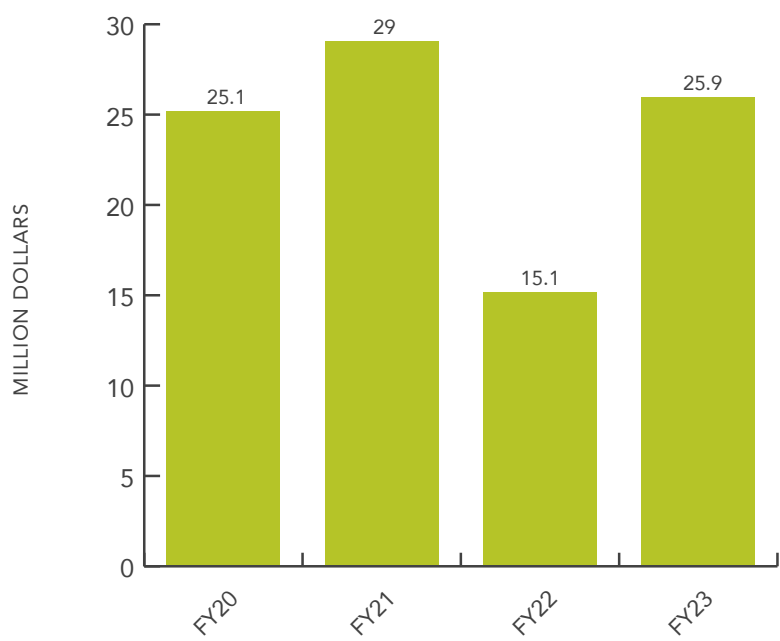
GRANTS & CONTRACTS RECEIVED



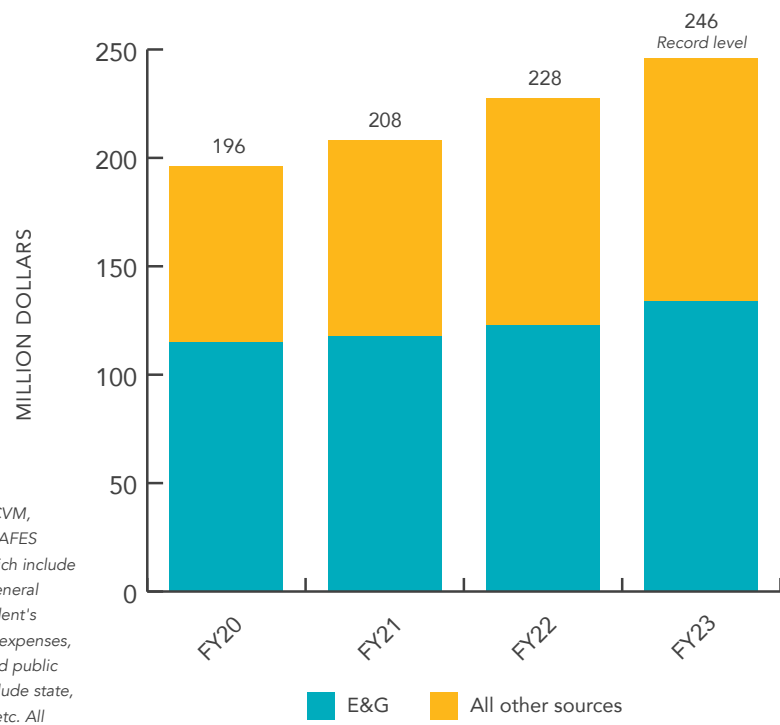
ENROLLMENT



PRIVATE CONTRIBUTIONS



TOTAL EXPENDITURES



This graph combines CVM, FWRC, MSUES, and MAFES E&G expenditures, which include the educational and general spending for each student's education and related expenses, organized research, and public service. E&G funds include state, federal, tuition, sales, etc. All other sources include restricted and designated funds.

MSUES agents and specialists provided 347,000 consultations throughout our state to help address row crop issues, livestock concerns, and conservation and landscaping questions.



51,000 Mississippi youths participated in MSUES 4-H programs in 2023—almost enough to fill Davis Wade Stadium!

As a global leader in aquaculture research, MSU is launching a new Gulf Coast Aquatic Health Laboratory affiliated with CVM and the Northern Gulf Aquatic Food Research Center affiliated with MAFES. These laboratories will protect our commercial and recreational fisheries, support the growth of aquaculture, and protect our natural resources.



CVM recently acquired a state-of-the-art 3.0 Tesla MRI unit that can produce exceptional 3D pictures of hard-to-image soft tissues like the brain, spinal cord, knee, and shoulder. The advanced images will assist with diagnosis and treatment plans to improve patient care.

Your gifts matter!

Private gifts help support students, recruit and retain the best faculty, and fund research that matters.

For more information about how private gifts impact Mississippi State University, visit **msufoundation.com**.



The Dr. P. Mikell and Mary Cheek Hall Davis Endowed Chair in Beef Cattle Herd Health and Reproduction provides funding for faculty and research to monitor disease, improve cattle health, and develop sound business models for beef production. The Davis couple's giving has also funded scholarships that support students pursuing degrees in veterinary technology and veterinary medicine.



MISSISSIPPI STATE UNIVERSITY™
DIVISION OF AGRICULTURE, FORESTRY,
AND VETERINARY MEDICINE

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