# Table of Contents

## On the Cover
Mississippi State University scientists have created a new software program to help foresters and landowners manage hardwood timber. The free software provides expected yields and future growth values for the red oak-sweetgum forest mixture that is widely distributed across Mississippi river bottoms. (Photo by Kat Lawrence)

## 4  Farm Bill Tools
MSU agricultural economists are helping producers navigate the 2014 farm bill.

## 6  Extension Partnership
A Mississippi agricultural high school will benefit from Extension educational programs.

## 7  Agritourism on the Family Farm
Jo Lynn Mitchell proves farming for a living is still possible.

## 8  Undergrad Researchers
A new initiative allows undergraduate agriculture students to lead research efforts.

## 10  Legacy of a Visionary
The late Extension Director William Bost's contributions are far-reaching.

## 12  New Cancer Treatment
Veterinary researchers are developing therapies that target cancer cells with little collateral damage.

## 14  Extension Centennial
While celebrating a century of service, Extension looks toward its next 100 years.

## 20  Sowing the Seeds of Progress
Experiment Station researcher addresses global food-security challenges.

## 22  Rewarding Volunteerism
4-H volunteers were recognized for their exceptional service to the youth program.

## 24  Bottomland Hardwoods
Forestry researchers developed a new software program to help manage hardwood timber.

## 25  County Profile
Sunflower County is the place where the Southern crosses the “Yellow Dog.”

## 26  News Notes
The Division of Agriculture, Forestry, and Veterinary Medicine notes faculty and staff accomplishments.

## 30  Development Corner
Tommy and Terri Nusz have established an endowed equine professorship.
When tornadoes struck Mississippi April 28, personnel from the Division of Agriculture, Forestry, and Veterinary Medicine provided the “boots on the ground” to help counties recover. Devastated communities in Winston and Lee Counties received a wide variety of assistance, ranging from child care in the Red Cross shelters to farm visits by disaster assessment teams. Additional efforts took place in Itawamba, Jones, Lowndes, Rankin, and Wayne Counties.

Ten teams converged on Winston County after the tornado to assess agricultural property damage and discuss losses with farmers and landowners. The teams documented significant property losses, including residences, barns, poultry houses, equipment, fences, and animals. Their reports helped the Mississippi Department of Animal Health and the Mississippi Emergency Management Agency respond to needs. Extension personnel also organized meetings to help farmers begin the long recovery process that remains ahead of them.

Extension staff with the Mississippi Child Care Resource and Referral Network set up and served children and parents in “safe spaces” at shelters in Tupelo and Louisville. These safe zones are great examples of a partnership with an external organization. After Hurricane Katrina, Extension implemented this program with Save the Children, an international nongovernmental organization. The network also conducted assessments of damaged child-care centers and is providing resources, materials, and technical assistance as part of the recovery process.

Pets and livestock also benefited from division personnel in the days after the storm. Faculty and students from the College of Veterinary Medicine were dispatched quickly to assist with extensive veterinary needs in the path of the tornado, saving lives and alleviating suffering of some of the most vulnerable.

Our response does not end when the debris is cleared—it will continue in the months and years ahead as all those impacted recover.

In this issue of *LandMarks*, you will read about Mississippi’s celebration of the 100th year of the national Cooperative Extension System. In May, I joined other representatives of our Extension Service at the National Extension Centennial Convocation in Washington, D.C. We were honored to be able to take several distinguished guests to the convocation. They were Gary Blair, vice president and branch/relationship manager for Southern AgCredit; Sells Newman, senior vice president for legislative/marketing and public affairs for First South Farm Credit; Randy Knight, president of the Mississippi Farm Bureau Federation; Paul Mosley, president of the Mississippi Association of Supervisors; and Gibb Steele, president of Delta Council.

While celebrating Cooperative Extension’s heritage, the primary focus of the convocation was on contemporary efforts and plans for the next 100 years of educational programming. We are excited about what the future holds for the Extension Service in Mississippi and nationally.

For fiscal year 2015, we were pleased to receive $400,000 in preplanning funds for the Animal and Dairy Sciences/Poultry Science complex. This facility will be located in the open area between the Wisse Center and the intersection of Blackjack Road and Stone Boulevard. We also received more than $650,000 in repair and renovation funds for this use fiscal year.

Work is continuing on projects throughout the division. At the Wisse Center, we began moving dirt on the new $3.8 million classroom project in May. We also are nearing completion of the $12 million CVM necropsy laboratory project. The extensive renovations there will provide savings in climate control costs, as well as an improved gross-pathology teaching environment.

We hope you enjoy learning about the good things going on in the Division of Agriculture, Forestry, and Veterinary Medicine in this issue of *LandMarks*!
The passage of the Agricultural Act of 2014 meant that a lot of hard work was over for federal policymakers, but the challenge was just beginning for experts trying to help producers understand the ramifications of the new farm bill.

Agricultural economists used the time between the law’s passage and the delineation of specific rules and regulations as a research period. During this period, they analyzed what is known about the farm bill, developed tools to help farmers make decisions, modeled outcomes based on existing data, and began to educate producers.

For many of the state’s row-crop farmers, however, the waiting period has been a time of worry.

MSU agricultural economists Dr. Keith Coble, Dr. Larry Falconer, and Dr. John Michael Riley have studied the farm bill for months and delivered workshops to help Mississippi growers understand what changes are in store.

“The biggest benefit of this legislation is that we now have a bill that is in effect for 5 years, and we’re no longer operating under extensions,” Riley said. “This provides some calm to the policy waters for agricultural producers. They want to know what is different, and while the bill is immensely complex, most of the elements are a redesign of those found in previous farm bills.”

A major challenge of the complex new legislation lies in preparing producers to protect themselves from risk through a system of insurance options and different types of programs, explained Coble, who served as the chief economist for the minority staff of the Senate Committee on Agriculture, Nutrition, and Forestry.

Riley agreed that managing risk is one of the more intricate aspects of the 2014 farm bill.

“Risk is complicated, and trying to help people protect themselves is even more complicated,” he said. “The producer with seed in the ground is worried that decisions made during the first year will have far-reaching and unintended consequences. They don’t want to make the wrong choices.”

While the provisions of the law are established, economists and producers are waiting for the U.S. Department of Agriculture to determine exactly how they will be implemented, Coble explained.

“It’s like buying a car and knowing the make and model of the vehicle but not all of the details of what’s inside,” he said. “If the programs turn out the way we think they will, farmers will sign up for the 2014 program no sooner than the fall of 2014, and the program details will be triggered, in part, by 2014 yields and prices. So producers will have the ability to make decisions for 2014 after a significant amount of information is known about the 2014 outcomes.”

The new farm bill will bring several significant changes for Mississippi row-crop producers. Farmers will lose direct payments and must choose between price-loss coverage and agricultural-risk coverage. Also, cotton will lose its designation as a Title I commodity.

Mississippi landowners and farmers received direct payments of more than $111.5 million in 2012, but such payments have been eliminated under the new farm bill.
“The direct payments were made on historical base acres and were a function of historical yields and acres, regardless of production,” Falconer said. “Because those payments were associated with the land, they helped support cash rents and land values. As we move forward, there will likely be an adjustment in taking out those payments.”

The 2014 farm bill offers two new commodity programs. Price-loss coverage has set reference prices to protect producers from declining markets, while agricultural-risk coverage uses a moving average of farm or county revenue to protect producers. Price-loss coverage is similar to the counter-cyclical payment program offered in previous farm bills, but it has updated reference prices. Agricultural-risk coverage is similar to an insurance product called the Group Risk Plan.

“Whether you want to be in the agricultural-risk coverage program or the price-loss coverage program will likely vary by commodity, and you’ll be able to decide after you know the outcome of the first year of the 5-year bill,” Coble said.

Under the new legislation, cotton will be supported largely through crop insurance.

“For example, if cotton prices go very low, it won’t be eligible for payments under the price-loss coverage or agricultural-risk coverage programs,” Falconer said. “However, cotton producers can purchase crop insurance that essentially provides benefits similar to those seen in Title I, but there’s a premium attached to it.”

This change is largely in response to the demands of other players in the global cotton market, Riley noted.

“Brazil filed suit against the U.S. with the World Trade Organization, which ruled that the U.S. unfairly supported domestic cotton growers,” Riley said. “Because of this ruling, legislators tried to stay away from any type of support in the traditional sense, while creating an insurance product to offer growers a specialized form of risk protection.”

In light of these changes and the new factors that influence decisions, agricultural economists in Extension and the Mississippi Agricultural and Forestry Experiment Station created spreadsheets designed to update acreage and illustrate how the allocation of new “generic base” acres will look for an individual operation.

“These spreadsheets walk producers through base updates and how this new generic base, which is the old cotton base, will be used to determine their base acres for a particular growing season,” Falconer said. “Once the rules and regulations have been set, more support tools will be created to help producers navigate the 2014 Agricultural Act.”

The team has participated in regional and national webinars, and they have toured the state with a series of workshops. They plan to go on a second statewide tour to talk to producers about the final findings and tools available through MSU.

“We’ve provided educational workshops for producers, Extension agricultural agents, lenders, and agribusinesses to give an overview of changes in the bill—how programs work in terms of the big picture,” Riley said. “We’ve got information sheets that outline programs, and we’re in the process of simulating price and yield outcomes based on some representative farms in Mississippi.”

Riley summarized the new farm bill as one that encourages producers to make decisions based on the market, not policy.

“The market should be the primary decision aid each year, not the farm program,” he said. “While that has often been the case for agricultural producers, this legislation makes it even clearer for both the American public and our international trading partners.”
Students at Forrest County Agricultural High School (FCAHS) now have the resources of Mississippi State University at their fingertips.

FCAHS entered a partnership with the MSU Extension Service this year that allows students, faculty, and staff to attend Extension educational programs through an interactive video system. Extension and school representatives joined local and state officials to mark the occasion with a ribbon cutting April 8 at the high school.

The Extension Center for Technology Outreach teamed with Forrest County Extension agents to provide the audiovisual system, which is currently housed in one of the school’s two computer labs. It will be moved to a new career center after construction is complete. The system allows two-way communication between two or more sites equipped with similar technology. Interactive video systems are located at all 82 county Extension offices, four regional Research and Extension Centers, 12 Mississippi Agricultural and Forestry Experiment Station branch stations, and the main campus in Starkville.

Paving the way for this partnership, Extension donated 53 used computers to the high school in 2013.

“We are so grateful that everyone at Mississippi State worked with us to make this happen for our students,” said FCAHS Superintendent Jerry Morgan. “When I came on board a few years ago, we were facing consolidation. Now, we have cutting-edge technology and the ability to connect with one of the best agricultural research universities in the nation.”

FCAHS is one of three independent agricultural school districts in the state. About 600 students attend the school for grades 9-12. The curriculum consists of traditional classes and six career and technology programs: health sciences, drafting, agriculture, horticulture, law enforcement, and business.

“We can provide an education to students who want to go to college, but not every child wants to pursue a 4-year degree,” Morgan said. “The vocational training we deliver is valuable, and this partnership is going to enhance the education of students with either interest.”

This equipment will help students both inside and outside the classroom, said Kellie Lassiter, a Forrest County Extension agent who helped connect high school personnel with Extension administrators to forge the partnership.

“Students will benefit from this relationship in more than one way,” Lassiter said. “They can easily access any class or workshop to supplement their classwork, but it can also help 4-H’ers. They will have direct access to any of our faculty, specialists, or agents. I plan to use the system to do some programs for the students, some of whom are 4-H members.”

Dr. Gary Jackson, Extension Service director, said he is excited about the partnership.

“Extension has always used the latest technology to bring research-based information to the citizens of Mississippi,” Jackson told the crowd gathered at the ribbon-cutting ceremony celebrating the partnership. “It was clear we could enrich your ag program through our Extension distance-learning seminars, workshops, courses, and certificate programs. But the other important thing to realize is that you can help us. Having access to your ag teachers and your ag program will help us understand how we can better meet the needs of teachers, schools, and communities.”

Mississippi Senator Billy Hudson, Senate Agriculture Committee chairman and graduate of FCAHS, praised MSU’s support.

“Agriculture is still the number-one industry in Mississippi, and it is very important that we educate our young people about where their food and fiber comes from,” Hudson said. “That’s what this school was founded on, and students still need it today.”
When Jo Lynn Mitchell started an agritourism business to add income to the family farm in Collins, Mississippi, she had no idea she would end up proving that people can still farm for a living.

Mitchell fell in love with farming as a way of life after marrying her husband, Don Mitchell, and she wanted to introduce farm life to children and adults. In 2006, she planted pumpkins and invited schools and churches to visit for an educational experience on how crops grow. Each child received a pumpkin to carry home as a reminder of what they learned at the farm.

“We didn’t really have anything like our farm within a 60-mile radius of us, so it was a great experience for the children to see a farm up close,” Mitchell said. “I have learned most of the kids that come out here—and the adults, too—are amazed people still farm for a living. It’s opened a whole new world for them, which shocked me.”

Her husband’s entire family is involved in running the 1,600-acre row-crop and pine farm. Mitchell said she wanted to be part of the operation but knew she needed to find a way to generate additional income in order to make the farm her full-time job.

“I thought, ‘Wow, we have such a beautiful farm, and I really think people would love to come here,’” Mitchell said. “Around that time, agritourism really started taking off in Mississippi, so I traveled across the state to see how other farmers were bringing tourism to their farms.”

Since 2006, Mitchell has expanded the farm’s agritourism component to include seasonal events, corn mazes, birthday parties, corporate events, and weddings, in addition to scheduled school tours and open weekends for the public to visit.

“We’ve added something new to the farm every year,” she said. “We’ve added numerous buildings and playgrounds to transform the farm into an entertainment and education facility for kids to have hands-on experiences with farming.”

As president of the Mississippi Agritourism Association, Mitchell travels to events throughout the state to share her experiences in bringing agritourism to Mitchell Farms.

“One thing I tell people when I speak is to build on what you already have,” she said. “Farmers need to understand we are not really in competition with one another. We help each other to reach people the best we can. People like the personal experience. They feel like they’re part of the family, and that feeling of family carries over to all operations.”

Carolyn Conger, Covington County Extension agent, has known Mitchell for years and has seen her agritourism vision flourish.

“Jo Lynn is very creative and extremely dedicated to making agritourism a success,” Conger said. “She has offered to help many others who are interested in pursuing a similar venture. She is always coming up with new ideas for the farm. I don’t believe there is another woman like her.”

Rachael Carter, an Extension instructor in Enterprise and Community Resource Development, said agritourism helps farmers add value to their businesses while keeping Mississippi communities involved with agriculture.

“Jo Lynn is on the cutting edge of the industry, and she is an excellent role model for Mississippi agritourism,” Carter said. “She combines creativity with strong business practices, and she has seen great success with agritourism because of it.”

Mitchell Farms hosts more than 4,000 visitors each year for the Mississippi Peanut Festival in October. The festival is open to the public, and about 100 vendors are expected to set up booths with arts, crafts, and antiques for sale.

For more information about Mitchell Farms or the Mississippi Peanut Festival, contact Mitchell at (601) 765-8609.

Since 2006, Jo Lynn Mitchell has expanded her family farm’s agritourism component to include seasonal events, corn mazes, parties, corporate events, and weddings.

By Kaitlyn Byrne • Photos by Kat Lawrence
Undergraduate students have assisted faculty researchers for decades by working as technicians, but a new initiative in the MSU College of Agriculture and Life Sciences has substantially changed their roles by allowing them to work as full-fledged investigators.

The Undergraduate Research Scholars Program gives students the opportunity to conduct hands-on research and take the lead in discipline-specific programs. Dr. George Hopper, dean of CALS and the College of Forest Resources, said he sees the program as a tremendous opportunity for students.

“In the Undergraduate Research Scholars Program, students work one-on-one with a faculty scholar or mentor on a specific research project,” Hopper said. “This program opens the door to the discovery of new knowledge and the enhancement of discipline-specific expertise. It also teaches students critical-thinking skills.”

Students write proposals, conduct independent research projects, and present their results at professional conferences and at the annual MSU Undergraduate Research Symposium.

The subject matter within the program itself is varied. The college, with funding from the Experiment Station, supported 11 projects in the 2013–14 academic year. Individual projects ranged from an evaluation of the watershed of a lake in Zimbabwe to a study of Holstein calves at the MSU dairy. Regardless of the research topic, however, the overarching result is clear: These students have the chance to grow, learn, and engage in a multidimensional learning environment.

Hazel Buka is studying water quality in Lake Chivero, a major source of drinking water in her home country of Zimbabwe. She also worked on an irrigation scheduling project that used these soil moisture sensors.
Hazel Buka, a sophomore from Zimbabwe, is studying Lake Chivero, which is about 25 miles from the college she attended in her home country.

“I was inspired by the challenges people are facing in Zimbabwe,” Buka explained. “My plan is to develop solutions to give people access to clean drinking water, which is a basic human right.”

Dr. Anna Linhoss, an assistant professor of agricultural and biological engineering, is Buka’s faculty mentor.

“The Undergraduate Research Scholars Program let me work closely with a student on an individual basis and introduce her to water-resources research, a particular passion of mine,” Linhoss explained.

Buka attended her first 2 years of college at Chibero College of Agriculture in Zimbabwe before coming to MSU. Through a partnership established between the two institutions, Buka traveled more than 8,500 miles to continue her studies in agricultural engineering technology and business.

Lake Chivero is a manmade reservoir on the Manyame River that serves as the main drinking-water supply to Harare, the capital of Zimbabwe. It also is used for crop irrigation and commercial fishing. In her review and assessment of studies on the lake, Buka found that its quality has been impacted by various factors.

In 1997, the lake experienced fish kills attributed to low oxygen levels. In 2008, 11,735 cases of cholera were reported, which were attributed to poor sanitation and water shortages. After collecting and analyzing water-quality data, Buka proposed two possible solutions: reducing the overflow of nutrients going into the lake and providing educational outreach on clean-water practices.

Buka presented her work at the Mississippi Water Resources Conference held in Jackson, Mississippi. The next step is to secure additional funding to implement solutions.

Another undergraduate research project examined the effects of housing type and feeding frequency on growth and behavior in dairy calves at the university dairy.

Karley Parker, a senior from Ellisville, Mississippi, took on this topic to attain experience to help her gain entrance into the MSU College of Veterinary Medicine. Parker, an animal and dairy science major, said she knows a lot about beef cattle, but new insight into dairy cows rounded out her undergraduate studies.

“In veterinary medicine, everything is constantly evolving and developing,” Parker said. “I never had experience in research, so it was good for me to learn the process. I enjoyed it and would like to conduct research in veterinary school. I’ve been accepted and started classes in June.”

Dr. Stephanie Ward, an assistant professor of dairy management and nutrition, was Parker’s mentor for the project.

“Karley knew a lot about beef cattle but didn’t know as much about dairy cattle,” Ward said. “This opportunity has taught her a lot about dairy cattle, which will benefit her as she pursues her veterinary degree.”

Parker and two other undergraduate students collected growth, health, and behavioral data and analyzed the calves’ feeding habits. They compared calves housed in pairs with calves housed individually using two different feeding frequency schedules.

The undergraduate researchers found that paired calves had better health scores, which is contrary to a common dairy industry belief. Dairy producers generally think that housing calves together increases the risk of infection. These findings could shape future practices.

Ward presented the findings on the group’s behalf at the American Dairy Science Association Discovery Conference in Chicago, Illinois. Parker’s preliminary data was included in an animal research and outreach grant proposal.

“If we get the grant, it is a huge step forward for research and information about animal welfare,” Ward added.

Ward said she sees remarkable value in the undergraduate scholars program. It takes students out of their comfort zones and puts them on the path of greater professional advancement.

“This is one of the best programs I’ve seen so far in the College of Agriculture and Life Sciences, in terms of student benefit and graduate program recruitment,” Ward said. “External funding for animal behavior research is very competitive, and internal funding allows us to design research projects that interest our top students in graduate degrees.”

As students embark on the daunting endeavor of developing their own research, they develop advanced skill sets and gain critical experience that makes them better students, better professionals, and ultimately, better researchers.
When Dr. William “Bill” Bost passed away in February at the age of 90, he left behind more than a building on the Mississippi State University campus that bears his name.

A native of Pontotoc County, Bost began his career with the Mississippi Cooperative Extension Service (MCES) as the assistant county agent in Calhoun County in 1951. He became state director in 1962 and served in that position until his retirement in 1981.

“Dr. Bost was serious about the mission of Extension and wanted us to provide exactly what the Smith-Lever Act called for us to provide,” said Dr. James Carpenter, who served as assistant director to Bost before succeeding him as director. “Mississippi had one of the strongest Extension Services in the nation while Bill was director.”

Carpenter said networking was one of Bost’s strengths.

“Dr. Bost knew that state and federal money was unreliable, so he pushed county staffs to improve their relationships with their boards of supervisors,” Carpenter recalled. “He knew how to search out additional funding sources that would help us expand our mission. He was quite adept at working with the state legislature, too.”

That good relationship with the legislature was important to the Extension Service during the 1960s and ’70s, he added.
“They recognized the value of the Extension Service, and we came to count on the support of some key leaders in Jackson,” Carpenter said.

One of those key leaders was William Winter, who served as a state representative, treasurer, lieutenant governor, and governor. “Dr. Bost had a widespread reputation for being knowledgeable about agriculture in Mississippi and the needs out in the state,” Winter remembered. “He was from rural Mississippi, and he knew how to speak the language of the legislators. He knew about issues from his own experiences.”

Winter said Bost had a quiet, effective method of communicating. “He was not flashy. He was not a politician. He was a leader, and people respected him,” Winter observed. “We also knew that the MSU alumni respected him.”

Bost served in the U.S. Navy during World War II before returning home and obtaining his degree from Mississippi State in 1949. He earned a master’s degree in Extension administration from Cornell University in 1959 and then returned to serve as MCES Northeast District agent and later as associate director.

Bost, who earned his doctorate in administration of higher education from the University of Mississippi in 1970, placed significant value on Extension personnel obtaining advanced degrees.

Dr. Danny Cheatham served as an administrative assistant to Bost and eventually as the leader of a small, new unit focusing on computers and software development. Extension specialists and agents showed producers how to use technology in agricultural decision-making.

“He had a way of helping young Extension employees cultivate their leadership skills to the benefit of both the organization and the individual.”

As Extension director, Bost led many initiatives, including the consolidation of all on-campus Extension offices. He began lobbying the legislature in 1972 and received funding in 1974 to build the complex now named the Bost Extension Center, which was completed in 1977.

Progressive Farmer magazine selected him as its Man of the Year in 1980. Governor William Waller named him Outstanding Mississippian in 1980 for serving both rural and urban citizens’ needs. Bost received two U.S. Department of Agriculture Superior Service Awards and a National Association of County Agricultural Agents Distinguished Service Award. He was recognized with two state legislative decrees.

Bost is survived by his wife of 71 years, Elaine Fields Bost; son Bill Bost Jr. of Vicksburg, Mississippi; son Steven Bost of Nashville, Tennessee; son Larry Bost of Starkville, Mississippi; daughter Bonnie Lasker of Birmingham, Alabama; daughter Suzanne Thompson of Mound City, Kansas; and daughter Julie Ferguson of Batesville, Mississippi. He was preceded in death by one daughter, Beth Nix.

By Linda Breazeale
NEW TREATMENTS
Kill Cancer Cells
Without Harming Patients

Dr. Lakshmi Narayanan and Dr. Cody Coyne conduct research to develop new chemotherapy treatments.
A team of Mississippi State University researchers is developing new pharmacological therapies that kill specific cancer cells without causing collateral damage to healthy cells and systems.

Dr. Cody Coyne, professor of molecular pharmacology and immunology in the MSU College of Veterinary Medicine Department of Basic Sciences, leads the team of scientists. While their work is incredibly complex, Coyne has a simple analogy to describe it.

“Orchestrating, organizing, and preparing detailed research investigations parallels the way a kitchen is managed in a large, successful restaurant,” Coyne said. “Many variables have to be simultaneously and sequentially controlled in order to acquire or generate a useful end product.

“The major emphasis of our pharmacology research program is the design and synthesis of anticancer agents that possess properties of selective, targeted delivery,” he added. “Cancer cells can be killed more effectively, and healthy tissues and organ systems experience a much lower exposure.”

When most conventional chemotherapeutic agents are administered, they usually spread throughout the entire body rather than just targeting cancer cells. This widespread distribution increases the chances of severe side effects.

“When you’re treating cancer, you’re trying to kill something that has become a part of the patient—it’s not a foreign pathogen or parasite,” Coyne said. “We have a lot of things that can kill cancer, but what limits our success is how well the patient tolerates collateral damage.”

Selective, targeted delivery minimizes the exposure of normal tissues and organ systems to anticancer therapies. Selective delivery is so effective that it reduces the undesirable side effects that typically limit the amount of time therapy can be administered.

“What we’re involved in is using chemistry and cancer cell biology concepts to establish a pharmacological approach to targeting therapy for tumors,” he explained. “We’ve established the molecular design of covalent immunochemotherapeutics with properties of selective, targeted delivery.”

Selective, targeted delivery therapies offer other advantages, as well.

“These therapies maximize the amount of anticancer agent that enters the interior of cancer cells, achieving levels that cannot be attained with conventional chemotherapy,” Coyne said.

Coyne’s research offers benefits to both veterinary and human medicine, said Dr. Kent Hoblet, dean of the College of Veterinary Medicine.

“Not many would expect that this kind of research is conducted at a veterinary college,” Hoblet said. “It really exemplifies how veterinarians are on the front lines of discovering and understanding the connections between human and animal health, ultimately improving them both.”

Coyne said his goal has been to establish the molecular design and produce as many different selective, targeted therapies as possible.

To achieve their goals, Coyne and his colleagues devote months to molecular design.

“We must identify new organic chemistry reactions that can be matched with an appropriate chemotherapeutic agent for synthesis procedures, identify a relevant neoplastic disease state, and identify sites on the exterior surface of cancer cells that can be used as targets,” he said.

Treating cancer with targeted therapies is safer, reduces collateral injury, and allows the agent to accumulate in the cancer cell at higher concentrations than in traditional chemotherapy.

“Our bottom line is, ‘How many cancer cells did our agent kill?’” Coyne explained. “It’s the most direct, real-life correlation to cancer. What concentration is needed? How much time do the cancer cells have to be around the agent? We want to translate our research into real-life solutions for existing problems.”

Coyne’s work is part of a larger network of research at MSU, said Dr. Greg Bohach, vice president of the MSU Division of Agriculture, Forestry, and Veterinary Medicine.

“Dr. Coyne’s research fits well into one of MSU’s and the division’s major areas of emphasis—health and health disparities,” Bohach said. “His work complements other health-related work ongoing in the College of Veterinary Medicine and throughout MSU, including several new recently funded projects from the National Institutes of Health.”

Coyne has been at MSU since 1992. In addition to developing a wide range of innovative agents, he has tried to simplify the process for creating the agents. One secondary goal of his investigations has been to optimize production methods to reduce manufacturing costs and facilitate international transfer of the new technology.

His synthesis technique shows promise for crossing over into the development of treatments for other diseases.

“The agents themselves are important, but the way they are made allows them to be a prototype for other drugs,” Coyne explained. “Say you have an exceptional target for a non-cancer condition, and you have a pharmaceutical you want to selectively deliver to treat infectious pathogens, autoimmune conditions, Parkinson’s, Alzheimer’s, or irritable bowel syndrome. You could then match the organic chemistry reaction in one of our synthesis methods with the pharmaceutical of interest and the ‘targeting’ agent to produce your own agent for a non-cancerous disease.”

Coyne’s research has the potential to make a significant impact on cancer treatment, said Dr. Stephen Pruett, professor and head of the CVM Department of Basic Sciences.

“Dr. Coyne has been participating in a unique program with Eli Lilly Inc., in which he submits the proposed chemical structure of targeted therapeutic agents he has designed, and Lilly scientists screen them by first using software and then using experimental studies to determine how well these new agents work,” Pruett said. “He has had many structures approved, and several of them are now in the experimental testing phase. The fact that a large, successful pharmaceutical company such as Eli Lilly is interested in these compounds and has moved them into the laboratory-testing phase is exciting.”

By Keri Collins Lewis • Photo by Tom Thompson
Most centenarians are slowing down and avoiding modern technology, but the Mississippi State University Extension Service is doing neither as it celebrates its 100th birthday.

“Although the foundational goals established in the Smith-Lever Act of 1914 remain essential in our mission, Mississippi State’s Extension Service agents understand the current issues in their communities, and they have taken advantage of the many options for delivering life-changing information,” said Dr. Gary Jackson, director of the MSU Extension Service. “Technology is a key tool in educating people, and our mission in Extension is to deliver research-proven information to the people of the state.”

The Smith-Lever Act, signed on May 8, 1914, established the Cooperative Extension Service, the nationwide education system operating through land-grant universities in partnership with federal, state, and local governments.

“The Extension Service has evolved from something people absolutely needed in the early 20th century to a vibrant organization equipping citizens for living in the 21st century,” Jackson said. “County offices across the state are marking the centennial with a variety of celebrations. Along with our many state and local partners, we look forward to celebrating our past accomplishments while maintaining a focus on the bright future ahead.”

Jackson recently reflected on the many changes that have occurred during the last 100 years.

“Our nation and state have come a long way since 1914. We lived through boll weevil invasions, the Depression, and world wars. Each one had crippling effects on the state, but Extension agents were present to help clients through those challenges and others,” Jackson said. “For example, Mississippi’s cotton farms are 100 percent boll-weevil-free today, due in large part to Extension’s efforts working with the farmers themselves, who all did what it took to eliminate cotton’s historic number-one pest.”

Kenneth Hood, a grower in Bolivar County, was chairman of the Boll Weevil Eradication Board during the eradication efforts.

“Had it not been for some key elements in Mississippi, such as MSU’s Extension Service, boll weevil eradication would not have happened,” Hood said. “Extension worked in all the state’s regions, at the state level and the county level, getting the information out to the farmers.”

Hood said the enormity of the program required several years of effort.

“Mississippi was divided into four initial regions, and eventually one of those was divided to make a total of five regions. Each one had to have educational meetings, program votes, and director elections,” Hood said. “Extension was intensely involved in the program throughout the 5 years or so that each region needed to become boll-weevil-free. Because of Extension’s and growers’ efforts, Mississippi growers no longer lose a single boll to boll weevils.”

Jackson described the eradication effort as a classic example of taking research-based information to the people for better production methods.

“We can point to similar stories in other commodities, where simple or not-so-simple changes enabled growers to be more successful,” Jackson said.

Home demonstration clubs in the early years of Extension evolved into home economics programs and continue today in a variety of family and consumer science activities addressing topics such as nutrition, health, financial literacy, volunteer programs, and home-based businesses.

Extension’s flagship program for young people, 4-H, has also evolved in the last 100 years, Jackson said. Mississippi received the first federal dollar budgeted in the United States for the forerunner of today’s 4-H. This funding was for corn club programs in Holmes County in 1907.

“Early youth clubs sought to send children home to their families with better skills in agriculture, food, and textiles,” he said. “Today’s 4-H members still do those projects but so much more.”

“Youth are involved in technology projects, such as robotics, and also programs like ATV safety and shooting sports,” added Dr. Paula Threadgill, the Extension Service associate director who oversees the state 4-H program. “Leadership skills and citizenship projects are where we really get the reassurance that our communities will be in good hands in the future.”

By Linda Breazeale • Photos submitted by the Consortium for the History of Agricultural and Rural Mississippi (CHARM)
Home demonstrations were an important part of Extension’s work in the early years. Here, women participate in a canning demonstration.

MSU President William Hall Smith, center, supported 4-H club work in Mississippi. Smith established a boys’ corn club in Holmes County in 1907. Corn clubs were the forerunners of today’s 4-H program. Smith was MSU’s fifth president, serving from 1916 to 1920.

Then, as now, county Extension agents sought to help clients improve their lives and livelihoods.
For Extension agents, education is more than the exchange of information. It’s personal. It is a connection to their clients and a sense of responsibility for the outcomes.

It’s been that way since 1914, when the Smith-Lever Act established the Cooperative Extension Service. In the past 100 years, the organization, now known in the state as the Mississippi State University Extension Service, has delivered research-based information to Mississippians to help them raise crops, livestock, and families.

“We’ve always been about delivering knowledge that people need in their everyday lives,” said Kimberly Gowdy, Extension family and consumer sciences agent in Harrison County. “There is still a critical need in our community for general education on every facet of life, from child development to community sustainability.”

From mule-drawn plows and boys’ corn clubs to GPS-equipped tractors and technology-driven 4-H programs, the Extension Service remains essential for improving the quality of life in Mississippi. Gowdy is one of many innovative agents who are renewing Extension’s commitment to its motto: “Extending knowledge. Changing lives.”

Gowdy and her colleagues are dedicated to helping people gain the information they need. She is a former 4-H’er who grew up learning the importance of the programs Extension offers. Her mother was the Extension home economist in Harrison County for several years.

Gowdy, whose clients are primarily child-care providers and parents, said she tries to fully engage class participants for the best learning experience.

“I like to use fun, hands-on activities and music in my classes,” she said. “Most of the time, people are coming to my classes after working all day. I try to make learning as enjoyable as possible so people are more receptive to the information.”

In an age when information is literally at everyone’s fingertips, Extension remains a trusted, personal source.

“Extension is an avenue for people to get the information they need, either through our website or face-to-face interaction with agents,” said Jessica Lindsey, Extension 4-H agent in DeSoto County. “We can help people with anything from A to Z. If they need to get squirrels out of their attic or need advice about financial planning, we can help.”

Lindsey, who originally intended to be a physical therapist, said she could not be happier than she is in her job, guiding young people and educating her neighbors.

“When I decided I wanted to be a teacher, my dad suggested I apply for this job,” said Lindsey, who was a member of 4-H. “This is my fourth year, and I love it. I can teach without the confines of the classroom.”

Extension offers a variety of expertise and research-proven data that enables agents to help with just about any question or challenge clients bring to them.

“I have not run into a question that I couldn’t answer or find an answer for,” said Reid Nevins, an agriculture and natural resources Extension agent in Lowndes County. “All of the research Mississippi State does is on the cutting edge, and it’s my job to get that information out to the people in my area.”

Nevins, who grew up in a family of farmers, offers programs that show Extension’s well-rounded knowledge base.

“I try to offer a wide variety of programs that will draw people who might not be familiar with Extension,” he said. “I offer cattle and row-crop programs, but we also have a beekeeping group, a wide range of 4-H programs, and wildlife and forestry programs.”

Extension education has undergone rapid changes in the past 10 to 15 years. Agents no longer depend solely on the postal service and physical meetings to deliver information to clients.

“Extension is adapting as technology is progressing, and we’ve done a good job of keeping up,” said Ty Jones, an agriculture and natural resources Extension agent in Madison County. “But the challenge going forward for us is grabbing the future without leaving any of our clients behind. We still have customers who do not have access to computers.”

In a world of impersonal technology, the individual service that agents provide is a key strength of Extension, Jones said.

“We will continue to adapt to new technologies and learn the best ways to use them to benefit our clients,” Jones said. “Technology is an essential part of our lives, and we should be embracing it. But having agents in each county is important for the way we serve our citizens. They get the best possible educational programs and assistance to meet their individual needs because we have people who can listen, assess their needs, and help them solve problems.”

That’s why, Jones said, Extension will be around for another 100 years.

“I think we’ll be surprised at how things from 100 years ago will again be interesting and relevant in people’s lives throughout the next 100 years,” he said. “We are already seeing a renewed interest in self-sustaining skills, like growing food.”
Reid Nevins, agriculture and natural resources Extension agent in Lowndes County, takes seed moisture and weight readings during harvest of a soybean variety trial.

Jessica Lindsey, Extension 4-H agent in DeSoto County, enjoys teaching 4-H’ers “without the confines of the classroom.”

Ty Jones, Madison County agriculture and natural resources Extension agent, helps 4-H member Deontay Benson prepare for a 4-H archery competition.
Using 4-H Skills to Improve Mississippi

A 4-H alum’s lifetime dedication to “making the best better” led to the creation of a nonprofit organization that seeks to make Mississippi a better place.

Sanford Johnson, a native of Starkville who spent 8 years in 4-H, said the skills he learned in the Mississippi State University Extension Service youth development program improved his life.

Five years ago, Johnson and Rachel Hicks Canter, another former 4-H’er, created Mississippi First, a nonprofit organization that aims to improve high-school graduation rates and teen health through public education reforms.

Both Johnson and Canter completed stints with the Teach for America program, which trains and places qualified individuals in underserved school districts. After their teaching experiences, they wanted to do more to decrease the state’s high poverty, obesity, and teen pregnancy rates.

“We both had similar experiences through 4-H and as teachers,” said Johnson, who lives in Clarksdale with his wife and daughter. “We share a pride in our state and want to make Mississippi a place where people want to stay and raise their children. We believe that the answer to some of the most pressing issues in the state start with helping students succeed academically and personally.”

As deputy director of advocacy at Mississippi First, Johnson provides research-based data to parents, students, teachers, and community members to help them understand the benefits of the Common Core curriculum and the Creating Healthy and Responsible Teens Initiative.

Johnson credits his motivation and abilities to his involvement in 4-H. He joined Oktibbeha County 4-H in 1990 as a Cloverleaf after he moved to Starkville from Cleveland, Ohio. He participated in several projects and programs, including public speaking. He also served on the leadership team. As state vice president and state president in the mid-1990s, he traveled to several states and interacted with a diverse set of people.

“Meeting different people and learning about their viewpoints was one of the most influential experiences for me,” he said. “I was exposed to people who looked different and had different backgrounds. That challenged me in a good way and definitely made an impact on me.”

4-H was a family affair for Johnson, whose mother, Dr. Everlyn Johnson, is a retired Extension clothing and textiles specialist. But it was the relationships he formed that kept him interested in the organization.

“There was never any question that I was going to be involved in 4-H,” he said. “My grandmother was a 4-H leader. My mom was in 4-H as a child, and she worked for Extension.

“But I really enjoyed meeting new people,” Johnson said. “I still stay in touch with friends I made in 4-H. A big part of my job is community outreach, and it’s a common occurrence for me to run into someone I knew in 4-H.”

Over the past century, the Extension Service has evolved to meet the skill-building needs of young people. From livestock to robotics, 4-H programs have offered children ways to find their callings for decades.

Dr. Rae Oldham, Extension 4-H specialist, said she remembers Johnson as a natural leader.

“Sanford was and still is an outstanding young man,” Oldham said. “He was a leader at an early age and saw no barriers in life. He wanted not only to improve himself but also to help his peers. He always included everyone. He was charismatic and had great speaking and listening skills.”

Mississippi needs people like Johnson, Oldham said. And 4-H is still a wonderful network to help young people reach their full potential.

“4-H provides a safe and supportive environment for youth to explore all the possibilities available to them while encouraging them to develop and obtain knowledge and skills that will enable them to be contributing and involved citizens in their communities,” she said.

“4-H teaches young people to be leaders,” Johnson agreed. “These kids are going to get to run the state one day, and leaders must be able to communicate with people who are different from themselves.”
Sanford Johnson, who credits his motivation and abilities to the time he spent in 4-H, advocates public education reforms to improve graduation rates and teen health.
When Dr. Raja Reddy came to Mississippi State University from India 25 years ago, he saw opportunities for his family and for his research. As an agricultural scientist, he understands the concept of reaping what he sows.

But he did not expect his career to take him back to India to give those same opportunities to other curious students.

Reddy, a research professor with the Mississippi Agricultural and Forestry Experiment Station, studies environmental plant physiology and has focused his career on plant cultivars that thrive in hot, cold, or dry conditions. His award-winning work on modeling climate change and its impact on agriculture is rooted in a practical need: how to grow enough food for a rapidly expanding population on a planet that is getting hotter.

“Food isn’t just a local issue; it’s a global issue,” Reddy said. “The scientists I work with—including graduate students from Guyana, Sri Lanka, Ghana, Iraq, and India—screen crop cultivars for multiple stressors, such as heat or cold, drought, ultraviolet radiation, and nutrients. We are studying issues we can solve.”

Reddy invests time and effort into his students and research projects, not always knowing how that seed will grow and bear fruit, but hoping the harvest will improve both Mississippi and other places in the world with food-security challenges.

“Our research addresses the needs of Mississippi’s agricultural community and the food our farmers produce,” Reddy said. “For example, a couple years ago, rice growers in the Delta had an issue with low fertility because of high temperatures. So we are trying to screen several rice cultivars for high heat and extreme temperature tolerances.”

An increase in food production and food security is essential to adequately nourish the world’s growing population, said Dr. Mike Phillips, head of the MSU Department of Plant and Soil Sciences.
“The world population is expected to reach 9.1 billion people by 2050, 34 percent higher than in 2009,” Phillips said. “This presents a major challenge and especially pressures natural resources. Dr. Reddy is on the forefront in addressing these issues as he conducts cutting-edge research with many crops. He not only expands our knowledge and understanding of how crops respond to changes in climate, but also teaches and mentors future agricultural scientists from around the world.”

Mississippi has a climate similar to that of India and other parts of the world with growing populations. Many of the agronomic crops grown in these countries are similar. So when MSU President Mark Keenum prioritized the recruitment of international students, Reddy reached out to colleagues from his early years in India. Many of his contacts are now administrators and high-level researchers at agricultural universities.

“I’m connecting people,” Reddy said. “We’re arranging student and faculty exchanges to get new ideas and to explore the opportunities for Mississippi. In order to be a global leader, you must have a culturally diverse population. Diversity brings new ideas and drives innovation. We need our students to experience different cultures, develop business partnerships, and understand what global markets demand.”

Competition for education remains fierce in India.

“There were 1,100 applicants for 40 seats in the master’s degree program in India when I left, and it’s still the same,” he said. “MSU has the opportunity to recruit some of the brightest students in India, and, when they get a world-class education here, they can apply what they’ve learned to help feed the growing world population in almost any location.”

Reddy helped arrange exploratory trips for MSU administrators to visit key institutions in India.

“Based on our initial visits, we decided to concentrate on three southern states in India,” he said. “Most of our Indian graduate students come from those areas because we grow many of the same crops in Mississippi.”

While the students gain research experience or an advanced degree from one of the top agricultural research universities in the United States, the exchange is not one-sided. American farmers can pursue business opportunities resulting from the MSU collaborations.

“We can learn from their practices and perceptions about developing different plant cultivars and the crops they are growing, such as pigeon pea,” Reddy said.

Pigeon pea is widely used in India and the Middle East, he explained.

“You can’t have an Indian meal without it,” Reddy added. “Most Indians eat vegetarian meals, and the pea is an important substitute for meat. Australia grows a lot of pigeon pea and exports it. There may be a market need we could fill in Mississippi.”

Reddy said MSU can also benefit from current research in India, including studies at the International Crops Research Institute for the Semi-Arid Tropics in Andhra Pradesh.

“They work on beans, peanuts, and grain sorghum for the semi-arid tropics,” he said. “The institute has a collection of all the germplasm for peanuts in the world. We can get free germplasm from them and use this genetic material to develop our own peanut varieties.”

In addition to conducting research, writing journal articles, authoring book chapters, and mentoring graduate students from all over the world, Reddy works with the MSU International Institute to recruit professors and students.

“We want to attract faculty to join the International Institute, to connect them with their peers in India for collaborative projects, and to invite them to see the research opportunities available, not just in India, but in African and South American countries,” he said. “There is so much to be learned about nutrition, agricultural economics, water use, animal science, and even basic science. We need to work together to help eliminate world hunger.”

For more information about the International Institute and opportunities for faculty and student exchange programs, visit http://www.international.msstate.edu/about/index.php.
Volunteers are the heart of the 4-H youth development program, and the MSU Extension Service recognizes those who demonstrate exemplary service and promote volunteerism as both an opportunity and a privilege. Outstanding 4-H volunteer awards are given in three categories: Rising Star recognizes volunteers with 1–3 years of service; Outstanding Volunteer of the Year, 4–10 years of service; and Lifetime Volunteer, more than 10 years. Award winners are recognized at an annual Volunteer Leaders Conference, and overall outstanding and lifetime volunteers are nominated for national awards.

“It would be impossible for the Mississippi State University Extension Service to implement its 4-H youth development program without quality, caring volunteers. We know volunteers are vital in providing life skills for our youth. Recognizing 4-H volunteers for their loyal and dedicated service to youth is a top priority of MSU Extension.”

Stephanie McMillian of Tishomingo County received the overall Rising Star award. McMillian’s nominator, Danny Owen, called her a “program saver” because she became a certified shooting sports instructor in 2012 to fill a void in the county’s 4-H Shooting Sports Program.

“She is always active and always willing to pitch in,” Owen said. “She saw a need and addressed that need. Through Ms. McMillian’s efforts, the Tishomingo County 4-H Shooting Sports Program is on solid ground.”

When she realized the county needed new shooting equipment, McMillian applied for and received a $4,600 National Rifle Association grant, which has allowed many more youngsters to participate in the program.
McMillian teaches gun safety to children at child-care centers and has spearheaded county fund-raisers that support various 4-H activities. She also works the 4-H concession stand at the county fair, which helps fund the 4-H program.

Ricky Davis of Lee County, Kimberly Englett of Lowndes County, and LaKezia Ham of Lowndes County also received Rising Star awards.

Courtney Headley of Oktibbeha County received the overall Outstanding Volunteer of the Year award. Headley created a Pay It Forward community service project to teach 4-H’ers about giving. As part of the project, 4-H youths created gift baskets to give to community members during holiday seasons.

Headley also led projects to donate stuffed animals to a hospital children’s unit, ring the bell for the Salvation Army, and make valentines for those living in personal-care homes.

Nominator Tammie Adam said Headley exemplifies the 4-H motto, “To make the best better,” and she constantly strives to encourage each 4-H’er she meets.

“Courtney personifies the essence of volunteerism,” Adam said. “She works diligently to assemble the group and present a meaningful learning experience for her members. In her role as a teacher, Courtney helps to cultivate and maintain the values and customs of 4-H.”

Meleoline Cooperwood of Lee County, Dot Vance of Lauderdale County, and Deborah Munn of Pontotoc County also received Outstanding Volunteer of the Year awards.

Ruby Beckley of Lee County won the overall Lifetime Volunteer award for her 43 years spent investing in the lives of countless 4-H’ers. When a 4-H’er is unable to afford fees for 4-H trips or conferences, Beckley often covers the costs so the member can attend.

Beckley has served on the Mississippi 4-H Volunteer Leaders’ Association board as vice president and recently served as the Northeast District coordinator. She attends 4-H Congress every year, as well as all 4-H meetings in her county.

In making this nomination, Beth Youngblood said Beckley is a legend in Lee County and accomplishes more for 4-H youths than most people half her age.

“She is one of the most caring people I have ever met,” Youngblood said. “She would not have been a 4-H leader for over 40 years if she did not genuinely love the youth in her community. Words cannot describe the difference she has made in the lives of so many people.”

Debbie Hill of Humphreys County, Linda Ellis of Lowndes County, and Audra Chism of Pontotoc County also received Lifetime Volunteer of the Year awards.
Mississippi State University scientists have created a new software program to help foresters and landowners manage hardwood timber.

Dr. Emily Schultz and Dr. Tom Matney, forestry professors in the MSU Forest and Wildlife Research Center, developed the software and user’s guide based on 33 years of research.

The free software provides expected yields and future growth values for the red oak-sweetgum forest mixture that is widely distributed across Mississippi river bottoms.

“We are excited to release the bottomland hardwood prediction system as a tool for foresters and landowners to use in achieving management objectives,” Schultz said.

“Growth and yield programs take years to produce, as trees must be measured and remeasured to create a database sufficient for modeling. Because of the time requirement, there are very few models available for foresters to use in hardwood yield projection.”

Researchers used more than 29,000 tree records to develop the software, and 2,103 of those trees were professionally graded.

The red oak-sweetgum growth and yield system predicts the volume of merchantable sawtimber by grade category and species group. The software contains four tabbed worksheets that allow different levels of user input.

“Predicted trees per acre, diameters, basal area, and volume by species group are reported in both tabular and graphical form,” Matney said. “Volumes are produced in board feet and cubic feet by log grade, which allows realistic current and future valuation of stands.”

Six graduate students developed components of the software as part of their degree requirements. The project was completed in cooperation with the U.S. Department of Agriculture’s Forest Service Center for Bottomland Hardwood Research in Stoneville.

The software is available at http://fwrc.msstate.edu/software.asp.

By Karen Brasher
Sunflower County, founded in 1844, encompassed most of modern-day Sunflower and Leflore Counties. When these counties were separated in 1871, the Sunflower County seat was established in Johnsonville. In 1882, the county seat was moved to Eureka, which eventually became Indianola. Indianola is said to have been named in honor of an Indian princess named Ola.

Several famous entertainers and athletes are from Sunflower County. Legendary blues musician B.B. King grew up in Indianola, where many streets are named after King and his music. It was also the home of jazz musician Brew Moore, country singer Johnny Russell, and bluesmen Arthur Duncan, Jazz Gillum, Albert King, and Charley Patton. Other natives include actors Mary Alice and Willie Best. Alice, born Mary Alice Smith, appeared in several movies, including *Down in the Delta* and *The Matrix Revolutions*. Best, a television and film actor, was one of the first well-known African American film actors and comedians. Sunflower County’s famous athletes include Archie Manning, the 3-year starting quarterback at Ole Miss who went on to play for the New Orleans Saints, Houston Oilers, and Minnesota Vikings; and Ellis Wymns, a defensive tackle for Mississippi State who went on to play for the Tampa Bay Buccaneers, Seattle Seahawks, and Minnesota Vikings.

“Working for the people in Sunflower County is such a rewarding experience. It is an honor to work in a county that is so rich in agriculture and history. Sunflower County is truly a great place to live, work, and play.”

Ann W. Twiner, MSU Extension agent
Keenum Elected to IFDC Board

MSU President Mark E. Keenum has been elected to a 3-year term on the International Fertilizer Development Center (IFDC) board of directors.

IFDC is a public international organization addressing critical issues such as international food security, alleviating global hunger and poverty, protecting the environment, and promoting economic development and self-sufficiency through the use of agricultural technologies including fertilizers and other inputs.

Wildlife Society Honors Burger

Dr. Loren W. “Wes” Burger Jr. is a new fellow in The Wildlife Society. He was recognized for exceptional service to the wildlife profession at the group’s 2013 annual meeting.

Burger serves as associate director of the FWRC and MAFES and is a professor in the Department of Wildlife, Fisheries, and Aquaculture.

Burger’s research interests include bobwhite quail and grassland bird ecology and management. He served as project coordinator for USDA’s Northern Bobwhite Habitat Restoration Project, a research effort to determine wildlife response to farm bill conservation practices.

Adviser Receives Local, National Awards

Julie “Missy” Hadaway, CVM admissions and student affairs coordinator, has been awarded the 2014 Irvin Atly Jefcoat Excellence in Advising award at MSU. She was also selected for an Outstanding Advising Certificate of Merit in the primary advising role category by the National Academic Advising Association.

Hadaway has guided the career paths of thousands of undergraduate, graduate, and veterinary students since 2010.

MSU Named Tree Campus USA

The Arbor Day Foundation named MSU a Tree Campus USA for promoting and maintaining healthy trees and inspiring faculty, staff, students, and community members to conserve. The program honors campuses that implement proper urban forestry management principles and promote environmental stewardship.

“We are a land-grant university, and this honor is representative of our purpose to educate the people of our state about good stewardship of our natural resources,” said Dr. Jason Gordon, assistant Extension professor in the Forest and Wildlife Research Center (FWRC) and chair of the Campus Tree Advisory Committee.

Forestry Professor Named Society Fellow

Dr. Emily Schultz was recently named a fellow in the Society of American Foresters for her contributions to the society and the forestry profession.

Schultz is a professor in the College of Forest Resources (CFR) and the FWRC. Her areas of research include computer forest modeling, forest inventory, and hardwood growth and yield.

Schultz and colleague Dr. Tom Matney developed the Mississippi Forestry Inventory System, a software program that estimates the volume of timber in the state. Bioenergy and forest product companies have used the program to determine the optimum locations for mills based on the availability and distribution of raw resources.
Hopper Elected to Regional Post

MAFES Director George M. Hopper was recently voted the 2014–15 chair of the Southern Association of Agricultural Experiment Station Directors.

He also will serve for 3 years on the national Experiment Station Committee on Organization and Policy, the executive body of the Experiment Station Section, Board on Agriculture Assembly of the Association of Public and Land-grant Universities.

The Southern association includes members from 13 states and two U.S. territories: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, Puerto Rico, and the U.S. Virgin Islands.

The organization works to identify research priorities and collaborative opportunities among the 29 land-grant universities in this region.

Wildlife Biologist Receives Regional Award

Dr. Richard M. Kaminski, a professor in the Department of Wildlife, Fisheries, and Aquaculture, received the Clarence W. Watson Award from the Southeastern Association of Fish and Wildlife Agencies.

The Watson award is the association’s most prestigious honor. It is presented jointly by the association, the Southeastern Section of the Wildlife Society, and the Southern Division of the American Fisheries Society.

Professor Earns Food Animal Medicine Award

Dr. Richard M. Hopper has been awarded the El Toro Award for Excellence in Food Animal Medicine from Auburn University’s College of Veterinary Medicine.

Hopper, who teaches in the CVM Department of Pathobiology and Population Medicine and is an Extension veterinarian, received the award during Auburn’s 107th veterinary annual conference.

The El Toro Award recognizes a veterinarian who serves as a role model for veterinary students through contributions to food animal practice, organized veterinary medicine, high ideals, and dedication to food animal production.

Experts Coauthor Natural Resource Report

Two MSU administrators are helping shape natural resource education and policy in a recently released national report.

Dr. Rubin Shmulsky, head of Sustainable Bioproducts, and Dr. Bruce Leopold, executive director of the Center for Resolving Human-Wildlife Conflicts, were among the 35 scientists who authored “Science, Education, and Outreach Roadmap for Natural Resources.”

The USDA-sponsored report details six major challenges facing the country in the areas of sustainability, water, climate change, agriculture, energy, and education. The roadmap charts a path for natural resource research, education, and outreach direction for public universities over the next 5–10 years and provides a framework to help guide policy decisions.

Leopold and six other scientists developed the education section. Shmulsky was a senior author on the energy section. Both Shmulsky and Leopold are faculty members in the FWRC.
CALS Awards Recognize Faculty and Staff

The College of Agriculture and Life Sciences honored four faculty members as exemplary teachers: from left, Angel Fason, an instructor in the School of Human Sciences, received the Excellence in Teaching Lower Division Undergraduate award; Dr. Shien Lu, an associate professor in the Department of Biochemistry, Molecular Biology, Entomology, and Plant Pathology, received the Teacher of the Year award and the Excellence in Teaching Upper Division Undergraduate award; Dr. Fred Musser, an associate professor in Biochemistry, Molecular Biology, Entomology, and Plant Pathology, received the Excellence in Teaching Graduate Instruction award; and Dr. Charles Freeman, an assistant professor in Human Sciences, received the Excellence in Teaching New Faculty award.

MAFES recently honored MSU scientists and students for outstanding research. Dr. Fei Yu, center, received the 2014 Excellence in Research Award. Tyler Anderson, left, and Bart Harris represent Mississippi Land Bank, which sponsored the award.

MSU facility managers were honored for their efforts to maintain MAFES branches. From left are research professor Mark Shankle of the Pontotoc Ridge-Flatwoods Branch Experiment Station; agricultural technician Barzinia Smith, farm supervisor Bryant Howard, and agricultural technician Wayne Sykes of the Black Belt Branch Experiment Station in Brooksville; and operations manager Peter Hudson of the Truck Crops Branch Experiment Station near Crystal Springs.

Sharron Miles, left, administrative assistant in the Department of Agricultural and Biological Engineering, received the outstanding support staff award. Beth Hathcock, business manager in the Department of Plant and Soil Sciences, received the outstanding professional staff award.
MSU Dedicates 4-H Complex

MSU Extension personnel joined 4-H members and volunteer leaders, state and local government officials, industry representatives, and 4-H Foundation of Mississippi board members for the dedication of the Jimmy Bryan 4-H Youth Complex.

The 63-acre multipurpose youth complex features a nature trail, a 4-H shooting range, the Southern Icions 4-H Environmental Center, the Mississippi Farm Bureau 4-H ATV Training Center, and the Elizabeth A. Howard 4-H Therapeutic Riding and Activity Center.

Other agencies involved in the project included Mississippi Land Bank; the Mississippi Land, Water, and Timber Resources Board; Farm Bureau partners; and the Mississippi Department of Wildlife, Fisheries, and Parks.

Professor Launches Arboretum Book

Bob Brzuszek, an Extension professor of landscape architecture, recently launched *The Crosby Arboretum: A Sustainable Regional Landscape* through the Louisiana State University Press.

More than 20 years ago, when Brzuszek was a graduate student at LSU, he became involved with the arboretum’s planning and development. After completing his master’s thesis on the proposed exhibits for the site, he served as the Crosby Arboretum’s site curator for 13 years.

His book chronicles the property’s evolution from agricultural site to award-winning arboretum. It also highlights concepts of sustainability and principles of native plant uses that can be applied in other landscapes.

Peterman Is New Aquaculture Associate

Mark Peterman has joined MSU Extension as the new aquaculture associate, returning to MSU after 9 years at the Auburn University School of Fisheries, Aquaculture, and Aquatic Sciences.

He earned a bachelor’s degree in fisheries management from MSU and a master’s degree in aquaculture from Auburn University.

After graduating from MSU, Peterman served as facility manager of the aquaculture unit at the H. H. Leveck Animal Research Center on the MSU campus. He also managed the MSU Coastal Aquaculture Unit in Gulfport and the Experimental Seafood Processing Laboratory in Pascagoula.

While at Auburn, Peterman oversaw a variety of fresh, warm-water fish production systems and worked extensively with commercial aquaculture producers and recreational fisheries.

Britt Named New Extension/CALS Fund-Raiser

Dees Britt was recently named assistant director of development for CALS and Extension. She will work with CALS director of development Jud Skelton.

Britt earned a bachelor’s degree in communication, followed by her master’s degree in teaching and community college education, with an emphasis in marketing, at MSU.

Britt began her career with MSU in 2009 as an admissions counselor for central and north Mississippi in the Division of Student Affairs. Most recently, she served as admissions coordinator and recruiter for CALS and CFR.

Conservation Specialist Joins Extension

Jared Harris of Poplarville recently joined Extension as an environmental biologist specializing in conservation. He will serve as the lead contact for 23 southern counties as a coordinator for the Research and Education to Advance Conservation and Habitat (REACH) program.

Harris’s work is a new collaborative effort between Extension, REACH, EPA-Gulf of Mexico Program, USDA’s Natural Resources Conservation Service, and Pearl River Community College.

The program will highlight the connection between uplands and the Gulf of Mexico by creating awareness and stewardship of shared resources. Harris will teach how effective management practices can be integrated into all commodity landscapes for the benefit of both commodity systems and the environment.
With a vision of furthering equine education through Mississippi State, Tommy and Terri Nusz established an endowment for a professorship in the College of Veterinary Medicine (CVM). Their $1 million gift for the college, along with more than $11 million in additional support for many other university units, is part of a campus-wide campaign known as Infinite Impact, which seeks gifts to further MSU’s long-range goals.

The Houston, Texas, couple are loyal alumni and longtime supporters of the 136-year-old, land-grant institution. Their family shares a strong connection with CVM because of a steadfast love for horses and a desire to encourage equine education and research.

The gift creates an endowed position known as the Terri Nusz Endowed Equine Professorship. Earnings from the $1 million endowment will supplement the salary of the faculty member who holds the professorship and will support his or her teaching and research efforts. After the endowment matures and has sufficient earnings, CVM will award the professorship to an esteemed individual selected from national and international applicants.

“We hope to increase the caliber of equine health education at Mississippi State through this distinguished professorship,” said CVM Dean Kent Hoblet. “We are grateful to the Nuszes for this special gift and will honor their commitment to equine health.”

As one of only 28 accredited veterinary colleges in the United States, MSU-CVM can make great strides in equine education through the scope of the professorship. In particular, the endowment will allow CVM to expand its equine program significantly and increase research in equine-related health issues.

Hoblet said the professorship will enable CVM to attract top-level residents and graduate students to provide quality care to horses, generate research, develop expertise, and find answers to problems concerning equine health.

“The new position will allow us to enhance student, intern, and resident programs to produce excellent graduates capable of providing high-quality care to horses, including performance horses,” the dean added.

The Nusz family shares a passionate interest in horses. Terri oversees the family’s various interests in equine sport, including TnT Equine Partners, Amalaya Investments, and Oasis Stables. Also, the couple’s daughter, Meagan, is an accomplished equestrian and competes as part of the U.S. Equestrian Team. She showcased her skills in the 2013 Nation’s Cup events in Slovakia and Brazil.

“A focus on equine health through this professorship is important because of our family’s personal involvement and appreciation for animals,” Terri said. “The MSU-CVM has a great reputation and can further developments in equine health with far-reaching benefits for animals and humans.”

Mississippi State University is a family tradition for the Nuszes. They met as classmates and instilled their appreciation of all things Bulldog in their children.

“O ur children grew up as part of MSU, and we want our giving to be truly reminiscent of what is important to our entire family,” Terri said.

Like many other graduates, the Nuszes support MSU, in part, because they credit Mississippi State with their professional success.

The petroleum engineering degree Tommy earned in 1982 gave him a great basis for a successful career in the oil and gas industry. He is chief executive officer and chairman of the board of the independent exploration and production company Oasis Petroleum Inc., which is listed on the New York Stock Exchange. He previously served as vice president for several divisions of Burlington Resources before its acquisition by Conoco Phillips.

A fellow 1982 alum, the former Terri Foster earned a degree in interior design. She started a design company after college, but she stays busy today with the family’s equine interests.
The Nuszses visit campus often. Their son, Brant, is following in their footsteps as a Mississippi State student. He is a junior majoring in business management and marketing and looks forward to joining his parents as a proud alumnus of the institution.

In addition to the veterinary college, the Nuszses’ generosity reaches the colleges of engineering and education, as well as MSU athletics. Their recent gift also will help fund construction of a planned permanent home for the G. V. “Sonny” Montgomery Center for America’s Veterans and will assist in the creation of a Partnership School with the Starkville-Oktibbeha County School District. The family’s impact will be immeasurable over time because the benefits of their generosity will resonate beyond campus.

“Alumni and friends should invest in areas of the university that they are personally connected with, passionate about, and want to advance,” Tommy said. “It’s really not the amount you give, but simply all of us sharing a belief that we can make our university extremely competitive with any higher-education institution in the nation.”

By Amy Cagle
In 1878, a small church was built on the grounds of Mont Helena near Rolling Fork, Mississippi. The Methodist Episcopal Church still stands and houses the original church bell in the bell tower.