EVERYONE IN THE WORLD DEPENDS ON AGRICULTURE FOR SOME ASPECT OF DAILY LIFE.

It’s our privilege in the Division of Agriculture, Forestry, and Veterinary Medicine (DAFVM) to work with the people who produce our food, fiber, and fuel. Whether you love to eat, have a passion for fashion, or find yourself always on the go, these essential elements of life go beyond sustaining us. They provide unprecedented variety in the choices that make our lives enjoyable.

Each year, we reflect on key accomplishments within the division’s six units: the College of Agriculture and Life Sciences, the College of Forest Resources, the College of Veterinary Medicine, the Mississippi Agricultural and Forestry Experiment Station, the Forest and Wildlife Research Center, and the MSU Extension Service. It’s easy to celebrate the big wins—such as the $3.5 million grant from the Centers for Disease Control and Prevention for Extension’s Advancing, Inspiring, Motivating for Community Health Through Extension (AIM for CHangE) program, as well as the opening of our new Meat Science and Muscle Biology Laboratory. But it’s also important to acknowledge the incremental changes we accomplish by consistently showing up to do the daily work of research, teaching, and service. What unites DAFVM’s six diverse units?

STEWARDSHIP:

We offer significant returns on the investments made to fund our work. In addition to local, state, and federal funds, DAFVM units apply for and receive numerous grants. Many grants require matching funds, or in-kind support. Through these grants, we leverage taxpayer dollars to extend their impact. We are pleased to report that, for every $1 of state and federal funds, we generate an additional 89 cents in grants, contracts, and sales. We sell our agricultural products to help support our programs. From the milk produced by our dairy herd to the crops grown in our fields, we strive to maximize our financial opportunities.

COLLABORATION:

Partnerships are the cornerstone of our work. Within the university and with our valued collaborators in the public and private sectors, working together with like-minded organizations leverages our collective strengths for greater progress. We appreciate each gesture of support, from commodity boards funding our research to our partnership with the U.S. Department of Agriculture Agricultural Research Service to opening the West Farm in Stoneville. One highlight of my year was attending the ribbon cutting at the MSU Community Garden. For the 50 students and faculty and staff members selected to grow their own food, this space offers a micro-gardening experience in a living classroom that demonstrates sustainable practices to the public.

COMMUNITY ENGAGEMENT:

Traditionally, Extension provides the university’s most significant outreach efforts because it delivers research-based information to local communities through nonformal educational programs. MSU is growing in its efforts to engage students in community-related projects through its coursework, capstone projects, and volunteer opportunities. Efforts are currently underway to renew the university’s Carnegie Foundation for the Advancement of Teaching Elective Community Engagement Classification, and division efforts are a key part of the documentation required for reclassification. We believe the 4-H slogan “learn by doing” is a lifelong effort, and we are excited to support our students, faculty, and staff as they make a difference in communities across the state.

PLANNING:

From advisory boards and councils to engaged administrative teams, each DAFVM unit continues looking ahead. Our consistent enrollment growth demands state-of-the-art facilities to attract and retain the best students, faculty, and staff. We have expanded our footprint to include the new Animal and Dairy Sciences Building and began construction of the new Poultry Science Building. These projects will be followed by construction of new facilities on Blackjack Road to enhance research in the Department of Forestry and Department of Wildlife, Fisheries, and Aquaculture. The division received $4.2 million in the 2018 legislative session to construct these facilities. DAFVM representatives are actively engaged in MSU President Mark Keenum’s Committee on Planning that will update the State of Excellence plan to lay the groundwork for the university’s next decade. We are excited about the future!

With appreciation for your continued support,

Gregory A. Bohach
In 2018, the CALS Department of Poultry Science celebrated 70 years of research, teaching, and service in support of Mississippi’s largest agricultural commodity.

Poultry Science and the Department of Animal and Dairy Sciences will soon have new, state-of-the-art facilities. Construction is underway on a 34,500-square-foot Animal and Dairy Sciences Building planned for completion in 2019 and a 26,500-square-foot poultry science building planned for completion in late 2019.

In 2018, the MSU Community Garden launched its first official growing season as a place where participating students, faculty, and staff members can grow healthy food and conduct research and outreach.

CALS initiated programs in 2018 that prepare leaders to address state and national health challenges. The pre-health professions concentration in the Department of Food Science, Nutrition, and Health Promotion prepares students for medical school, while the graduate certificate program in clinical health promotion and wellness coaching includes hands-on learning in the Longest Student Health Center and a field-based internship in a regional Blue Primary Care Home clinic. The college also launched an online Master of Agribusiness Management concentration, which is designed to help nontraditional students earn advanced degrees through the MSU Center for Distance Education.

MSU and Nebraska College of Technical Agriculture administrators signed a cooperative agreement to train workforce entrants for the Midwestern state’s poultry industry. The program includes three semesters in Nebraska and one semester at MSU.

Many CALS students gained a better understanding of different cultures and agricultural management strategies across the globe as they studied abroad in Guatemala, Brazil, New Zealand, or the Netherlands. The college hosted the World Food Prize Mississippi Youth Institute, which allowed a dozen high-school students to engage in conversations about global food security with peers, teachers, food-security experts, administrators, and faculty members. Attendees, who are known as Borlaug Scholars, are eligible for MSU scholarships. Additionally, two agronomy graduate students were among 40 students selected worldwide to attend the Borlaug Summer Institute on Global Food Security.

Our internationally renowned faculty, award-winning students, and respected alumni continue to discover solutions to feed and clothe the world, improve health and wellness, and protect the environment.
MAFES

THE MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION (MAFES) IS THE ONLY STATE AGENCY TASKED WITH CONDUCTING ORIGINAL RESEARCH TO IMPROVE AGRICULTURAL PRODUCTION.

MAFES scientists work to improve food safety and quality. In 2018, researchers studied how biofilms—pathogenic bacteria cells that attach to surfaces—adapt, persist, and survive in food-processing environments. Food-science and fashion-design scientists partnered to design nets to protect dry-cured ham from mites.

In the Mississippi Delta, MAFES opened a new Alluvial Aquifer Water Research Center in collaboration with the U.S. Department of Agriculture Agricultural Research Service. The center studies agricultural water management in the South. MAFES scientists also study poultry litter use in alfalfa and legume cover crops to improve soil properties and nitrogen availability, which will enhance sustainable agricultural systems.

MAFES scientists work to improve human health and well-being by addressing cardiovascular disease, which causes one in four deaths in the U.S. Specifically, researchers study how vascular calcification affects individuals with diabetes and chronic kidney disease. Scientists have also received a patent for a football helmet that reduces the shock waves that cause traumatic brain injury and concussions.

The South Mississippi Branch Experiment Station in Poplarville, one of 16 branch stations, placed first in the All-American Selections 2018 Landscape Design Challenge in Category I: fewer than 10,000 visitors per year.

MAFES scientists remain dedicated to finding solutions that will increase agricultural yields and profits while minimizing environmental impacts. MAFES research is improving health, food security, and livelihoods in Mississippi and beyond.
In 2018, the MSU College of Forest Resources (CFR) had 601 students, a record enrollment that was up 2.9 percent from the previous year.

Majors include forestry, natural resource and environmental conservation, sustainable bioproducts, and wildlife, fisheries, and aquaculture. The nationally recognized college features the only 4-year natural-resources degree program in the state.

CFR students develop their skills on more than 30,000 acres known as the Bulldog Forest, which includes properties throughout Mississippi that serve as living laboratories. Additionally, the college’s sustainable-bioproducts facilities mimic commercial, industrial settings and give students a competitive edge.

CFR students continue to excel in all areas and bring national recognition and prominence to the university. The MSU student chapter of the Society of American Foresters is ranked first in the nation this year and has been one of the top three student chapters for the last 20 years. The MSU student chapter of the Forest Products Society was also named best in the nation in 2018.

Eleven students participated in the Undergraduate Research Scholars Program and engaged in meaningful research by working alongside faculty members. Ninety percent of students also receive on-the-job training by participating in the college’s professional experience program.

For the fourth consecutive year, CFR’s faculty, staff, and students worked with MSU facilities management to earn the Tree Campus USA designation, a recognition bestowed by the Arbor Day Foundation.

The college cohosted the Mid-South Forestry Equipment Show, the nation’s longest-running, live-in woods demonstration of forestry equipment, at the MSU John W. Starr Memorial Forest. The show, an opportunity to highlight forestry and forest products—Mississippi’s second largest agricultural commodity—attracted 7,048 participants and 91 exhibitors.

CFR trains future leaders in the conservation and management of forests, wildlife, and fisheries, while students and faculty discover new uses for products derived from natural resources. With more than 4,000 alumni leading conservation efforts throughout the world, an internationally renowned faculty, and exceptional students, CFR remains a preeminent program for students interested in making a difference in the environment.
The forest and forest-product industries contribute $12.8 billion to the state’s economy each year. An additional $2.7 billion is generated annually from hunting, fishing, and wildlife-viewing activities. Outstanding research conducted by FWRC scientists and students is integral in supporting these economic successes.

Forestry scientists find better ways to sustainably manage and utilize forest resources. A recent study focused on determining proactive measures to limit the destructiveness of pyro-terrorism, or arson-induced forest fires. While uncontrolled fires can be destructive, prescribed fire is an important management tool in Southern forests, creating favorable wildlife habitats while reducing forest fuel loads. Scientists work with landowners to determine the best fuel-reduction treatments. Landowners often are torn between managing their property for timber or wildlife, so forestry scientists developed models for various management scenarios that balance these goals.

Sustainable-bioproduct scientists developed Smart Thumper, an app available in the App Store, which helps consumers determine lumber strength and stiffness at the point of sale. Wood-preservation experts look to the industry’s next generation by evaluating naturally occurring wood tannins as a preservative. Scientists also study different types of wood and adhesives for making cross-laminated timber, an engineered wood product used in building construction.

As the research arm of the Mississippi Department of Wildlife, Fisheries, and Parks, the Department of Wildlife, Fisheries, and Aquaculture has an international reputation in researching wildlife populations and habitat management. This department turned 50 in 2018. The MSU Deer Lab, an FWRC and Extension partnership, was cited by the Quality Deer Association as conducting the best deer research in the nation. Scientists are also finding ways to help land managers produce and maintain high populations of quail on conservation lands. Scientists in the James C. Kennedy Chair of Waterfowl and Wetlands Conservation Program are evaluating marsh terraces—manmade ridges of soil constructed in shallow, open water areas of coastal wetlands—to determine their effectiveness and longevity.

The Center for Human-Wildlife Interactions, a partnership among FWRC, Extension, and the U.S. Department of Agriculture, uses drones to measure and manage crop damage caused by feral hogs. Scientists are also investigating American beaver ecology to help improve management practices.

Mississippi’s natural resources provide economic and environmental benefits for all citizens, and FWRC continues to advance management and conservation through research.
CVM is part of a consortium that assists in diagnosing and managing chronic wasting disease (CWD) in the state’s white-tailed deer population. Participating groups include the Mississippi Veterinary Research and Diagnostic Laboratory (MVRDL), a CVM unit in Pearl; the Mississippi Department of Wildlife, Fisheries, and Parks; and the National Veterinary Services Laboratory. Because CWD may have a significant impact on the state’s wildlife and tourism industries, the State Legislature provided funding for the only federally authorized testing, housed at MVRDL and staffed by CVM faculty members and technicians who have completed required training to conduct CWD tests. Initial testing of every sample collected in the state is performed at MVRDL, and suspected cases of CWD are sent to the National Veterinary Services Laboratory in Ames, Iowa, for official confirmation.

CVM is also part of an international initiative to reduce poverty. Dr. Mark Lawrence, former associate dean and a professor in the Department of Basic Sciences, was recently selected to lead a new consortium to help improve health outcomes in developing countries. Funded by a $15 million grant from the U.S. Agency for International Development, the Feed the Future Innovation Lab on Fish is not actually one specific laboratory; instead, it offers an interdisciplinary opportunity for academic, private, and public entities to identify and implement solutions to reduce poverty and improve livelihood, nutrition, and food security in Africa, Asia, and other developing regions. As part of the MSU Global Center for Aquatic Food Security, the new lab also conducts research to reduce and mitigate risks to fish-production systems.

In another project with international impact, CVM hosted students from the Makerere University College of Veterinary Medicine, Animal Resources, and Biosecurity. Students from Kampala, Uganda, traveled to Mississippi for the One Health and Tropical Veterinary Medicine Student Exchange Program, and they participated in an intensive 5-week course about clinical applications of veterinary medicine. To improve animal health—and, consequently, human health—in Uganda, Makerere University students were exposed to key components of disease surveillance, public-health systems, animal production and health management, and food safety and security.

As part of a modern land-grant institution, CVM is committed to making advancements in teaching, research, globalization, and community service. We are fulfilling our mission to provide higher quality of life for humans and animals.
COLLEGE OF VETERINARY MEDICINE
Extension agricultural specialists and agents assisted crop and livestock producers in expanding Mississippi’s $7.7 billion agricultural economy. In 2018, row-crop producers saved more than $40 million by applying insect-management solutions advocated by MSUES, and more than 4,000 individuals participated in MSUES training on restricted-use pesticides. MSUES irrigation programs reduced the amount of water that producers used to grow crops in 2018, saving them approximately $60 million as a result.

Extension’s Row-Crop Short Course attracted the most participants ever to attend: approximately 800 agricultural producers and stakeholders. In addition, the inaugural class of the Thad Cochran Agricultural Leadership Program completed its first year of studies in 2018. MSUES develops agricultural industry leaders and advocates.

MSUES forestry faculty and staff presented 2,105 programs, and landowners reported $2.8 million in value added to their land. With the recent confirmation of chronic wasting disease in Mississippi deer, MSUES is partnering with the Mississippi Department of Wildlife, Fisheries, and Parks to spread awareness, contain the disease, and prevent its spread to protect the $2.9 billion annually generated in Mississippi wildlife-related recreation.

The 4-H Youth Development Program, delivered by MSUES, continues to train and inspire tens of thousands of Mississippi youth people. With attendance at 2018 Mississippi 4-H Congress the largest ever, 4-H enrollment continues to grow. MSUES is growing our local communities, building relevant websites, and increasing access to government services and resources through digital media.

Additionally, MSUES family and consumer sciences programming offers Mississippians ways to improve their health. MSUES, with the Mississippi Public Health Institute and University of Mississippi Medical Center, was awarded a $5.5 million grant to help Mississippis battle obesity. Advancing, Inspiring, Motivating for Community Health Through Extension (AIM for CHangE) aims to increase access to healthier foods and reduce health disparities. AIM for CHangE principal investigator Dr. David Buys, MSUES state health specialist and assistant professor, was recently installed as president of the Mississippi Public Health Association.

With offices in all 82 Mississippi counties, MSUES continues delivering research-based, trustworthy information to Mississippis to extend knowledge and change lives.
RECORD PRIVATE GIFTS TO DAFVM UNITS IN FY 2018 TOTaled MORE THAN $31 MILLION, 62 PERCENT MORE THAN IN FY 2017.

GRANTS AND CONTRACTS AWARDED TO DAFVM EXCEEDED FY 2017 AND TOTaled ALMOST $85 MILLION, THE SECOND HIGHEST EVER.

MSU RANKED NO. 9 NATIONALLY IN FY 2017 RESEARCH AND DEVELOPMENT EXPENDITURES FOR AGRICULTURAL SCIENCES AND NATURAL RESOURCES AND CONSERVATION WITH A TOTAL OF $109 MILLION—45 PERCENT OF MSU’S TOTAL R&D EXPENDITURES.

THE ONE-STORY, 15,000-SQUARE-FOOT, $8 MILLION MEAT SCIENCE LAB, BUILT WITH STATE BOND MONEY, OPENED AUGUST 1, 2018.

THE $14 MILLION ANIMAL AND DAIRY SCIENCES BUILDING WAS NEAR COMPLETION IN DECEMBER 2018.


THE ENROLLMENT IN FALL 2018 WAS THE LARGEST EVER.

POINTS OF PRIDE

ENROLLMENT

DAFVM ADMINISTRATION

MARK E. KEENUM
President | Mississippi State University

GREGORY A. BOHACH
Vice President | Agriculture, Forestry, & Veterinary Medicine

KENT H. HOBLET
Dean | College of Veterinary Medicine

GEORGE M. HOPPER
Director | Forest & Wildlife Research Center
Director | Mississippi Agricultural & Forestry Experiment Station
Dean | College of Agriculture & Life Sciences
Dean | College of Forest Resources

GARY B. JACKSON
Director | Mississippi State University Extension Service
MISSISSIPPI ranked among the TOP 20 STATES in the production of 13 agricultural commodities.

$7.72 BILLION
2018 farm-gate value of ag and forestry production
(includes government payments)

$16.75 BILLION
2018 value added to the Mississippi economy by ag and forestry

$109 MILLION
R&D expenditures by MSU in agricultural sciences FY 2017

Sources: USDA National Agricultural Statistics Service, Dr. Josh Maples, Dr. John Auel

* record/near record level

COMMODITIES
CATFISH
PULPWOOD
SWEET POTATOES
COTTON
COTTONSEED
BROILERS
RICE
PEANUTS
BLUEBERRIES
PECANS
SOYBEANS
WATERMELONS
HOGS & PIGS
ANOTHER PRODUCTIVE YEAR 2018
1
3
3
3
5
6
8
9
11
12
15
20
31
DAFVM BUDGET OVERVIEW

GRANTS & CONTRACTS RECEIVED

PRIVATE CONTRIBUTIONS

ENROLLMENT

TOTAL EXPENDITURES

Combined CVM, PWRC, MSUES, and MAFES. E&G expenditures 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.
An MSU Extension Service office is located in each of the 82 counties.

**RESEARCH & EXTENSION CENTERS**

1. Hiram D. Palmertree North MS Research & Extension Center VERONA
2. Delta Research & Extension Center STONEVILLE
3. Frank T. (Butch) Widders 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. Northwest Mississippi Branch VERONA
8. Black Belt Branch BROOKSVILLE
9. Delta Branch STONEVILLE
10. Coastal Plain Branch NEWTON
11. E.G. (Gene) Morrison Brown Loan Branch RAYMOND
12. Tobacco 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. McNeil Unit

**MAFES/MSUES UNITS**

19. Crosby Arboretum PICAYUNA

**CVM DIAGNOSTIC LABS**

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

**BULLDOG FORESTS**

23. Andrews Forestry & Wildlife Laboratory
24. Brand Forest
25. Brookings Forest
26. C.M. Chafee Forest
27. Columbus Air Force Base Property
28. Gober Forest
29. Hall Timberlands Forest
30. Harris Forest
31. H.K. & J.K. Holloway Reserve
32. Col. K.D. Johnson Forest
33. McGee's Sardon Plantation
34. Mortensen Forest
35. Norma Lea O'Quin Forest
36. Phillips Memorial Forest
37. John & Jane Player Property
38. Sharp Forest
39. Shaw-O'Reilly Property
40. J.W. Starr Memorial Forest
41. Annie Seal Matthew-Porter Forest

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

An MSU Extension Service office is located in each of the 82 counties.
Thank you for your interest in the Division. For more information about the photographs in this report, please visit our online slideshow at DAFVM.MSSTATE.EDU/ANNUALREPORT/2018/.

NEW FACILITY NAMING OPPORTUNITIES

MEAT SCIENCE AND MUSCLE BIOLOGY LABORATORY
The 15,000-square-foot building includes a harvest area, demonstration area, and freezer space, as well as classrooms and research laboratories.

ANIMAL AND DAIRY SCIENCES BUILDING
This three-story building will contain about 34,500 square feet of offices, conference rooms, classrooms, and labs. Construction should be complete in 2019.

POULTRY SCIENCE BUILDING
This two-story building will contain 26,500 square feet of offices, conference rooms, classrooms, and labs. Construction should be complete in 2019.

IF INTERESTED, CONTACT:
JUD SKELTON 662-325-0643  WILL STAGGERS 662-325-2837

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