2024 Annual Report

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

DAFVM Administration

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Mississippi State University

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Division of Agriculture, Forestry, and Veterinary Medicine

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College of Forest Resources

Director

Forest and Wildlife Research Center

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Mississippi State University Extension Service

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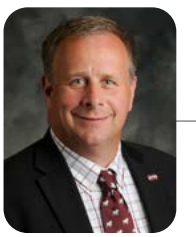
College of Veterinary Medicine



SCOTT WILLARD

Dean

College of Agriculture and Life Sciences

Director

Mississippi Agricultural and Forestry Experiment Station

Dear friends,

As we reflect on this past year, I am proud to share the accomplishments and progress we've made in shaping our state's future through Mississippi State University's Division of Agriculture, Forestry, and Veterinary Medicine.

Our fall 2024 enrollment reached a record-breaking milestone as DAFVM welcomed 3,778 students to the Colleges of Agriculture and Life Sciences, Forest Resources, and Veterinary Medicine. Our colleges' growth reflects our commitment to adapting to industry demands by making curriculum enhancements that equip our students for a changing world.

- Our landscape architecture department has added to its name to better reflect our mission to train students in resilience and sustainable design—the Department of Landscape Architecture and Environmental Design now offers two new concentrations to broaden career paths.
- We are also excited to introduce the Food Science Innovation Hub—supported, in part, by Reed Food Technology—that elevates MSU's leadership in food science education and research.
- The Mississippi Lumber Manufacturers Association's new endowed professorship in Innovative Wood Construction and Design will equip the next generation with cutting-edge knowledge in sustainable wood construction.
- Support from our state is helping us address producers' critical need for rural veterinary care across Mississippi.

Our relationships with private and public partners are essential to fulfilling our mission.

In addition to our record student enrollment on campus, Mississippi 4-H enrollment soared to nearly 70,000 participants! Through hands-on learning and leadership activities, these young people are building essential skills to be successful. From agricultural to STEM activities, young people are completing projects that spark their curiosity and give them real-world experience that will prepare them to join Mississippi's workforce.

As we look toward the future, our Vision 2030 initiative provides a collaborative roadmap for Mississippi's leading industries—forestry and agriculture. Through this project, we're working with our private and public partners to ensure our state's continued growth and resilience.

Thank you for your support and partnership in advancing our shared goals. It is our privilege to serve Mississippi and contribute to its success.

KEITH COBLE
DAFVM Vice President

Division of Agriculture, Forestry, and Veterinary Medicine

DAFVM

dafvm.msstate.edu

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 conserving 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 teaching hospitals and diagnostic labs annually manage more than 53,000 animals and conduct more than 400,000 tests. As one of only 30 fully accredited colleges of veterinary medicine in the nation, we offer our students the most hands-on clinical training of any CVM, with students spending 2 full years working with faculty clinicians in clinics and averaging more than 90 surgeries by graduation.

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

TAKING CARE OF WHAT MATTERS

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.

DAFVM Map

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
21. Jimmy Bryan 4-H Youth Complex WEST POINT

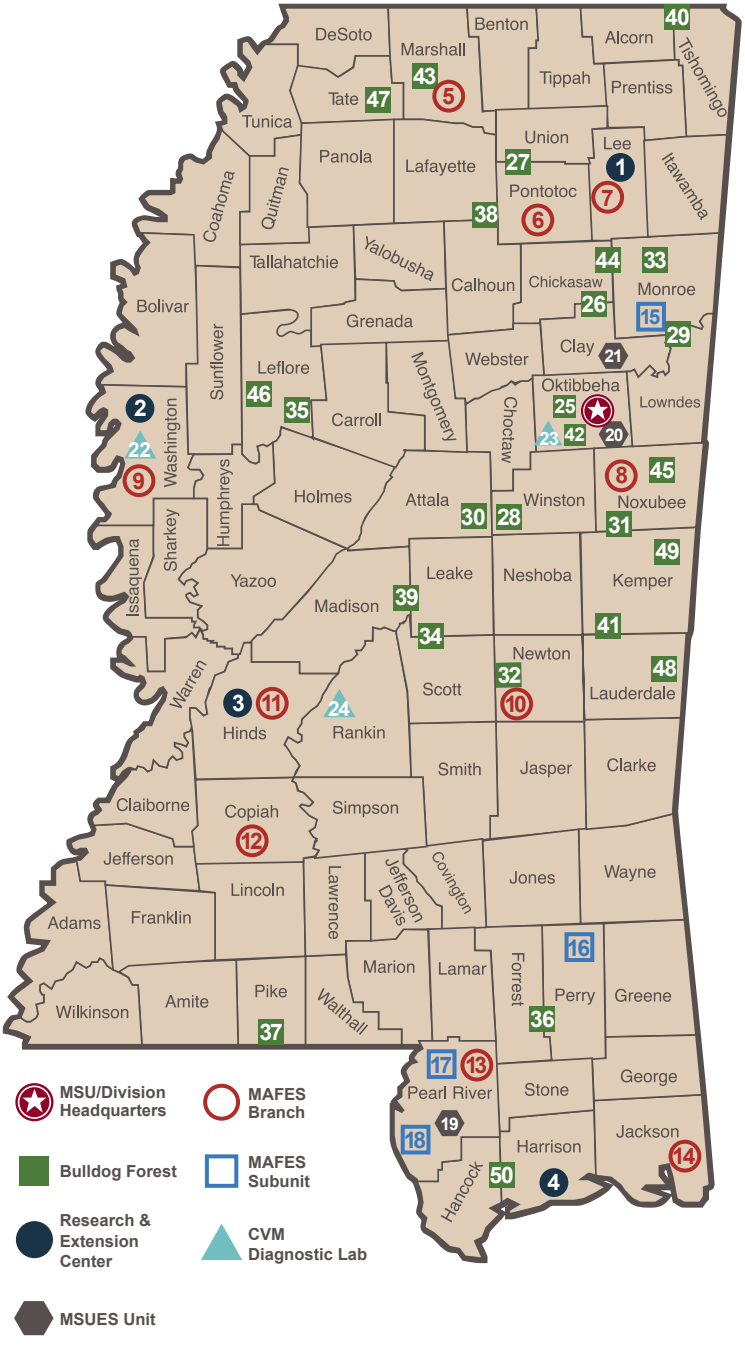
CVM DIAGNOSTIC LABS

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

BULLDOG FORESTS

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

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



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

TAKING CARE OF WHAT MATTERS

Dr. Elton Mac Huddleston Rural Veterinarians Scholarship Program supports rural veterinary medicine

Two decades ago, two girls growing up on family farms in rural Mississippi began learning the importance of agriculture and the value of hard work. Today, these women, Natalie Garcia of Waveland and Gabbi Walters of Pelahatchie, are both aspiring veterinarians and the inaugural recipients of scholarships funded through the Dr. Elton Mac Huddleston Rural Veterinarians Scholarship Program.

The program was made possible by a bill passed unanimously by the Mississippi Legislature in honor of Huddleston, a member of the Mississippi House of Representatives, a veterinarian, one of the first CVM faculty members, and an inaugural member of the CVM Dean's Council. The bill aims to address the state's rural veterinary shortage, and the scholarship covers in-state tuition and fees for Doctor of Veterinary Medicine degrees from CVM. Recipients must commit to practicing in a rural area of Mississippi for 4 years after graduation.

> "There is a true need for large animal veterinarians in our rural communities, and being there to help producers is something I'm very passionate about. I also want to be a veterinarian for FFA and 4-H livestock show animals to plant a seed in young minds about veterinary medicine and watch it grow." Gabbi Walters

> "Growing up on a cattle ranch not only pushed me to pursue veterinary medicine, but it also affected my career goals. The large animal veterinarian we use is over an hour away, and I want to be able to support animal agriculture within my community." Natalie Garcia

(L): Natalie Garcia
(R): Gabbi Walters

Leading AG INNOVATION

It's not just about advancing technology.

It's about ensuring our farmers have the *tools to succeed*.

MSU has teamed with John Deere to drive the future of farming through automation. The partners' new master research agreement, anchored in MSU's Agricultural Autonomy Institute, will accelerate advancements in autonomous technology to automate essential tasks like cotton production. Addressing skilled-labor shortages and boosting efficiency, the partnership aims to position Mississippi as a national leader in agricultural autonomy. MSU experts are at the forefront, working to make Mississippi the "Silicon Valley" of autonomous farming—attracting companies, fostering startups, and developing a skilled workforce.

Innovation meets practical application at the MSU Agricultural Autonomy Institute, revolutionizing how farmers manage crops with uncrewed aerial vehicles and next-generation spray techniques. Following the Federal Aviation Administration's streamlined application regulations for unmanned aircraft systems, MSUES, MAFES, and the institute hosted multiple training sessions throughout 2024 to introduce new spray drone techniques for unmanned aircraft systems.

MAFES scientists are pioneering a robotic system to automate blackberry harvesting, a labor-intensive process usually done by hand. By creating an AI-powered system that detects and locates ripe berries, the team aims to increase efficiency for this high-value crop.

By researching drought-resistant soybeans and soil-health sensor systems, MAFES scientists are ensuring farmers maintain productivity and economic viability as they face climate change challenges.

MAFES scientists are using uncrewed aerial vehicle technology to detect and manage off-flavor in catfish ponds to stabilize the aquaculture market and reduce production costs for U.S. catfish farmers.

"We depend on MSU for their critical research contributions and student education. By working together, we ensure the growth of our industry, while fostering innovation and preparing the next generation of leaders. Our latest partnership with MSU will enhance demand for mass timber through an endowed professorship to ensure that Mississippi's future architects, engineers, and builders have the knowledge and skills to lead in this rapidly growing field. This investment benefits our state's economy and supports sustainable practices that will have a lasting impact on Mississippi's lumber manufacturers."

Ellery Jones

EXECUTIVE DIRECTOR
MISSISSIPPI LUMBER
MANUFACTURERS ASSOCIATION

Ranked 11th

BY THE NATIONAL SCIENCE FOUNDATION IN AGRICULTURE AND NATURAL RESOURCES AND CONSERVATION RESEARCH

"Cattle ranchers and farmers in the state heavily rely on Mississippi State University for agricultural research and on Extension to implement and deliver that knowledge to our farms and ranches. We depend on those efforts to improve our land and herds."

Mississippi Senator Andy Berny

MISSISSIPPI CATTLEMEN'S ASSOCIATION
EXECUTIVE VICE PRESIDENT

MISSISSIPPI BEEF COUNCIL
EXECUTIVE VICE PRESIDENT

Supporting OUR STATE

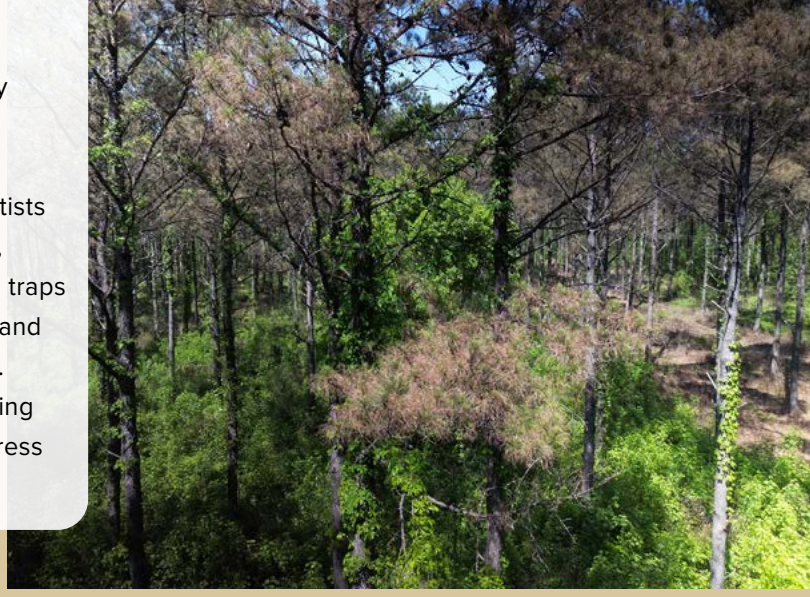
We're supporting our state's top industries by *creating solutions* to the toughest challenges.

FWRC is protecting Mississippi's natural resources with projects like the Mississippi Coastal Headwaters Protection Initiative, which conserves over 14,000 acres of coastal forests along the Wolf River in Harrison County.

FWRC scientists are addressing the threat of chronic wasting disease, or CWD, by using research to inform management efforts. Researchers discovered that prions left in deer "scrapes" can be used to detect CWD, allowing earlier intervention by wildlife managers to combat this fatal neurological disease.

Hundreds of producers, consultants, and industry professionals attend the annual Row Crop Short Course, hosted by MSUES and MAFES. Specialists share advancements in row crop production, helping farmers develop vital connections within the MSU community and gain valuable knowledge about the latest technologies.

Many of Mississippi's iconic loblolly pines are facing needle blight—a disease that kills pine needles—reducing tree health. MAFES scientists are leading research using drones, portable DNA tests, and motorized traps to identify the root of the problem and test solutions like controlled burns. MAFES scientists are also developing resources to help landowners address this problem.



CVM's Shelter Medicine program serves Mississippi animal shelters for free. The program provides students with hands-on experience, offering the majority of the 90 surgeries they average before graduation. Shelter Medicine also offers shelter management consultations to improve biosecurity and disease prevention.

The 55th Annual Dixie National Junior Round-Up surpassed $9 million in total sales, broke the record total number of champion market animals with 53, and set a new record sale total of $484,010. The grand champion steer shown by Tripp McGee of Jones County 4-H sold for $30,000, a new price record.

VISION

VISION 2030 is more than an idea—it's a collaborative roadmap for the future of Mississippi's agriculture and forestry sectors. This initiative unites industry leaders, policymakers, and MSU researchers to identify opportunities for growth and address critical challenges like labor shortages and infrastructure gaps.

Since its launch in June 2024, Vision 2030 has made progress toward creating a sustainable and innovative future for Mississippi.

Task forces focus on critical areas for Mississippi's agriculture and forestry industries:

- *The Specialty Crops Task Force* has identified high-value crops like sweet potatoes, blueberries, and pecans for growth and is exploring niche crops migrating from the water-stressed West. Workforce development, infrastructure improvement, and market expansion are also top priorities.
- *The Artificial Intelligence (AI) Task Force* is exploring ways of educating Mississippi's workforce on how to leverage AI, especially in agriculture, and ensuring responsible implementation. Home to the nation's first institute dedicated to agricultural autonomy, MSU is poised to lead in this area.

2030

- *The Population Change and Community Vitality Task Force* is addressing how changes in Mississippi's population, including decline, growth, and stability, affect the agriculture and forestry industries and communities, to ensure alignment with demographic trends and community needs.
- *The Conservation and Climate Resiliency Task Force* is addressing Mississippi's range of environmental challenges. The group aims to guide the state's agriculture and forestry industries to advance sustainable practices, address conservation challenges, and ensure that agriculture and forestry can thrive in the face of climate risks.

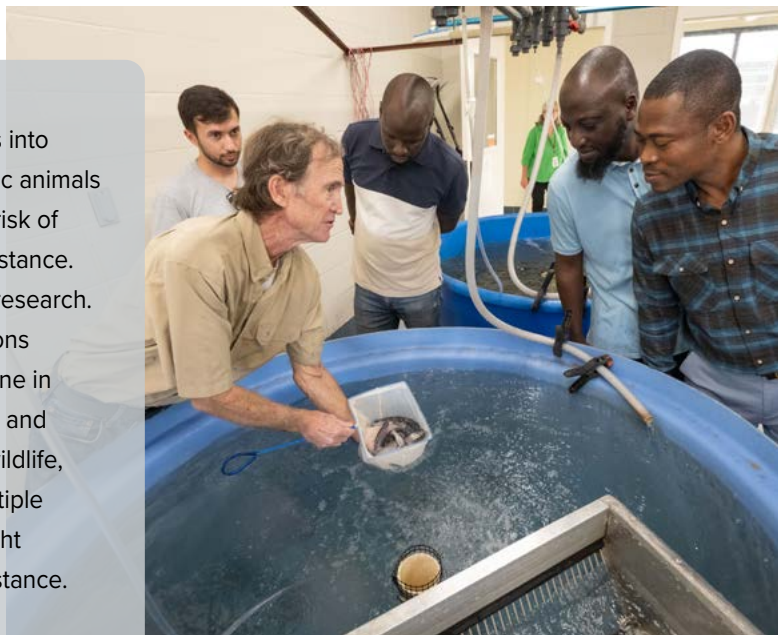
Other Vision 2030 initiatives include exploring cross-laminated timber, or CLT, as a sustainable building material. With 62% of Mississippi covered in forests, the timber industry could benefit significantly from CLT production and offer an eco-friendly alternative to traditional materials like concrete and steel.

Finally, a Vision 2030 economic impact study is underway to identify and address gaps in Mississippi's value-added processing capacity, ensuring that the wealth generated from natural resources remains within local communities.

Empowering FAMILIES AND COMMUNITIES

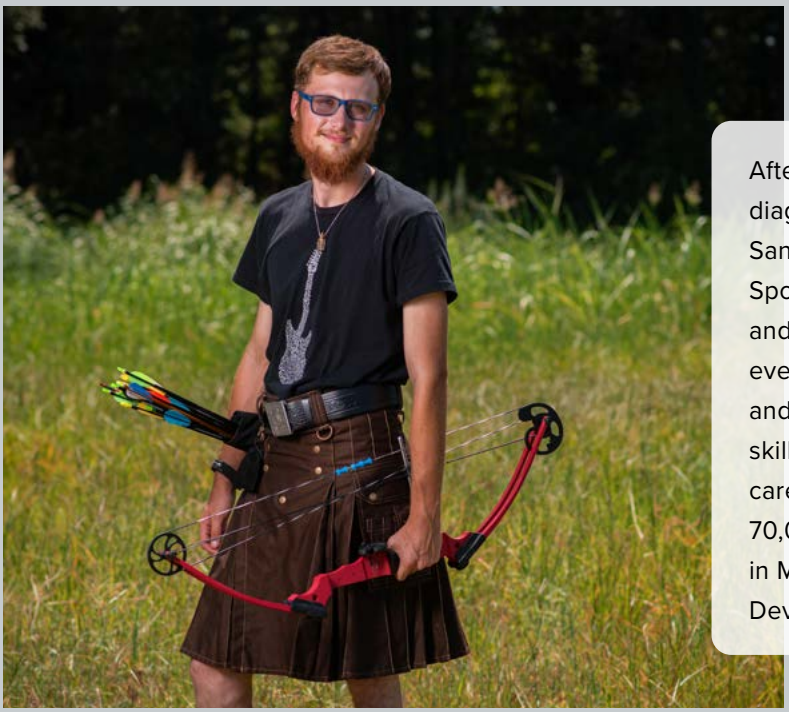
From our smallest rural towns to our largest cities, you can find us in all 82 counties *serving our state*.

In 2024, MSUES provided vital education to tornado survivors and former renters transitioning to homeownership in Rolling Fork. Venisha Carter, featured on *Good Morning America*, is now a homeowner. MSUES offers disaster-response services and support in every county in Mississippi.



As the human population grows and expands into natural habitats, people, wildlife, and domestic animals come into closer contact. This increases the risk of diseases and problems like antimicrobial resistance. MSU is at the forefront of this critical area of research. CVM is home to one of only four United Nations reference centers worldwide—and the only one in the U.S.—focused on antimicrobial resistance and aquaculture biosecurity. FWRC scientists in wildlife, fisheries, and aquaculture are evaluating multiple species to better understand which ones might contribute to the spread of antimicrobial resistance.

When Kash Barnett started preschool in Gulfport, he could speak only five words. But that's all changed at Gaston Point Head Start, managed and delivered by MSUES. Kash's mom credits her son's progress to the teachers and the program. Along with Head Start, MSUES offers many family and consumer education and well-being programs and reported approximately 354,000 contacts in 2024.



After his mother's cancer was diagnosed as terminal, Logan Sandifer joined 4-H Shooting Sports. Sandifer found focus and motivation in archery even after his mother's death, and now, he's using those skills to train for a professional career. In 2024, more than 70,000 youths participated in MSUES's 4-H Youth Development program.

Tourism facilitators in Hattiesburg, inspired by MSUES's Excellence in Tourism Leadership Program, are moving forward with Hattiesburg's "City of 100 Murals" project, a vibrant addition to the community.

"4-H was instrumental in shaping my life by building self-confidence, refining essential life skills, and fostering a love for learning. Through its diverse programs, I learned the value of community service, the importance of communication, and the courage to try new things. 4-H creates a safe, supportive environment where youth can challenge themselves, experience both success and failure, and grow from both. I'm incredibly grateful for the positive impact 4-H has had on my life and the role it continues to play in training the next generation of leaders in our state."

Mississippi Senator Nicole Boyd

DISTRICT 9, PANOLA AND LAFAYETTE COUNTIES

FORMER LAFAYETTE COUNTY 4-H'ER

"I appreciate what Mississippi State University does for production agriculture. The unbiased research from MAFES and the help from Extension are vitally important to our success on the farm. We consider the Division of Agriculture to be one of our most important partners in our efforts to be successful."

Ted Kendall IV

PRESIDENT OF THE GADDIS FARMS
BOLTON, MISSISSIPPI

Investing in THE FUTURE

Through innovative research, hands-on education, and strategic partnerships, we are building a *sustainable future* for Mississippi.

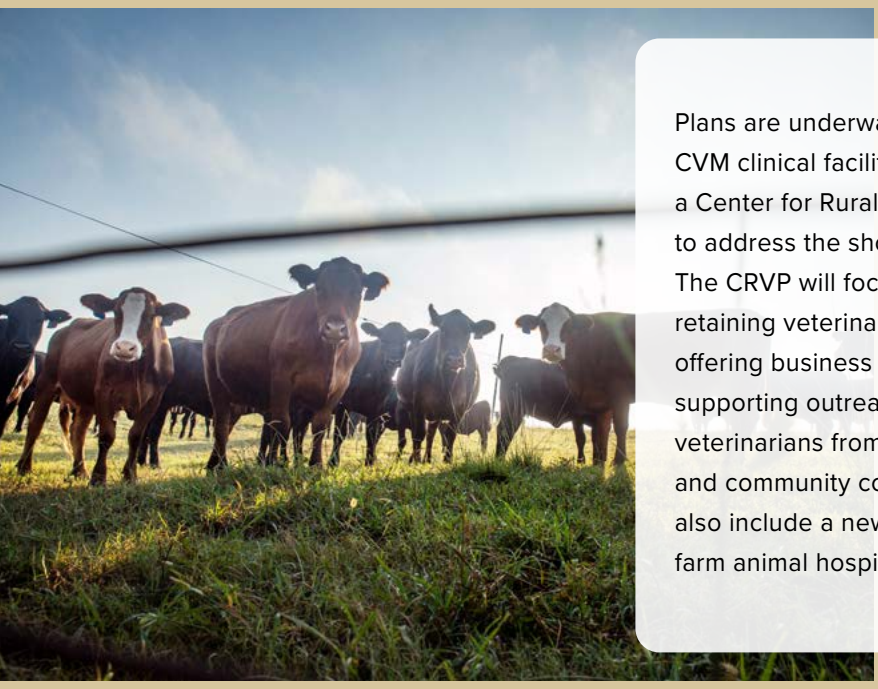
The renovated Ballew Hall that once housed the MSU Meat Laboratory will now serve as the headquarters for CALS and MAFES, providing modern spaces for *learning and leading*.

The new Livestock Judging Pavilion will serve as a hub for animal evaluation research.

An essential upgrade to the MSU Deer Lab will enhance FWRC work in wildlife conservation and protect white-tailed deer populations.

MSUES Equine-Assisted Services, which relocated to the Mississippi Horse Park in fall 2024, offers therapeutic riding experiences for children and adults facing special challenges. The program has also been instrumental in serving Mississippi's veterans, providing them with a unique form of rehabilitation and connection.

The new Food Science Innovation Hub strengthens our leadership in food science by enhancing research and education and fostering industry-wide collaboration. This Innovation Hub is supported, in part, by Reed Food Technology through the Reed Family Endowed Professorship.



Plans are underway to renovate and expand CVM clinical facilities, with the establishment of a Center for Rural Veterinary Practice, or CRVP, to address the shortage of rural veterinarians. The CRVP will focus on recruiting and retaining veterinarians for rural communities, offering business development training, and supporting outreach initiatives to engage future veterinarians from middle schools, high schools, and community colleges. Facility upgrades will also include a new cattle handling facility and a farm animal hospital.

CFR, in partnership with the Mississippi Lumber Manufacturers Association, has created an endowed professorship to teach innovative wood construction and design. This cross-disciplinary initiative emphasizes research and innovation in sustainable building practices to leverage Mississippi's rich natural resources for economic growth.

TAKING CARE OF *Our State*

DELTA RESEARCH AND EXTENSION CENTER

DREC

Delta farmers take water sustainability seriously. The National Center for Alluvial Aquifer Research, or NCAAR, at DREC is a partnership between MSU and the USDA-Agricultural Research Service. NCAAR coordinates MAFES and USDA-ARS research and MSUES activities that address water-related challenges in the Lower Mississippi River Basin. NCAAR scientists evaluate new technologies, identify ways to improve irrigation management strategies, and share research through MSUES and outreach efforts. The center's goal is to conserve water by reducing drawdowns from the Mississippi River Valley Alluvial Aquifer and lower input costs for growers.

CENTRAL MISSISSIPPI RESEARCH AND EXTENSION CENTER

CMREC

CMREC supports sustainable agriculture, producers, and communities by researching, developing, and supporting innovative ways to produce more fresh fruits, vegetables, and ornamental crops. Ongoing research at the MAFES Truck Crops Branch Experiment Station near Crystal Springs evaluates the benefits and challenges of using steam to control weeds and soilborne diseases in horticultural crops. This research will help producers improve control techniques and overall crop quality, increasing production of and accessibility to fresh fruits, vegetables, and ornamental plants, which can improve people's health and well-being.

NORTH MISSISSIPPI RESEARCH AND EXTENSION CENTER

NMREC

At NMREC, researchers are providing vital recommendations based on local research to help small vegetable farmers increase yields and income. Focused on crops like tomatoes, MAFES scientists study nutrient management—like how much nitrogen is needed for optimal production. Farmers receive guidance on when and how to add nutrients and water to maximize crop health and profitability. Additionally, new crop varieties are tested in Mississippi's climate to ensure farmers know which options perform best. This research strengthens the state's agricultural economy by supporting small-scale vegetable growers.

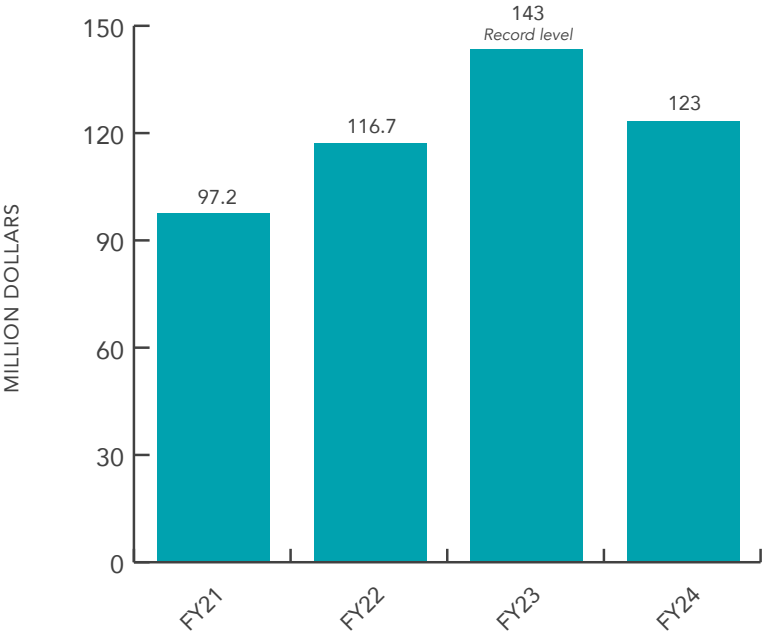
COASTAL RESEARCH AND EXTENSION CENTER

CREC

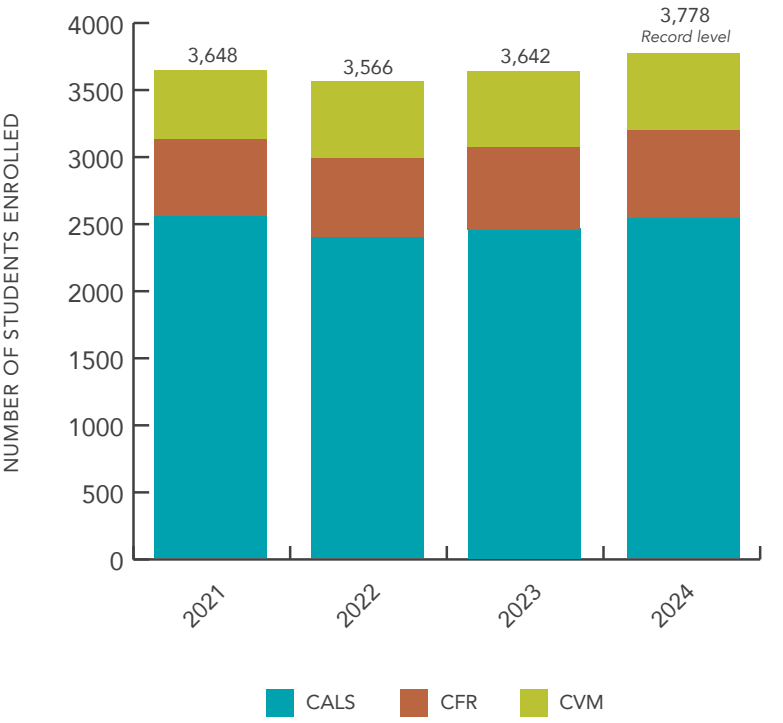
Red snapper is one of the most valuable—and controversial—fisheries in the Gulf of Mexico. In response to stakeholder concerns about the red snapper population, a team of MSUES fisheries scientists recently completed a study to generate a population estimate. Many methods were used, including habitat classification, depletion studies, and a tagging study, to learn more about the biology, abundance, and population density of red snapper in Mississippi. This effort included significant stakeholder engagement, led by a team from CREC.

BUDGET *Overview*

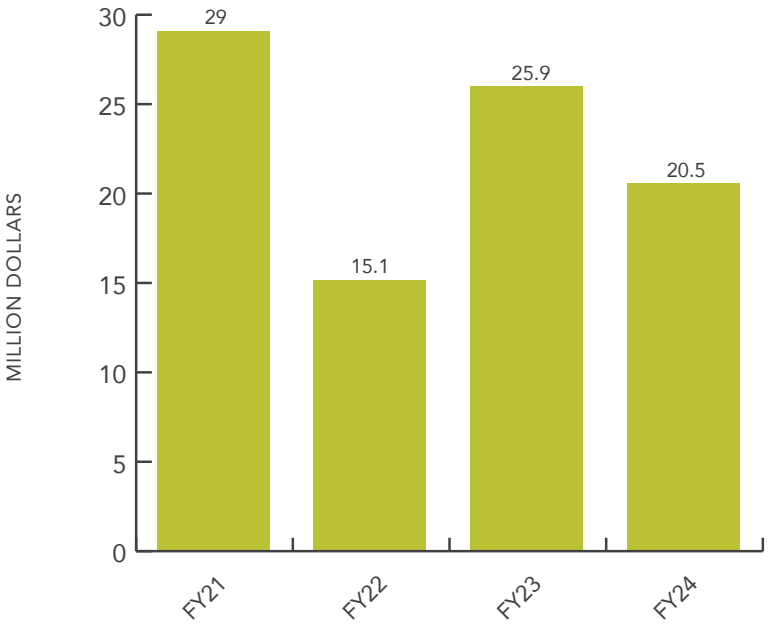
GRANTS & CONTRACTS RECEIVED



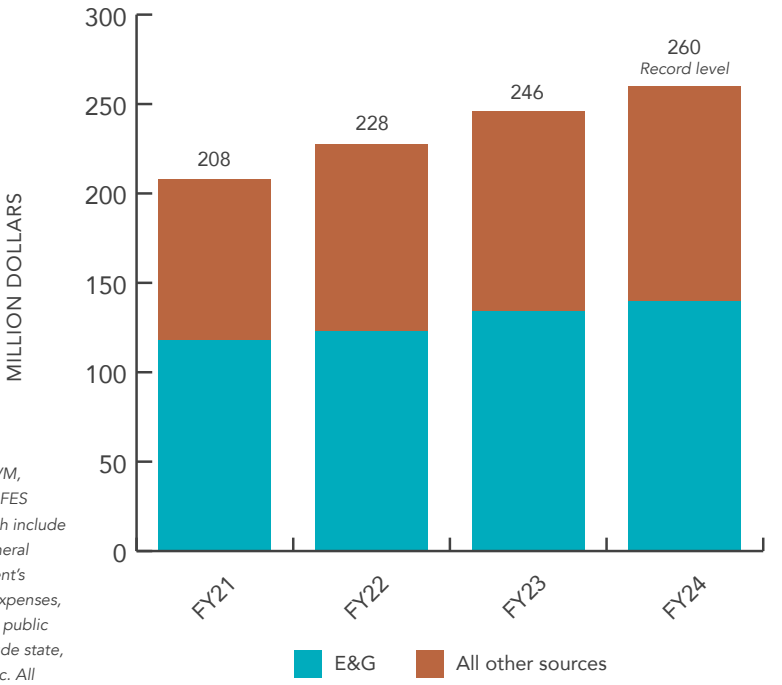
ENROLLMENT



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.

TRAINING STUDENTS FOR SUCCESSFUL CAREERS AND STRENGTHENING OUR *State's Future*

COLLEGE OF VETERINARY MEDICINE

Sarah-Ashlyn Barber, a first-generation Doctor of Veterinary Medicine major from Picayune, isn't afraid to get her hands dirty—whether wrangling cattle or caring for snakes. She says learning in MSU's animal and dairy sciences major gave her a solid foundation to enroll in CVM, where the hands-on experiences and one-on-one faculty mentorship have propelled her success. Barber credits her hometown for shaping her compassionate bedside manner, and after graduating in 2025, she plans to return to rural Mississippi to practice mixed animal veterinary medicine.

MISSISSIPPI STATE UNIVERSITY EXTENSION SERVICE

Harrison County 4-H'er Demi Johnson, just a freshman in high school, was recently invited to enroll in the Master Oyster Gardening Program. She's the first youth participant to earn this opportunity to do advanced oyster restoration work, and she plans to continue serving her community through 4-H as she completes her high school diploma. Demi's conservation work hit the national stage when she became a top 15 finalist in the National Geographic Slingshot Challenge.

COLLEGE OF AGRICULTURE AND LIFE SCIENCES

Theo Pollack, a senior from Maryland, chose MSU for its strong agricultural programs and Southern hospitality. As a CALS agricultural science major, he participated in a tarnished plant bug study and worked alongside MAFES researchers and local farmers. In the summer of 2024, Pollack worked for a crop consultant, solidifying his passion for the field. He plans to stay in Mississippi after graduation to pursue a career in crop consulting.

COLLEGE OF FOREST RESOURCES

When Nyla Jones visited MSU and connected with the CFR and FWRC faculty, she knew immediately that she was home and that studying forest resources was the right path for her. Drawn by its welcoming environment and positive reputation in forestry and natural resources, the Memphis native is majoring in natural resource and environmental conservation. After graduation, Jones plans to address critical natural resources challenges by working in environmental policy.

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. Rex Bushong Memorial Endowed Scholarship was established by Amanda Bushong in memory of her father, Dr. Rex Bushong, in 2020. This award goes to a full-time undergraduate student enrolled in the poultry science department who demonstrates academic achievement and financial need.

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

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