An MSU Extension Service Office is located in each of the 82 counties.
This report highlights some of the history and activities of the Division of Agriculture, Forestry and Veterinary Medicine at Mississippi State University during 2012. This year was a time of transition and change for our nation, MSU and the division, too.

Our faculty and staff enjoyed successes in acquiring $56 million in extramural funding in fiscal year 2012, an eight percent increase over last fiscal year. This total represents 42 percent of total grants and contracts at the university. These funds, in addition to the generous financial support we receive from the legislature, will help us continue our mission of service to all Mississippians.

Global food safety and security issues were closely examined on campus in early September. International experts, researchers, and state and federal policymakers joined President Keenum and U.S. Senator Thad Cochran for a daylong conference organized by the MSU International Institute. We explored new opportunities for Mississippi agriculture, building capacity through investments in technology, global challenges, university engagement, and other issues bearing on the world's growing food needs.

In 2012, we maintained our No. 6 ranking by the National Science Foundation among all U.S. universities with research and development expenditures devoted to agricultural sciences. In purely economic terms, our commitment to this endeavor now totals $100.3 million.

The division's effort to grow its facilities continued this year with the dedication of the Verner G. Hurt Research and Extension Building at the Delta Research and Extension Center in Stoneville.

Meanwhile, new construction and remodeling are underway at the College of Veterinary Medicine in Starkville.

We also continued to grow in our academic mission. Student enrollment in division academic departments increased to 2,923 in Fall of 2012, a 6.5 percent increase from 2011 that helped MSU's total enrollment reach 20,365 students.

We reached our objective in hiring new leaders in food science, nutrition and health promotion, and animal and dairy sciences. This means that all 15 of our academic department head positions are filled once again. We have filled the head position at the North Mississippi Research and Extension Center and have begun the search process to fill the vacant leadership position at Stoneville. We also named a new associate vice president for the division.

Amidst this time of transition and change within the division, Mississippi agricultural producers experienced record corn yields of 165 bushels per acre and soybean yields near 45 bushels per acre. The total value of Mississippi’s agriculture and forestry production is estimated to break yet another record by exceeding $7.5 billion in 2012. At the same time, 29 percent of all Mississippi jobs and 22 percent of the state's total income are now attributed to agriculture, forestry and natural resources. Our commitment to these important economic sectors continues.

I hope you enjoy reading about some of our history, highlights and accomplishments in 2012 in this annual report. We appreciate your support of our mission and efforts to improve the lives of all Mississippians through outstanding educational programs and important research.
“Where is the chocolate-milk cow?”

This is a question faculty and students from the College of Agriculture and Life Sciences answered many times during the first week of July on the National Mall in Washington, D.C. The MSU representatives taught visitors to the Smithsonian Folklife Festival how to milk a life-size replica of a Jersey cow…and broke the news gently that there is no chocolate-milk cow.

The CALS representatives joined representatives from two other MSU colleges – the College of Veterinary Medicine and the Bagley College of Engineering – to represent Mississippi’s land-grant tradition.

Each summer, the Smithsonian Folklife Festival attracts about half a million visitors to a celebration of America’s living traditions. This year’s festival was titled “Campus and Community.” It marked the 150th anniversary of both the U.S. Department of Agriculture and the Morrill Act, which created the nation’s land-grant universities.

On July 2, 1862, President Abraham Lincoln signed the Morrill Act, granting states and territories tracts of federal land. States sold the land and used the proceeds to fund public colleges focused on agriculture and the mechanical arts. The legislation is named for Congressman Justin Morrill of Vermont, an early champion of public higher education.

Today, land-grant universities total 105, with at least one in every state and territory. The land-grant institutions, including MSU, have become known for shaping the future of agriculture with cutting-edge technology and unbiased research. MSU was one of only 28 land-grant universities participating in the festival.

Scott Willard and other faculty and students from the Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology staffed a thermal imaging exhibit that showed visitors how current technology can be used to diagnose udder infections.

After milking the artificial cow, visitors heard how MSU scientists use thermal imaging to locate and treat infections in the udder. They used the technology to see reflections of their own body heat in bright colors.

“People were really fascinated to learn about the technology and how much science can be involved in agriculture,” said Peter Ryan, MSU’s associate provost for academic affairs and the coordinator of the university’s festival activities. “Some people knew nothing about agriculture, but their grandparents would jump in with recollections of their past farming. Generally, older generations seem more familiar with agriculture.”

Dr. Phil Bushby and other representatives from the College of Veterinary Medicine taught visitors about the problem of pet overpopulation and gave tours of their Mobile Veterinary Clinic, which provides spay and neuter services to animal shelters in north Mississippi. A display of pet photos and adoption stories encouraged visitors to consider adopting pets from shelters. The team also discussed the importance of pet identification and allowed young visitors to scan stuffed animals for their identification microchips.

Abraham Lincoln could not have known that, 150 years after receiving his signature, the Morrill Act and the institutions it made possible would continue to shape the progression of agriculture in the United States.

“West Lincoln signed the Morrill Act, it had a huge impact on our country and the future of science and crop and livestock production,” said Greg Bohach, MSU vice president for agriculture, forestry, and veterinary medicine. “While the vision of Justin Morrill and the other early leaders of the land-grant movement has become a reality, it must be our vision to continue to apply the resources, including new technology, to ensure a food-secure future for our state, nation and world.”

Erika Hooker, Public Relations Intern with the American Farm Bureau Federation, contributed to this article.
In 1914, Congress passed the Smith-Lever Act, which created an Agricultural Extension Service at each land grant institution. But providing education to rural Mississippians was already well under way by then.

In 1907, William Hall “Corn Club” Smith had partnered with Mississippi A&M College to organize the state’s first boys’ corn club. As a result of his work, Mississippi became the first state to have a rural youth program sponsored by the federal government.

Livestock and other farm-related clubs soon followed, and in 1908 the Mississippi legislature authorized the college to employ county agents.

In 1911, school teacher Susie V. Powell was hired to organize girls’ tomato clubs in the state.

E.R. Lloyd became the first Mississippi Cooperative Extension Service director in 1915.

Extension’s early home demonstration clubs for women emphasized home gardening and household management. Extension agents taught Mississippians how to use fertilizers and other farming methods that were cutting-edge at the time.

During the 1920s and 1930s Extension agents became lifelines for thousands of Mississippians struggling to feed and clothe their families during the Depression.

During World War II, Extension agents focused on Victory Gardens and other war efforts. Military demand for cotton also made support for Mississippi’s No. 1 crop a priority.

After the war, Extension agents concentrated on teaching farmers to use new production practices, including machines and insect- and weed-control chemicals. Agents expanded nutrition and health education programs and began teaching about new labor-saving home appliances.

Mississippians began farming catfish in the 1960s, and Extension economists wrote production management plans for the new industry.

Through the 1970s and 1980s, MSU Extension professionals worked closely with campus-based research scientists to provide Mississippians with practical applications for new technology, both on the farm and in the home.
Ever since W.H. “Corn Club” Smith began teaching Mississippi’s youth about the latest scientific advances in agriculture, the Mississippi State University Extension Service has demonstrated a passion for both education and technology.

In today’s information age, our clients need to be at the forefront of emerging technologies, whether they are agronomists using GPS data to map fields for variable-rate input delivery or the 4-H Tech Team teaching emergency responders how to communicate through social media.

This year, MSU’s Extension Service added a fifth focus area: technology.

Our specialists in the Extension Center for Technology Outreach are committed to helping Mississippians use technology to improve their lives, from establishing business websites to accessing local government policies.

We continue our commitment to agricultural and natural resources, family and consumer sciences, government training and technology, and youth development through 4-H. We serve all Mississippians through workshops, short courses, webinars, and field days.

We created a new staffing structure to make the best use of our expertise and resources. We filled key positions in several areas, including poultry science, apiculture, fruit crops, and beef. Leadership vacancies were filled at the Central Research and Extension Center, the North Mississippi Research and Extension Center, the Center for Government Training and Technology, the Office of Agricultural Communications and the Extension Center for Technology Outreach.

MSU’s Extension Service welcomes new ways of fulfilling our mission to serve Mississippians whenever, however and wherever they need us.
Mississippi's abundant forest resources require the wisdom of professional foresters. MSU leadership recognized this need early on and established the Department of Forestry in the College of Agriculture in 1935.

Before the Department of Forestry was created, the Department of Botany offered a few forestry courses, and the Department of Zoology and Entomology offered wildlife courses.

The forestry department began offering a major in agricultural forestry in 1949, and a four-year professional forestry curriculum was established in 1954.

In 1961, the School of Forestry was established as a separate entity from the College of Agriculture. The professional forestry curriculum was accredited in 1967 by the Society of American Foresters, and the school was renamed the School of Forest Resources. At the same time, the Department of Wood Science and Technology was added -- offering master's degrees -- and one year later a Department of Wildlife Management was established in the school.

Hands-on field training and professional experience was an important aspect of the College of Forest Resources' early curriculum and still is today.

The summer camp forestry field program began in 1949 and continues as a cornerstone of education in natural resources.

Professional experience was highly valued in the early curriculum. Today, professional experience for all students is strongly encouraged, and 95 percent of graduates complete an internship in the discipline before graduation.
The MSU College of Forest Resources has more than 4,000 alumni and continues to produce leaders with proven hands-on field and professional experience.

Students in the college learn in living laboratories when they help manage the forests and wetlands that make up the 18,000-acre Bulldog Forest. A parcel of land near Camp Shelby was recently added to the forest. It will allow students to learn how to restore long-leaf pine forests and manage wetlands.

Forestry, forest products, and wildlife, fisheries and aquaculture majors consistently win state, regional and national competitions. Students and faculty also share their knowledge of natural resource management with both professionals and laypeople in Mississippi. College members published two books this year: one was written by a group of students and the other was written by a wildlife, fisheries and aquaculture professor.

Students produced a 600-page resource book describing more than 100 moist-soil wetland plants. A faculty and staff member began the Youth Environmental Science Learning Center in Starkville schools to engage fourth- and fifth-grade students in environmental science.

Alumni of the college hold leadership positions across the nation, which speaks well of the foundation they received at MSU. A forest products alumnus was recently honored by Field and Stream magazine as a Hero of Conservation. Another forestry alumnus recently won national acclaim for his development of software and a Smartphone app that assists in timber management.

Students often prove Mississippi State is the best place to achieve success in natural resources. The student chapter of the Society of American Foresters was named the most outstanding chapter in the nation in 2011 and has consistently placed as one of the top three chapters in the nation for the last 11 years.
MSU forestry research began in 1937 as a unit in the agricultural experiment station. The primary focus was farm forestry.

The Northeast Mississippi Forestry Experiment Station started on 8,000 acres of land off campus and on Bully’s Woods, located on campus at the dairy plant.

Early research included a continuous forest inventory system for management of the university’s forest land.

In 1962, Mississippi Senator John Stennis co-authored the McIntire-Stennis Cooperative Forestry Research Act. The act provided federal funds to state-supported forestry schools to enhance graduate education and subsidize research on forestry management and technologies.

At the same time, discussions were under way to determine the best ways to promote products made of wood. In 1964, the Mississippi legislature established the Forest Products Utilization Laboratory to research forest products manufacturing and stimulate economic development.

In 1968, MSU’s Department of Wildlife and Fisheries began research on catfish farming and sports fisheries. A cooperative agreement with the Mississippi Department of Wildlife, Fisheries and Parks in 1976 provided new research impetus to provide answers to specific wildlife management problems in the state.

Today, the Forest and Wildlife Research Center researches ways to conserve, develop and use forests, forest products, wildlife, fisheries and water resources.
This year the scientists at the Forest & Wildlife Research Center have worked to find new ways of using wood for bioenergy. Their work in bio-oil has led to several new bio-energy industries, such as KiOR, considering plants in Mississippi. KiOR is a renewable fuels company that converts biomass into renewable crude oil.

FWRC scientists are also finding ways to use young and underused wood. For example, researchers explored ways of turning wood, kenaf and corn stover into boards that could be used in a variety of commercial products.

In an effort to improve water quality, scientists are working with farmers to improve nutrient management. Researchers are showing how water control structures, or weirs, can slow runoff from fields and retain nutrients before they disappear downstream. Likewise, fisheries scientists are developing ways to keep threatened species from disappearing. They are also studying management practices for catfish production in the wake of climate change.

Software development is a key component of research at the center. A new software program, BuckScore, uses digital images to estimate the age and antler score of white-tailed deer. It was recently licensed and is now the official scoring system for the Outdoor Channel.

Meanwhile, a statewide forest inventory software system is showing mills and processing facilities where to locate in the state. The system is one of the most-used software programs in Mississippi and has been used to develop more than 300 feasibility studies on mill location since its inception.
From breeding creepy crawlies to creating lush new turf varieties to improving the health of catfish, the Division of Agriculture, Forestry and Veterinary Medicine at Mississippi State University continues cutting edge research designed to improve the life of all Mississippians.

Insect Rearing Workshop and Lab

While most Mississippians spend their lives swatting mosquitoes and warding off pests, each fall scientists from all over the world flock to MSU to learn to raise hardy, plentiful insects.

In 1999, professor emeritus Frank Davis and several colleagues in the Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology received a $200,000 grant to create an insect-rearing center. In 2000, MSU held its first international insect-rearing workshop. Now the workshop fills slots a year in advance, and the department has published Principles and Procedures for Rearing High Quality Insects, the only comprehensive textbook available on the subject.

MSU has become a trusted source of knowledge on insect-rearing science and technology. Workshop participants come from public, private and nonprofit sectors for the intensive, five-day workshop. They come to learn more about insect biology, behavior, nutritional needs, genetics and the environmental requirements for developing suitable rearing systems.

The insect-rearing facility was planned, designed, constructed and completed in 2001. The 31,000-square-foot facility is in the basement of the Lyle Entomology Building. It consists of four rooms where staff and students conduct general rearing tasks and six walk-in, environmentally controlled rearing rooms. A small adjacent building houses adult lepidoptera and provides additional rearing space.

Turfgrass Program

Mississippi has more than 2.5 million acres of turf. Of these, more than 2 million acres are in roadside turf maintained by the highway department, and 300,000 acres surround homes. The remainder is found at more than 160 golf courses; 2,000 athletic fields; and schools, churches and industrial sites.

Turf is expensive to maintain and is subject to a variety of harsh conditions. There is a great demand for expertise in this field, and MSU is first in line with problem-solving expertise and new turfgrass varieties.

Eleven years of research by the Mississippi Agricultural and Forestry Experiment Station resulted in three new and improved turf-type bermudagrasses.

MS-Choice is a dark green, compact, leafy prostrate turf for use on sports fields, home lawns, and golf tees and fairways. MS-Express is a medium green, robust, leafy compressed turf for use on golf and tennis greens. MS-Pride is a dark green, dense, leafy upright turf for use on home lawns, golf tees and fairways. These grasses were developed and licensed to enhance the quality of lawns, golf courses and sports turf facilities and are commercially available.

Their popularity and usefulness has spread far beyond state boundaries. They appear on professional sports fields, golf courses, lawns and more. Choice has even been licensed by a company for use in Japan.
CHEESE PRODUCTION

In 2013, MSU will celebrate the 75th year of making its famous Edam cheese -- the mild-flavored cheese easily recognized by its cannonball shape wrapped in bright red wax.

MSU dairy scientist F.H. Herzer made the first Edam cheese in 1938. At that time, the university was one of the South's leading dairy centers, and Herzer wanted to create a product that symbolized the college's work in support of the dairy industry. He made 300 cheese balls that year with 10 Java Teak cheese moulds made in Holland. Today, about 50,000 Edam cheese balls are produced each year.

By 1963 production rose to 2,400 Edams a year and research had improved methods of aging, pressing and salting the cheese. The technique of dipping the Edams in bright red wax to minimize surface mold growth and make the cheese more attractive was also perfected at this time.

The addition of an airtight Cry-O-Vac plastic bag provided additional quality assurance and permitted use of the Mississippi State seal on the product. In 1970, the cheese-making operation moved into the new Herzer Dairy Science Facility and production capacity increased to 165 Edam balls per day. In 1997, a low-fat variety was added that is similar in taste and texture to full-fat cheddars.

Today, MSU’s herd of jersey cows is among the best in the nation, and their milk goes into the signature Edam cheese cannonball.

CATFISH HEALTH MANAGEMENT, NWAC

Mississippi produces more than 60 percent of the nation’s pond-raised catfish, and MSU researchers in the Delta are working nonstop to keep the fish flavorful and safe to eat.

At the forefront of these efforts is the Thad Cochran National Warmwater Aquaculture Center at the Delta Research and Extension Center in Stoneville.

The aquaculture center houses the majority of the university’s catfish research MAPES scientists and the College of Veterinary Medicine’s Aquatic Research and Diagnostic Laboratory. It also houses Extension Service personnel who serve and support the catfish industry, and the USDA-ARS Catfish Genetics Research Unit.

Lab staff members examine fish to diagnose and treat their medical conditions. The lab also analyzes pond water to make sure it is suitable for raising catfish and verifies ponds health status before fish are harvested and sold. Similar services are offered on campus within the CVM’s Department of Basic Sciences.

High on the list of threats to the catfish industry are proliferative gill disease (PGD), trematodes, and enteric septicemia of catfish (ESC).

DAFVM researchers have made significant strides in combatting these problems. In 2009, veterinary researchers released the genome sequence of the bacteria that causes ESC.

MSU researchers also unraveled the life cycle of the parasite that causes PGD and trematodes and now focus on best management practices to prevent and manage outbreaks.
When Mississippi A&M College opened its doors in 1880, all students registered for the same course of study: agriculture.

Twelve years later, separate curriculums were established for students taking agriculture and those taking mechanical arts. This separation marks the beginning of the School of Agriculture.

In 1903, the school was formalized into a college. The Department of Dairy Husbandry, established in 1904, offered the first degree program. Prior to this, students received a degree in agriculture regardless of the department. At that time, the chemistry and biology departments were included in the School of Agriculture.

Other majors soon became available: animal husbandry, agricultural engineering, agricultural economics, horticulture, agronomy, agriculture administration, poultry, and agricultural forestry.

The dairy husbandry degree and the opening of the Dairy Processing Lab prompted the creation of the famous Mississippi State Edam cheese. The degree in horticulture prompted the formation of the MSU flower shop, which became an accredited Florist Telegraph Delivery Association member in 1938 – the only department-operated shop in the U.S. affiliated with FTD.

During the early years students who pursued a major in agriculture received hands-on training and worked on the college farm two to three hours each day as a requirement of their studies.

The school was closely tied to the Mississippi Agricultural and Forestry Experiment Station. The majority of graduate students studied under the direction of experiment station scientists, and the first doctoral degree was awarded in agronomy in 1953.

Throughout the years, the College of Agriculture and Life Sciences has remained committed to its foundation: providing leadership in the field of agriculture and life sciences.
Staying true to our foundation, CALS students often demonstrate their intellectual and leadership skills.

Students in the Department of Plant and Soil Sciences’ floral management concentration were top winners at the American Institute of Floral Designers’ annual meeting -- placing first overall among all universities in the floral design competition.

The dairy products judging team earned cream of the crop status by placing third overall in the national 90th Collegiate Dairy Products Evaluation Contest. Members of the Department of Food Science, Nutrition, and Health Promotion were named Outstanding Educator, Outstanding Dietetic Internship Student, and Outstanding Dietetic Student by the Mississippi Dietetic Association.

Student leaders flourish in CALS. A senior in the Department of Animal and Dairy Sciences is a Mississippi Farm Bureau ambassador, and a student in the School of Human Sciences is Miss Dixie National. Additionally, a student in the Department of Food Science, Nutrition and Health Promotion became one of only eight student delegates nationwide in the Academy of Nutrition and Dietetics.

Students also lead in community service. Landscape architecture majors recently completed a series of major projects outside the Oktibbeha County Heritage Museum, creating one of the best collections of sustainable stormwater strategies in the Southeast. The Poultry Science Club was one of the top three teams at the university in Relay for Life fundraising.

And their service extends beyond the borders of Mississippi. A group of students in the Department of Agricultural Economics participated in a spring break study abroad program in Brazil. Students in biochemistry, molecular biology, entomology and plant pathology are using the latest genetic techniques to preserve endangered species such as crocodiles and boreal toads.

A new graduate degree in Human Development and Family Studies will provide more opportunities for future leaders to develop, manage and evaluate early childhood, youth development, family support, and community-based programs.
America was booming in the 1800s. The growing nation hungered for more resources. Congress nurtured this prosperity with the Morrill Act in 1862 to establish land grant universities and the Hatch Act in 1887 to establish agricultural experiment stations.

The Mississippi Agricultural and Forestry Experiment Station was established in 1888 to conduct and verify original agricultural research. One of its first experiments was variety trials -- designed to improve crop yields and variety selection on different soils in different climates.

Today, statewide MAFES variety trials still help producers make informed decisions. Cotton and corn were the first staples planted in row crop simulations. Throughout its history, MAFES scientists have researched and developed methods to improve the quality, yield, and performance of a multitude of crops.

In the early years, scientists built breeding programs to increase desirable row crop characteristics. Once perfected, these programs began producing foundation seed that still today provide Mississippi producers consistent access to high-quality, newly developed plant varieties.

In the early 1940s, MAFES scientists received a grant from the American Cyanamid Company to study cotton defoliation using dusting-grade Cyanamid. Cotton defoliation is now a standard pre-harvest practice. At the same time, two MAFES scientists pioneered the use of anhydrous ammonia fertilizer, which increased yields and returns for Delta farmers by more than $4.5 million in its first year of use.

Then and now, MAFES scientists nurture agriculture by reducing labor needs, increasing yields, and growing profits for producers.
Today, the Mississippi Agriculture and Forestry Experiment Station still seeks to increase yields and profits for producers but has a much broader research portfolio than ever before. Variety trials continue throughout the state, but they have changed.

Scientists now use biotechnology to develop cropping systems that produce herbicide-tolerant and disease- and pest-resistant crops. In-field tests for disease-resistant soybeans, corn and cotton continue with an overall goal of increasing yields.

The expansion of renewable energy has spawned new uses for crops and other plants. MAFES scientists have developed and patented Freedom giant miscanthus as a feedstock for renewable energy and are experimenting with other grasses for bioenergy production.

Studies to enhance crop production have also led scientists to discover a potential antifungal drug.

Crops are important in MAFES research, and soils are their foundation. After 114 years, the Mississippi Soil Survey was recently completed by state agencies, with assistance from MAFES scientists. It maps more than 30 million acres by soil type and use.

Scientists have also developed precision agriculture techniques to incorporate spatial variation in soils for nutrient prescriptions -- reducing costs and increasing yields and profitability.

The Experiment Station remains at the forefront in areas such as post-harvest processing and livestock production. This year a MAFES scientist taught agriculture agents in Africa about drying foods, analyzing quality and safety, and naturally preserving and processing juice, jam, and jelly.

Meanwhile, poultry scientists are working on methods to increase the hatchability and health of broilers. MAFES scientists are working to create a brighter future for all Mississippians.
When Abraham Lincoln signed the Morrill Act in 1862 to create land grant universities that would provide higher education for millions of Americans, he also paved the way for veterinary education.

At that time, veterinary medicine was in its infancy. In the early 1900s, nearly 40 percent of Americans worked in agriculture, and veterinarians primarily took care of livestock and horses. Within just a couple of decades, the Great Depression and the rise of the automobile changed both America and the veterinary profession forever.

Veterinarians became increasingly important to the food industry as the federal government worked to improve the safety of our food supply. This increased the scope of veterinary practice forever.

Veterinary medicine has changed in other significant ways as well. For instance, as little as 50 years ago there wasn't much need for small animal veterinarians because Americans didn't think of their pets as family members requiring medical care. Even 30 years ago, it was rare to find women in this profession.

In 1974, the College of Veterinary Medicine at Mississippi State University was established by the legislature. Since the first class graduated 31 years ago, many of our alumni have practiced rural veterinary medicine, helping support the same type of community that educated them. Mississippi’s agricultural industry helped start MSU’s CVM and continues to sustain it, and we’re extremely grateful for its unwavering support. We seek to uphold our end of the bargain by supporting agriculture and the very mission of the land grant institution.

As our nation’s population and needs have changed, our reliance on veterinarians has grown. More and more young people today choose to pursue careers in veterinary medicine – careers that often begin at land grant universities such as MSU.
Today’s graduates of MSU’s College of Veterinary Medicine follow a variety of career paths, from research to small animal practice to food animal science and more.

The educational experience has evolved along with the profession. Today’s students often complete internships with government agencies or study and volunteer abroad. This summer, MSU veterinary students traveled to South Africa and South America.

Dr. Carla Huston worked with the U.S. Department of Agriculture for 3 months on the control of foot-and-mouth disease in Vietnam, and Dr. Henry Wan has established research opportunities in China. Likewise, Dr. Keon Seok Seo established research memorandums with a veterinary college and regulatory agency in Korea.

Whether they work in a small practice or at the federal level, almost all veterinarians are affected by globalization, and the College of Veterinary Medicine prepares them well for the challenge. They are among the first to recognize and diagnose diseases that can affect animal and human health and the food supply.

Representatives of the college visited Washington, D.C., last summer to share the Mobile Shelter Medicine Unit with half a million Smithsonian Folklife Festival visitors. The mobile unit provides a way for dogs and cats in shelters across Mississippi to be spayed and neutered. The experience was a testament to the contributions land grant universities have made to America and highlighted the way veterinary medicine affects the lives of all Americans.

Veterinarians have a real impact in our region, nation and the world. They research diseases, work to increase food safety, care for pets and livestock, and educate the next generation of practitioners. MSU veterinary students and alumni work to help solve global problems, cure diseases, develop new medical treatments for animals and humans, and improve the health and welfare of animals of all kinds.
- Combines CVM, FWRC, MSU-ES, and MAFES. Does not include CALS or CFR.
- The 2012 DAFVM budget did not include any stimulus funds.
- The terms “Other,” “Restricted,” and “Designated” are accounting terms used to categorize fund types. “Restricted” generally refers to externally sponsored funding, such as grants. “Designated” includes funds designated for a specific purpose. “Other” describes funds not designated or restricted, such as sales and self-generated funds.
### AGRICULTURE & FOOD SECTOR AS A PERCENTAGE OF GDP BY STATE 2010

<table>
<thead>
<tr>
<th>STATE/REGION</th>
<th>% OF GDP BY STATE</th>
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<tbody>
<tr>
<td>ARKANSAS</td>
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<tr>
<td>MISSISSIPPI</td>
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### THE ECONOMIC IMPACT OF AGRICULTURE & FORESTRY PRODUCTION AND PROCESSING ON MISSISSIPPI

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
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<tr>
<td>Farm-gate value (2012)</td>
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<tr>
<td>Jobs (2009)</td>
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<tr>
<td>Wages (2009)</td>
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<td>Value-added (2009)</td>
<td>$12.6 billion</td>
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<tr>
<td>Total industry output (2009)</td>
<td>$33.4 billion</td>
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</table>

Source: Forestry Department, MSU; MSU Extension Service; and Agricultural Economics Department, MSU.

### MISSISSIPPI IS IN THE TOP 20 STATES IN THE PRODUCTION OF 15 AGRICULTURAL COMMODITIES 2011 PRODUCTION YEAR

- **#1 in Catfish**
- **#3 in Pulpwood**
- **#3 in Sweet Potatoes**
- **#5 in Broilers**
- **#6 in Cotton**
- **#6 in Cottonseed**
- **#6 in Rice**
- **#7 in Peanuts**
- **#8 in Grain Sorghum**
- **#9 in All Pecans**
- **#9 in Blueberries**
- **#13 in Eggs & Pigs**
- **#17 in Hogs & Pigs**
- **#17 in Corn For Grain**

Source: Mississippi Ag Statistics Service/National Ag Statistics Service, USDA.
DAFVM BY THE NUMBERS

DAFVM ENROLLMENT FALL 2012
MSU TOTAL ENROLLMENT 20,365
- CALS UNDERGRAD | 1,561
- CALS GRAD | 380
- CFR UNDERGRAD | 364
- CFR GRAD | 161
- CVM UNDERGRAD | 52
- CVM GRAD/PROFESSIONAL | 405
DAFVM TOTAL 2,923

DAFVM FY 2012 GRANTS & CONTRACTS, EXPENDITURES
- MAFES
  $26.5 million
- MSUES
  $17.2 million
- FWRC
  $6.6 million
- CVM
  $2.5 million
TOTAL $53 million

ADMINISTRATION

MARK E. KEENUM
PRESIDENT
MISSISSIPPI STATE UNIVERSITY

GREGORY A. BOHACH
VICE PRESIDENT, DIVISION OF AGRICULTURE, FORESTRY, AND VETERINARY MEDICINE

KENT H. HOBLET
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DIRECTOR, MISSISSIPPI STATE UNIVERSITY EXTENSION SERVICE

DEAN, COLLEGE OF FOREST, WILDLIFE & LIFE SCIENCES
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