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MSU’s popular line of muscadine juice is a result of work at the A.B. McKay Food and Enology Lab. A history of the enology program begins on page 24. (Photo by Marco Nicovich, styling by Phil Smith)

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James Mills, owner of K and M Nursery in Buckatunna, donated rose cultivars for the new MSU Veterans Memorial Rose Garden. The story is on page 22. (Photo by Jim Lytle)

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President Lee wrote the above statement more than 100 years ago. He was referring to research, and his words are as true today as they were then.

“Trying new things” means taking research results and putting them to work. By adopting new technology, the American farmer has become the most efficient producer of food and fiber in the world, and Mississippi’s farmers are among the best.

When Mississippi’s Legislature established the land-grant school in Starkville, nine out of 10 jobs in the U.S. were on the farm. Today, just 3 percent of the population works on the farm, but that 3 percent feeds all 300 million Americans and 10 percent of the rest of the world.

The success of technology in making our farms more productive caused a shift in the state’s workforce, and research and educational outreach at Mississippi State University is responsive to that shift.

The future of agriculture depends on the ability to produce the items consumers want. Leaner beef is an important part of our livestock research. Consumer demand for organic vegetables has led to increased work in that area at our research units throughout the state.

New industries have developed out of the changes in the agricultural sector. Enterprising Delta farmers have taken land once devoted to row crops and put it into ponds where they produce farm-raised catfish. Their marketing efforts and devotion to quality assurance have created nationwide demand for farm-raised catfish, and Mississippi is the number-one producer.

MSU Extension personnel and research scientists work with the catfish industry to address management, nutrition, marketing and other production issues. Especially important to producers is their access to expertise in the College of Veterinary Medicine for diagnosis and treatment when they encounter fish health problems.

In all areas of research, the university is looked to as an independent, unbiased source of information.

Land-grant schools have always been a partnership—first and foremost with the people they serve. Important to the success of the mission to serve Mississippi are producer organizations such as Farm Bureau, Delta Council and the Mississippi Cattlemen’s Association, the U.S. Department of Agriculture and other federal agencies, county boards of supervisors and the Mississippi Legislature, private industries and the individuals who help fund scholarships and provide other resources. Cooperation with other universities also helps us make the best use of resources.

The students who enroll in the academic programs in the division are one of Mississippi’s most valuable resources. The young men and women will leave the university prepared to assume important roles in virtually every industry. We pride ourselves with being a university that gets a lot of first generation students. These young people will go back into their communities and make huge contributions. That’s what being a land-grant institution is all about—giving back to the communities we serve.

Vance H. Watson
Vice President
It is a cold January morning, the sun is just breaking through the trees, birds are chirping, and Marvell Howard sits in his favorite tree stand; about 500 yards away, his teenage son Christopher occupies his own tree stand. Both hope to get a shot at elusive white-tailed deer near their Oktibbeha County home.

Howard’s father introduced him to rabbit hunting when he was 7 years old. He in turn introduced his son to hunting at the age of 7.

“I hunt deer, turkey, squirrel, rabbit and coon,” Howard said. “However, the time constraints of work and home limit the amount of time I can spend in the woods.”

Howard works for Mississippi State University’s physical plant, and he is representative of many hunters who have to choose which species to hunt.

To better understand the hunting population, Mississippi State University’s Human Dimensions and Conservation Law Enforcement Laboratory conducts an annual survey of Mississippi hunters.

Conducted since 1980, the survey is the state’s primary means of collecting information on the number of hunters in Mississippi who hunt for various game species, how much time they spend in the field, and how many animals they harvest. The 2006 survey results indicate a decline in the number of hunters and a shift in species sought.

“In the early 1980s, hunters were opportunistic and hunted a variety of game including quail, squirrel, rabbit and deer,” said Kevin Hunt, wildlife and fisheries assistant professor and director of the laboratory. “Currently, not as many people are hunting small game and upland birds.”

Some of the decreased interest is due to changing land-use practices, which in turn affects species availability. Additionally, demands on leisure time and rising fuel and equipment costs are forcing some hunters to curtail their hunting activities and specialize in only one or two species.

“When given the choice, about 80 percent of Mississippi hunters choose the white-tailed deer over all other species,” Hunt said.

Howard prefers raccoon hunting but can occasionally fit in a deer hunt with his son.
“There is something special about being in the woods in the early morning, the solitude and communion with nature,” he said. “I wish I could hunt more often; it just seems that there are not enough hours in the day.”

Determining hunter preferences and attitudes is an important part of MSU’s studies of the sport and efforts to provide opportunities for landowners to capitalize on hunting enterprises.

“The key to state and private landowners’ capitalizing on the economic benefits of deer and other types of hunting is to determine how hunters’ preferences and attitudes toward land and wildlife management will change and how technology will change the hunting experience,” Hunt said.

“Because of hunters’ preference for white-tailed deer, researchers have devoted considerable research to the study of deer hunting in Mississippi,” Hunt said. “Recent studies conducted by the laboratory include documenting hunters’ opinions toward deer management on wildlife management areas and the economic impacts of white-tailed deer hunting to the state economy.”

The survey revealed that in 2006 white-tailed deer hunting generated $978 million in sales of equipment and other hunting-related expenditures in Mississippi. The sport also supports some 33,000 jobs in the state.

Additionally, the survey shows Mississippi hunters spent an average of about $50 per day for deer-related trip expenditures and $111 per day for equipment and other long-term expenditures, while nonresident hunters spent $90 per day and $138 per day for these expenditures in the state.

The annual survey also captures demographic information.

“Currently, the Mississippi hunter population is 94 percent white male with a median annual household income of $50,000,” Hunt said. “Hunters indicated they have been hunting an average of 29 years and hunted an average of 28 days in the 2004-05 hunting season.”

About 60 percent of hunters consider hunting to be their most important outdoor recreational activity, and 20 percent belong to some type of hunting/conservation organization. Also, more than 65 percent indicated they live in a household with an ATV that is used for hunting.

“This type of information about the hunting population helps us provide hunting and other recreation businesses with the information they need to succeed. It also provides a baseline of data to better market hunting opportunities to existing clientele, as well as to identify under-represented groups,” Hunt said.

“When given the choice, about 80 percent of Mississippi hunters choose the white-tailed deer over all other species”

Kevin Hunt
Mantachie High School students Kevin Smith, left, Shea Scott and Tim Ellis harvest sweet sorghum grown by their FFA chapter.
Students involved in the Future Farmers of America program at Mantachie High School received hands-on experience this year in growing and harvesting sweet sorghum seed through an agreement with Mississippi Foundation Seed Stocks (MFSS), a support unit of Mississippi State University’s Mississippi Agricultural and Forestry Experiment Station. MFSS was established in 1959 under the direction of MAFES and is located on the MSU campus.

The students were involved in the field production and harvest of the “Dale” variety of sorghum, which was grown under contract for MFSS. They also grew four additional acres solely to cook as syrup and sell to the general public.

Students cut the first mature sorghum seed heads in late September and carried them to MFSS, where the seed was dried, thrashed, conditioned, tested and packaged for sale as foundation seed. The seed is sold to interested producers across the large sorghum-producing area of the eastern United States.

“We don’t grow every variety of the four varieties of sweet sorghum every year because the seed generally retains high quality when placed in our cold storage,” said Randy Vaughan, MFSS manager. “It just so happened that we needed additional seed of the Dale variety this year. The other three varieties that MFSS maintains as seed are M81-E, Theis and Topper 76-6.”

Beyond their seed production, the students harvested mature sorghum stalks in mid-October and cooked and sold sorghum syrup to the general public. Proceeds from the two sorghum projects, along with proceeds from the students’ meat cutting and greenhouse plant projects, help to fund various events the students participate in throughout the year.

“Agriculture is important in this area of the state,” said Mantachie High School Principal Scott Blackley. “Our ag program not only allows students to get outdoors and get their hands dirty learning the basics of how to grow, harvest and further process a crop, it is also good for community and school relations.

“Our ag program shows the people around here that we care about the future of agriculture and are supportive of the industry,” he said. “Plus, this type of project is something our students will never forget.”

Terry Norwood, Mississippi Farm Bureau Federation Region 2 manager and corn, wheat and feed grains coordinator, grew sweet sorghum seed for Mississippi Foundation Seed Stocks for four years. Last year, he decided he wanted the school kids at Mantachie High School to take over the reins, and they eagerly accepted.

“Terry did an excellent job for us, but one obstacle to growing sorghum is that it is labor intensive,” said Vaughan. “It was getting harder for him to find the time and people to help him grow and harvest the seed. This is a perfect crop for Mantachie High School because they have both the time and labor force. These students also did an excellent job.”

Seniors Justin Robbins, Shawn Hurd and Zack Elliff say they enjoy participating in the Mantachie High School FFA program. They think the sorghum project is a great addition, and they appreciate the fact that it provides them with plenty of hands-on experience. All three are considering ag-related majors in college.

“Mantachie High School has one of the few remaining ag programs in the state,” said Principal Blackley. “It’s certainly not the only one, but we feel that it is one of the most active. We are very proud of it.”

FFA ag program instructors are Joe Rogers and C.W. Franks. Approximately 80 students participated in the program this year.

For more information about Mississippi Foundation Seed Stocks, contact Vaughan at 662-325-2390 or email him at rvaughan@pss.msstate.edu.
Today’s niche crops may become tomorrow’s major commodities as Mississippi State University researches the production potential for oilseed crops and medicinal herbs grown in Mississippi.

“In general, these crops are cash crops that would provide higher economic returns for farmers than the now-traditional field crops,” said the head of the research, Valtcho Jeliazkov, a MSU researcher at the North Mississippi Research and Extension Center, or NMREC, in Verona.

“We are looking five to 10 years from now,” Jeliazkov said. “Assuming certain shifts in the priorities of agriculture in Mississippi and the U.S, I envision the production of oilseed crops for biodiesel to be one of the major prospective opportunities for Mississippi farmers.”

Oilseed crops are crops such as soybeans that produce vegetable oils for use in both nutritional and industrial applications.

As part of MSU’s Specialty Crops and New Product Development research program, Jeliazkov is fine-tuning the agronomic needs of oilseed crops such as sunflower, mustard, crambe and camelina to determine if any of them could be the next soybean.

“Soybeans may be the best example of a crop that was introduced to the U.S. from Asia as a niche crop,” said Michael Collins, head of the Plant and Soil Sciences department at MSU in Starkville. Collins helped secure the funding for Jeliazkov’s project.

“This species was originally introduced as a forage crop but did not go over well for that use,” Collins said.

Now more than 1.5 million acres of soybeans are harvested in Mississippi each year, and its production adds more than $300 million dollars to the state’s economy annually.

The oilseed crops in Jeliazkov’s study offer potentially higher oil concentrations than soybeans, less input costs and unique nutritional benefits.

The second facet of Jeliazkov’s research is the study of nearly 50 different medicinal and aromatic herbs, including St. John’s Wort, valerian, lemon balm, lavender, oregano and three types of basil.

These small crops can offer substantially more revenue per acre than traditional field crops such as cotton, corn and soybeans, but their value depends on their growing conditions.

“Factors such as fertilization, irrigation, weed and pest control, location, soil properties, temperature and ultraviolet radiation affect essential oil composition and thus the quality and the market price,” Jeliazkov said. “We are trying to determine the optimal conditions for these medicinal and aromatic crops that would ensure the highest product quality.”

Jeliazkov has research set up throughout Mississippi at MSU experiment stations in Verona, Stoneville, Crystal Springs, Beaumont, Poplarville and Newton.

“There are multiple locations for this project because we have a wide geographic range across the state, north to south,” said Wayne Ebelhar, an agronomist at the Delta Research and Extension Center in Stoneville. “Since these plants are not necessarily adapted to Mississippi, different locations serve as mechanisms to evaluate their potential.”

As a cooperator with Jeliazkov on the project, Ebelhar oversees the maintenance and harvest of the herb and oilseed
crops planted at the Delta station. Once harvested, plant samples are dried and sent to Verona for essential oil and quality tests.

Essential oil crops first became an interest for Jeliazkov when he was a young boy growing up in Bulgaria.

“In the village where I lived, there was a large state farm that grew a lot of essential oil crops such as lavender, dill, fennel, clary sage, and others,” recalled the researcher. “I still remember the aroma of those large fields in those long summer days, memories that are very dear to me.”

Jeliazkov later worked at the state farm in his village and eventually earned a Ph.D. in agronomy in 1988 from the Higher Institute of Agriculture in Plovdiv, Bulgaria. His research included peppermint propagation and weed control, along with the effect of these practices on essential oil composition. After moving to North America, he earned a second Ph.D. from the Plant and Soil Sciences department at the University of Massachusetts in 2001. In October 2005, Jeliazkov joined the NMREC in Verona as an assistant research professor.

“I think he’s an excellent addition to our staff,” said Alan Blaine, head of the North Mississippi Research and Extension Center in Verona. “The areas Valtcho is working on are cutting-edge technology.”

Blaine noted the importance of Jeliazkov’s research into the potential value of medicinal crops and of oilseed crops with high oil concentrations grown in Mississippi.

“His research will give us an opportunity to look at some alternative crops for the state,” Blaine said. “Somebody has got to do this work, and any new discoveries will be beneficial to our population.”

Jeliazkov is confident in his mission to bring new crop options to the state.

“Our goal is to improve the economic and environmental sustainability of cropping systems in Mississippi through the introduction of new specialty crops and the development of new cropping systems and new products,” Jeliazkov said. “I believe our research will benefit primary agricultural producers and contribute to transforming the U.S. from net importer of medicinal plants and plant-derived chemicals to net exporter.”
On June 23, 2006, it had been seven long months since Navlean Pittman had seen her son, and she felt like hugging the television. Pittman was one of the first two Mississippians to take part in a Freedom Call, which connects soldiers serving in Iraq to their families back home through videoconferencing technology. Interactive videoconferencing allows people in different locations to see and talk to each other over a television in real time, just as though they were face to face.

“We usually talk over the telephone every week, but to actually see him moving was like he was in the room with us,” Pittman said of her son, Army Capt. Dale Lee Pittman. “It was really exciting. My father was there, and he cried through the whole thing.”

Capt. Pittman also got a chance to visit with his brothers and sisters, grandmother, and nieces and nephews. Mrs. Pittman said her son was very excited and impatient in the weeks before their Freedom Call.

“He kept calling me saying, ‘Mama, when are y’all going to do it?’ I’d tell him, ‘It’s coming up. Give it some time,’” Pittman said. “He hadn’t seen everybody since he left for Iraq. The Freedom Call made him feel like he had come home for a little while.”

The Pittmans’ reunion was the work of Freedom Calls Foundation, a New York-based nonprofit organization, in cooperation with the Mississippi State University Extension Service. Susan Seal, Extension distance education coordinator, said a Freedom Calls representative contacted her trying to locate a site for a Meridian family’s Freedom Call.

“One they realized we had videoconferencing sites in every county, as well as contacts with other states, they were excited to begin a relationship with us because one of their problems is finding sites for the calls,” Seal said. “The Extension Service partnered with Freedom Calls to allow military personnel in Iraq to connect with their family members in Mississippi.”

Fred Gordon, who lives in Meridian, has also had a Freedom Call with his niece, Warrant Officer Felicia McShan.

“Freedom Calls are available at no cost to military families or the Extension Service. To find out more about setting up a Freedom Call, contact the county Extension office or Seal directly at (662) 325-8581 or susans@ext.msstate.edu.”

Freedom Calls Foundation has worked closely with corporate contributors, individuals and the military to build a satellite network connecting three military installations in Iraq with the United States. The foundation’s Web site, www.freedomcalls.org, states that three facilities in Iraq now serve 30,000 to 40,000 soldiers, marines and airmen. According to the site, the organization hopes to install facilities at every Army camp in Iraq and Afghanistan in the coming year.

“We are deploying state-of-the-art technology to transform the experience of soldiers on extended deployments to war zones,” the site states. “Soldiers may now attend and participate in milestone family events such as graduations, births, birthdays and weddings via video conference over the Freedom Calls Network. One Army general recently observed that our effort represents the single greatest boost in morale for the troops in the past 25 years.”

The foundation has received a personal letter and certificate of appreciation from Maj. Gen. Antonio M. Taguba, deputy commanding general support. The Defense Security Service awarded the foundation a certificate of appreciation and a “generous contribution.”

Freedom Calls Foundation also has been recognized by the U.S. Department of Defense’s America Supports You program.
Teaching and research capabilities in Mississippi State University’s Poultry Science Department have been expanded with the opening of a new poultry processing laboratory.

The facility is a scaled-back version of what students will find when they begin working in the poultry industry, said research coordinator Donnie Zumwalt.

“The laboratory contains the same type of equipment that industry is using and some they will use in the future,” he said. “It will give our students real-world experience while they are on campus.”

The addition of the laboratory also expands the capabilities of MSU’s poultry science program.

“Having a facility that mirrors an industry processing plant will allow us to generate accurate yield data to follow up our applied research,” Zumwalt said. “That type of data is valuable for the industry and hard to obtain without this type of facility.”

The laboratory contains state-of-the-art poultry processing equipment valued at almost $2 million. Baader Johnson, a food processing machinery manufacturer based in Kansas City, Kan., and D & F Equipment Sales of Crossville, Ala., donated and installed equipment.

“Students at MSU are the future leaders in the poultry industry, and they will certainly benefit from exposure to state-of-the-art, modern processing equipment and processes. As an alumnus of MSU, I’m very proud that I could be a part of making this happen,” said Doug Morgan, Baader Johnson’s western division manager.

MSU averages about 40 poultry science majors each semester. Following graduation they enter all phases of the poultry industry, including processing.

“This university significantly impacts the poultry industry, and this partnership is good for all of us,” said Mark Gidley, sales and marketing representative with D & F.
A new program is helping Mississippi’s furniture industry overcome increasing competition from imports.

The workforce training and development program is a combined effort of Mississippi State University, the Tupelo-based Community Development Foundation and Itawamba Community College.

Mississippi is losing furniture-manufacturing jobs to overseas competitors, explained MSU research professor Liam Leightley, principal investigator for the project.

“In order to effectively compete in today’s environment, our furniture industry must make gains in product quality, production efficiency and service,” Leightley said. “Countries such as China enjoy several cost advantages over U.S. furniture manufacturers, including low wage rates, fewer environmental and government regulations, and lower costs for expansion. As these countries continue to improve product quality and reduce transport times, the threat to U.S. manufacturers will intensify.”

Funded by a Department of Labor grant, the two-year program is designed to help the state’s furniture industry stay competitive by focusing on training identified by the industry, said Todd Beadles, director of workforce development for the Community Development Foundation.

“Top executives from some of Mississippi’s leading furniture manufacturers provided detailed information on the industry’s workforce development and training needs,” he said. “They indicated that the most pressing needs are in the areas of ergonomics, health and safety, leadership, motivation and performance management.”

Ergonomics refers to human capabilities in relationship to work demands.

Participating employees come from companies based in the north Mississippi counties of Alcorn, Benton, Calhoun, Chickasaw, Clay, Itawamba, Lafayette, Lee, Lowndes, Marshall, Monroe, Oktibbeha, Pontotoc, Prentiss, Tippah, Tishomingo and Union. About 95 percent of the furniture produced in Mississippi comes from those counties.

Interest surveys were mailed to more than 160 furniture manufacturers in the target area to gauge interest in specific training programs, including ergonomics, health and safety, lean manufacturing, product design, soft skills and computer literacy.

The training sessions are led by personnel from MSU’s Forest and Wildlife Research Center and College of Agriculture and Life Science, as well as from Itawamba Community College’s (ICC) Workforce Development and Training and Workforce Investment Network (WIN) programs.

“The workforce training and development program will improve employee attitudes, create higher retention rates, lessen absenteeism and improve efficiency,” Beadles said. “The improved efficiencies will enable expansions and increased productivity, resulting in more jobs and a higher income earning potential for employees with improved skills.”

The training is provided on a first-come, first-served basis for management, supervisory and production staff members from furniture production and supply industries in north Mississippi. Sessions are held at manufacturing sites, ICC’s Advanced Education Center in Tupelo and county WIN centers. Potential participants include management, supervisory and production staff members.

Al Wiygul, president of Bauhaus USA, a La-Z-Boy company based in Saltillo, said the future of north Mississippi’s business and industry depends on a trained and skilled workforce.

“Opportunities such as this help us further train and prepare that workforce to meet our current and future needs,” Wiygul said. “It is actions such as this that will help keep furniture jobs in north Mississippi.”
While more than one singer has longed to “go home with the armadillos,” most Mississippians just want the annoying beasts to leave their yards alone.

Jerry Jeff Walker popularized the line in “London Homesick Blues,” but homeowners with a yard full of divets each morning feel no such love.

Ed Hunter has 2 acres in Monroe County outside Amory. He gets up many mornings to dozens of about 2-inch square pieces of grass dug up and turned over across his yard. He said he rarely sees the armadillos that do the damage to his lawn, but he is trying to battle them.

“I drove up one evening and saw one in my parking area,” Hunter said. “He dove into my irises and disappeared.”

The next day, Hunter chopped down his irises and found a hole he thought was the armadillo’s burrow. He flooded it with water in hopes of getting it out, but apparently the animal had already left.

“I have gotten out in the middle of the night three or four times with a flashlight to find their holes and flood them or fill them,” Hunter said. “But they keep coming back.”

Bronson Strickland, wildlife specialist with the Mississippi State University Extension Service, said armadillos tear up lawns looking for food such as ants, beetles, grasshoppers, crickets and grubs.

“To minimize damage, take care of their No. 1 food item—insects,” Strickland said. “You typically do that by using some type of insecticide on the lawn.”

A second tactic is to limit the brushy vegetation in a yard.

“If you have a clear, open lawn, you’ll decrease the likelihood of having an armadillo on it. Smaller yards with a lot of brushy vegetation give armadillos places to hide,” Strickland said.

A final way to battle the armadillo is to simply remove them. Armadillos are not classified as a “nuisance” species, so they cannot be shot or killed at will. The Mississippi Department of Wildlife, Fisheries and Parks provides homeowners with information about trapping and removing armadillos.

The armadillo is not native to Mississippi. It entered the state from Texas by way of Louisiana in the late 1960s to early 1970s. Armadillos are about the size of a house cat and weigh between 8 and 15 pounds. The mammals are easily recognized by their namesake—the armor made up of overlapping pieces of hard shell covering their body.

Strickland said armadillos live in burrows in the ground that average 4 ½ feet long with an 8-inch opening. They typically range over a 10- to 15-acre home territory.

“One of the most interesting things about the armadillo is that when they have young, they always have four of the same gender,” Strickland said. “No other mammal does that.”

Another thing that sets armadillos apart from other animals is their ability to carry the chronic skin disease leprosy. Strickland said less than 1 percent of armadillos even carry the disease, and there have been no recorded cases in recent history of armadillos being found with leprosy in Mississippi.

As a precaution, those who may have to touch a dead armadillo should wear gloves and avoid direct contact with the animal.
Several veterinary students at Mississippi State University have taken advantage of opportunities to learn about foreign animal diseases that could threaten the nation’s domestic animals.

Two MSU College of Veterinary Medicine students learned and worked at the U.S. Department of Agriculture’s Plum Island Animal Disease Center in New York in 2006. A third student is headed to the island this year. Over the years, several others have visited this highly secure facility.

The Plum Island Animal Disease Center is operated through the U.S. Department of Homeland Security. It is responsible for research and diagnosis to protect animal industries and exports against catastrophic economic losses caused by the accidental or deliberate introduction into the country of foreign animal diseases.

Dr. Carla Huston, assistant professor of epidemiology at MSU’s veterinary college, is the advisor for the Smith-Kilborne Foreign Animal Disease Program, a USDA Animal and Plant Health Inspection Service program.

“Plum Island is one of only two laboratories in the United States that handles foreign animal diseases. The Plum Island laboratory mainly handles diseases of livestock, and the National Veterinary Services lab in Iowa handles poultry foreign animal diseases,” Huston said. “At Plum Island, researchers have live strains of certain foreign infectious diseases, and they infect live animals with these diseases for training and research.”

Through the Smith-Kilborne program, USDA invites each veterinary college in the country to nominate one student each year to visit the isolated facility. The goal is to acquaint veterinary students with foreign animal diseases that could threaten the nation’s domestic animal population.

Micheala Beasley is a class of 2008 CVM student. She visited Plum Island and Cornell University’s College of Veterinary Medicine last summer through the Smith-Kilborne program.
“I enjoyed the depth of the course on the foreign animal diseases,” Beasley said. “In veterinary school, we learned about the diseases and their clinical signs, but the course took us to the level of identifying and controlling diseases in different outbreak scenarios. It allowed us to have a more active role in the disease surveillance process.”

The nine-day program trains students to recognize foreign animal diseases and take an active role in their control. Beasley said among the diseases she studied at Plum Island and in lectures at Cornell were avian influenza, foot-and-mouth disease and bovine spongiform encephalitis, also known as mad cow disease.

Beasley spent two days in the island’s biocontainment facility actually looking at foreign animal diseases.

“There was foot-and-mouth disease in cattle, sheep and pigs; African horse sickness; and avian influenza and exotic Newcastle disease in chickens,” Beasley said. “We observed the animals two days in a row to see how quickly the disease progressed in the different species.”

Beasley said the experience helped her to see the job opportunities available once she completes her doctorate of veterinary medicine.

“It really influenced me toward government work and surveillance for these diseases and helping to control them,” Beasley said.

Huston said students chosen for the program are typically those interested in pathology, production medicine or a public health-related field.

“There is a strong need for veterinarians with an interest in public health and public practice,” Huston said. “This program raises awareness of these diseases, and training students to work in settings with foreign animal diseases will help them meet the critical needs nationally. The majority of our private practice veterinarians are not trained in foreign animal disease diagnostics, so this opportunity is invaluable to our students and our state.”

While some of MSU’s CVM students take advantage of the Smith-Kilborne opportunity, others opt for a more in-depth experience.

Rivka Shoulson is a CVM student from New York who spent three weeks in an externship at Plum Island earlier in her program at MSU.

“I got to rotate through all the diagnostic laboratories at Plum Island. My mornings consisted of doing necropsies on some of the animals infected with various foreign animal diseases, so I got to see the effects of these diseases on the animals,” Shoulson said.

She also did sampling to monitor the animals during the diseases’ progress, and assisted with testing and the diagnostic process when an animal disease sample arrived at the facility.

Shoulson wants to specialize in the diseases that transfer between animals and humans. After her May graduation with a doctorate of veterinary medicine, she will do a residency in laboratory animal medicine at Columbia University while earning a master’s of public health degree from that university.

Huston said that study at Plum Island is an impressive accomplishment to have on a resume.

“We encourage students to think outside the box, and the careers that this type of experience can lead to are the future of veterinary medicine,” Huston said.
University research is often thought of as having little connection with the real world, but the truth is, many of the products and technologies in use today had their beginnings on university campuses. That is especially true of agriculture-related products.

Mississippi State has a long history of research leading to commercial products. The 1947 release of anhydrous ammonia for agricultural use, considered one of the top 10 events of modern agriculture, was the result of research by two Mississippi State scientists, W.B. Andrews and Felix Andrews. The Delta Branch Experiment Station in Stoneville was a testing ground for early mechanical cotton pickers, and millions of cattle nationwide have grazed on Marshall ryegrass since it was developed at the North Mississippi Experiment Station in Marshall County and released to the public in 1980.

Ensuring that the public benefits from the school's research is part of MSU’s mission as a land-grant institution. The university’s Office of Technology Commercialization oversees the identification, protection, marketing and licensing of intellectual properties developed by MSU faculty, staff and students.

Income from successfully commercialized MSU products is shared with the inventors and the university.

“The aim of this office is to better help society benefit from the new ideas, inventions and breakthrough discoveries continually emerging from research and other scholarly activities generated at MSU,” said Charles Rivenburgh, director of the office.

“Commercialization of products and technologies generated by MSU research helps foster economic development in the state and the nation.”

There is no one-size-fits-all approach to marketing university technology, according to licensing associate Chase Kasper, who works with commercialization of products from the Division of Agriculture, Forestry and Veterinary Medicine.

“The technologies developed at the university come in all shapes and forms,” he said. “In the ag sector, however, the products that come to us are usually closer to being ready to market.”

Recently developed products in the division include grasses developed for use on athletic fields and other targeted uses, new food products, and a different way to protect buildings and trees from termites.

“Products currently in development include native grasses for biofuel use and a device to detect and manage nematode populations that could change the way nematode infestations in crops are handled,” Kasper said. “We expect to see more use of university expertise applied to developing the technology and equipment needed in support agriculture.”

The following articles tell the story of some of the MSU-developed items that either currently on the market or awaiting licensing. They are representative of many more already in use or under development.  

**MSU Grass Reaches Far and Wide**

Bulldogs developed it, but now tigers and diamondbacks play on it. MS-Choice is one of four Bermuda grass cultivars developed through Mississippi State University research and patented by the university.

For almost three decades, MSU agronomists have searched high and low, east and west, front lawn and country cemetery for just the right sprigs of Bermuda grass for their breeding program. The result has been cultivars with distinct characteristics tailored for home lawns, golf courses, athletic fields and other locations.

The four patented cultivars are MS-Choice, MS-Express, MS-Pride and MS-Supreme. The star of the lineup is MS-Choice, said Wayne Philley, a research associate in the Plant and Soil Sciences Department.

“MS-Choice creates a dense biomass that provides a cushion of grass so players are running on top of the grass rather than through it,” Philley said. “It also has the dark green color most often desired for athletic fields and is shade tolerant.”

The cultivar is licensed for sales in the western U.S. to West Coast Turf, which has operations in Arizona, California and Nevada. The company markets the grass under the name Bull’s-Eye Bermuda and BOBSod. It is the official turf of the Arizona Diamondbacks baseball team and is on numerous other professional, college and high school baseball and foot-
ball fields in the West. West Coast Turf also donates the grass to the Arizona Diamondbacks Foundation “Diamonds Back” Youth Field Building Program, which has provided turfgrass and other supplies to more than 20 youth baseball and softball fields in Arizona.

MS-Choice also is licensed to Charles Williams and Associates. The Fayetteville, Tenn., turfgrass producer markets the cultivar as Revolution, which was installed on the field at Louisiana State University’s Tiger Stadium prior to the 2006 season.

“They say they had the best football field they’ve ever had at LSU this past season,” Williams said. “We are currently developing promotional materials for the use of Revolution in industrial and home landscape situations, as well as for sports fields.”

Gregg Munshaw joined the MSU faculty and the grass-research program in 2004. As a plant physiologist, Munshaw focuses on the growth and other characteristics of the cultivars under development. He and Philley are continuing to work on Bermuda grass and other cultivars.

“We have two new St. Augustine cultivars in the process of being patented,” Philley said.
Research by Mississippi State University scientists has yielded a new weapon in homeowners’ battle with wood-destroying termites.

Terry Amburgey of MSU’s Forest Products Laboratory and employees of the U.S. Forest Service were called to Hawaii by the U.S. Navy about 14 years ago to combat infestations of Formosan termites in wooden poles supporting communications antennas at a naval base.

While there, the group discovered that termites are attracted to active antennas but not those that are inactive. The findings in Hawaii led to a series of experiments by Amburgey, MSU research associate Mike Sanders and lab technician Craig Bell.

“We documented that subterranean termites are attracted to electric fields of certain wavelengths,” Amburgey said. “We patented, through the university, the technology used in the initial research.”

A decade later, Kevin Ragon, a doctoral student under Amburgey’s direction, developed experiments demonstrating that both native termites and the imported and extremely destructive Formosan variety are attracted to certain electric wavelengths. Additional research led to another MSU patent application based on the work by Ragon, Amburgey, Sanders and MSU electrical engineering professor Pat Donohoe, who helped determine the exact frequency and intensity needed to alter termite behavior.

“We created a device to emit the exact frequencies required to manipulate termite behavior,” Ragon said. “Research shows that termites communicate through vibrations. The frequencies used in the MSU technology mimic these vibrations, which attract termites.”

The technology patented by the university has been licensed to Ragon, fellow forest products doctoral student Shane Kitchens and Amburgey. They have formed TermiSys Technologies to handle the business end of the development of the technology.

“The fact that termites are random foragers has always been the Achilles’ Heel of termite baiting systems,” Kitchens explained. “Because of that, many building sites are still treated with traditional liquid termiticides that require several hundred gallons of the product to be applied for subterranean termite control.”

The TermiSys technology, he added, will make bait stations more effective by using electric wavelengths to draw the insects to the bait and increase the bait acceptance.

“The TermiSys system is a green technology because it cuts down significantly on the amount of insecticide needed to protect a building from termite damage,” Kitchens said.

In addition to protecting buildings, the MSU students hope to use the technology to protect urban trees, like those located in New Orleans’ historic French Quarter.

“These oaks are just one of an estimated 50 species of plant materials susceptible to attack by Formosan termites,” Ragon said. “We are researching devices that can be placed near trees and other plants to repel termites.”

Information about the new termite control technology and TermiSys Technologies is available on the Web at www.termisys.com.
Persistence has paid off for a College of Veterinary Medicine researcher and for the catfish industry.

Dr. Pat Gaunt, a CVM veterinary toxicologist and interim director of the Aquatic Research and Diagnostic Laboratory in Stoneville, spent more than five years researching the use of the antibiotic florfenicol to treat enteric septicemia, or ESC, in catfish. ESC is one of the most costly diseases faced by the catfish industry.

The Food and Drug Administration approved the antibiotic for use with catfish in October 2005.

“It’s being used in the Delta by catfish producers,” Gaunt said. “It’s been gratifying to see the research we did come to practical use by the farmers.”

Her research began in observations about florfenicol’s use with other animals when she was an intern with the Thad Cochran Warmwater Aquaculture Center at the Delta Research and Extension Center in Stoneville.

“I knew it was approved for use in beef cattle in the United States and in other countries for different types of fish,” Gaunt said. “Because it was effective in other species, I thought it could also be used with catfish.”

Working with scientists at the pharmaceutical company Schering-Plough Animal Health, Gaunt generated a mountain of data during more than five years of research with her colleagues. The effort, however, gave catfish producers a more effective tool for use against ESC.

“Before florfenicol was approved, there were only two other antibiotics for treating ESC in channel catfish,” she said. “There were palatability problems with one, and the other is most often formulated in a sinking feed, which makes it difficult for producers to see if the fish are eating it or not. The new antibiotic is marketed in a floating feed, is very palatable to catfish and is very effective against ESC.”
Consumer demand and the ability to add value to a
Mississippi-grown item are important considerations when
MSU food scientists begin development of a new product.

“Consumers vary in their preference of food product
type, shape, size, packaging and composition,” said J. Byron
Williams, a muscle foods specialist in MSU’s Department of
Food Science, Nutrition and Health Promotions. “However,
consumers are consistent in their demand for quality prod-
ucts that taste good and are convenient. At the same time,
they are concerned with the nutrition, safety and whole-
someness of the foods they consume.”

A new beef product that has been developed at
Mississippi State University meets those requirements.

“Because of health concerns, consumers are increasing-
ly choosing leaner meats, even though they cost more,”
Williams said. “MSU has developed the technology to pro-
duce a premium quality, 97 percent fat-free ground beef prod-
uct that is also affordable.”

The product still must have the flavor and other char-
acteristics consumers demand.

“Manufacturers and researchers alike have found that
developing a lean, extra-lean or fat-free product, especially a
ground product, it is not as simple as just removing the fat,”
Williams said. “Maintaining the necessary flavor and texture
characteristics is a very challenging process. It is very difficult
to produce an acceptable product that is considerably lower
in fat than typical lean products.”

Taste panels at the university’s Garrison Sensory
Evaluation Laboratory revealed that this newly developed
product is as acceptable to consumers as conventional lean
ground beef. The cost of materials and production, howev-
er, are similar to conventional items with only a small
increase in final costs when compared with traditional
ground beef products.

Based on current consumer demand for “healthier
foods,” consumers are willing to pay more for these products
provided they have the taste, texture, safety and convenience
of the traditionally higher fat products, Williams added.

“The taste panels rated the low-fat ground beef high on
taste, texture and other attributes, and the cooked yields of
the product are higher than conventional ground beef,” he
said “A plus for processors is that this product can be pro-
duced using existing equipment with just a marginal increase
in overall production costs. Another attractive feature for
retailers and consumers is that the product can be used in the
same recipes, dishes and preparations as traditional or lean
ground beef.”

MSU is currently seeking an industry partner to
develop and commercialize the technology used to produce
the product.

“Low-fat ground beef produced using this MSU-devel-
oped technology is expected to be marketed as a cooked
product by food service and chain retailers and as a frozen
product by grocery chains,” Williams said.
Choosing the right variety to plant is one of the most important decisions row crop producers make each year.

Yields, disease and insect resistance, and suitability to Mississippi’s climate are among the traits producers look for when selecting varieties. Those are also among the qualities plant breeders consider as they develop new varieties.

The world’s first test of genetically engineered cotton took place at MSU in 1989 as part of the process of developing a pest-resistant cotton variety. Today, MSU cotton breeders Ted Wallace on the Starkville campus and Peggy Thaxton at the Delta Research and Extension Center are continuing work with the MSU-developed genetically modified, or transgenic, cotton line. Their work is in conjunction with Monsanto, a producer of genetically modified seed.

“Fiber quality is very important to me and the program for the future of the farmers,” Thaxton said. “Hopefully we’ll get some very high quality transgenic cotton lines developed so we can be competitive in the global market.”

Conventional cotton, however, remains an important part of the MSU cotton-breeding program.

“The main objective of our breeding program is still to develop improved conventional breeding lines that will be released to private companies with better yields and fiber quality traits,” Thaxton said.

During the past decade, Dwight Kanter, a rice breeder at the Delta Research and Extension Center, has released new rice varieties tailored to the needs of Mississippi producers. Litton and Priscilla were released in 1997 and 1998.

In 2000, Priscilla was planted on nearly 27 percent of Mississippi’s rice acreage and still remains an excellent choice for rice producers.

Kanter has another new variety that will be the next to be released. The as-yet-unnamed rice variety, currently referred to as RU0404191, has averaged more grain yield than the popular Cocodrie variety in research trials.

MSU has also released soybean varieties jointly with U.S. Department of Agriculture plant breeders at Stoneville, and there have been releases of new varieties of various minor use crops during the past decade.

“In virtually every case, the main justification for release of any new variety is an increase in yield,” said Randy Vaughan, operations manager of MSU’s Foundation Seed Stocks Program. “In some cases, the variety also has disease resistance advantages or a more desirable grain type.”

Foundation seed are the end result of the breeding process and are the first generation recognized under the state certification program. They are sold to seed companies to raise registered and certified seed.

“The process from choosing the original seed from the new variety through certification takes at least five years,” Vaughan said. “Numerous standards and inspections, both in the field and in the lab, must be met to ensure the genetic purity of the new variety.”
Campus Rose Garden Finds a New Home

By Bob Ratliff

Rose lovers will find a lot to like in a new garden on the Mississippi State University campus.

Researchers began working with landscape roses at MSU in 1982 and established a rose garden near the Enology Lab on the North Farm in 1985. In the mid-1990s, the garden moved to the teaching and research arboretum on the South Farm.

Plans for a new, more visible location took shape in 2004. Following selection of a site at the Highway 182 entrance to the R. Rodney Foil Plant Science Research Facility, rose planting began in the MSU Veterans Memorial Rose Garden during spring 2006.

“Rose enthusiasts from the local area and from around the state have helped make the rose garden a reality,” said Pam Collins, assistant professor and director of gardens in the Department of Plant and Soil Sciences. “Private donors provided plant materials, funds and volunteer labor for the project.”

Landscape architect Daryl Ray designed the garden, which features raised brick beds encircling a central gazebo.

Private contractors, personnel with the Mississippi Agricultural and Forestry Experiment Station and members of the Department of Plant and Soil Sciences built the main architectural features of the garden, including the arched wooden bridge across a stream adjacent to the garden and the gazebo.

Most of the rose cultivars filling the garden were donated by Jackson and Perkins Nursery and James Mills, owner of K and M Nursery in Buckatunna and a longtime supporter of MSU’s horticulture programs.

“Jackson and Perkins is a national full-service nursery, and their north Mississippi sales representative, Dave Shanklin, is a 1979 graduate of the MSU horticulture program who saw the value of this facility for teaching and research,” Collins said.

Volunteers from the Oktibbeha County Rose Society and the Oktibbeha County Master Gardener program planted the first roses in the garden in March 2006.

“The garden provides a wonderful opportunity for rose enthusiasts from throughout the state to see some of the new cultivars,” said Charles Weatherly, a member of the Oktibbeha County Rose Society. “It also allows local growers to learn new skills from some of MSU’s expert horticulturists by volunteering for pruning and other tasks at the garden.”

In addition to its role in teaching and research, the rose garden is available to the public. Designers worked to ensure the facility complies with the Americans with Disabilities Act.

“The garden is available for weddings and other events,” Collins said. “Two weddings took place at the garden last fall, and we hope to have more scheduled for the spring.”

There will be more plant-related development in the area.

“Planning is under way for a new arboretum with a variety of plants adjacent to the rose garden,” Collins said. “Like the rose garden, the arboretum will be available to the public, as well as for teaching and research.”
Flying low across the water, looking for a good meal, the black-crowned night heron quickly caught the attention of Mississippi catfish producers.

Farmers first noticed the 22- to 28-inch, stocky-bodied bird in the spring of 2004. With its black cap, gray wings and red eyes, the bird created concern among producers because it appeared to prefer feeding on 6- to 7-inch catfish fingerlings.

Farmers turned to the U.S. Department of Agriculture’s Wildlife Services agency in Starkville for help in assessing the threat to the business from the species, which prior to three years ago was found primarily in swamps and other natural wetlands.

“Farmers first called Wildlife Services and complained about a weird bird they were seeing at night,” said Andrea “Andi” Cooper, a wildlife and fisheries graduate student at Mississippi State University.

Cooper, a native of Canton, had just completed a bachelor’s degree in wildlife science at MSU and was interning for the federal agency.

“The call came in at just the right time to give me an opportunity to study the catfish predator,” Cooper said.

With support from the Berryman Institute, she surveyed catfish ponds from June until September in 2004, 2005 and 2006 to gain a better understanding of the nocturnal bird and to provide information to develop a plan to alleviate a potential problem for catfish producers.

The opportunity to solve a problem for the catfish industry and for Cooper to pursue her degree was among many provided by the Berryman Institute.

The institute works closely with the USDA Wildlife Services agency to help minimize human/wildlife conflicts and develop innovative solutions that allow for a harmonious coexistence.

Established in 1993 and named for Utah native Jack H. Berryman, a 30-year U.S. Fish and Wildlife Service veteran, the Berryman Institute consists of two branches: Berryman West at Utah State University and Berryman East at MSU.

The institute focuses on long-term strategies to benefit wildlife while reducing the potential damage and nuisance that animals can cause. It also provides education and outreach programs to help people better understand wildlife behavior.

“The Berryman Institute facilitates research through the use of requests for proposals and solicitation,” said codirector Bruce Leopold, department head of wildlife and fisheries at MSU.

“Instead of hiring someone to solve a problem, the Berryman Institute finds the best expert in the subject area and funds the research through graduate fellowships.”

The approach allows the institute to be proactive in solving human/wildlife conflicts.

“The Board of Advisors is careful not to duplicate research but rather identify all available knowledge and then fill in the information gaps,” Leopold added.

Berryman has funded 55 separate research projects in 25 states and provided 13 undergraduate internships and 20 graduate fellowships.

“The research programs are diverse and include the economic threat posed by cormorants and black-crowned night herons and other predators in Mississippi catfish ponds, the impact of feral hogs on forest and wildlife communities, ways to reduce deer/vehicle collisions,” Leopold said.

Berryman also provides an extensive outreach component. Currently, Jessica Tegt, a doctoral student from Milwaukee, Wis., is surveying the federal Wildlife Services employees to develop a national needs assessment.

“Berryman finds the current needs in the work force and finds a national expert to provide training on subjects such as conflict resolution, stress, team building and other skills,” Leopold said. “We build the work force and provide critical training that would not be possible without the Berryman Institute.”

The outreach program also is developing a national education program to assist biologists and others in collecting samples.

“With the avian bird flu and other illnesses, it is important that all individuals—from dog catcher to wildlife biologist—understand the proper method of collecting wildlife carcasses,” Leopold said. “With an interactive CD produced by the institute, an employee can enter the species type and the compact disk will give instructions on the proper handling of the remains and the nearest diagnostic lab.”

This works well with MSU’s land-grant mission of providing research and educational programs to benefit the people of the state, Leopold added.

The work of the institute also helps emerging professionals like Andi Cooper, who said, “My education, the networking opportunities and my future career are a direct result of the Berryman Institute. I could not have received an advanced degree without the graduate fellowship provided by Berryman.”
Tucked away atop a pine-covered hillside on the North Farm is an architectural reminder of Mississippi State University’s 20th century history.

Construction of the A.B McKay Food and Enology Laboratory began in 1974, following a $500,000 appropriation by the Mississippi Legislature. The laboratory was part of efforts by then MSU Vice President Louis Wise to provide university support for new agricultural enterprises in the state.

Reminiscent of an Alpine chateau, the state-of-the-art teaching and research winery began operating in 1975 under a federal permit allowing MSU scientists to experiment with winemaking.

At the time, Mississippian were prohibited by a 1908 state law from producing more than small quantities of wine for home consumption. Prior to 1908, several wineries operated in the state, and scientists at then Mississippi A&M College worked with viticulture, the branch of agriculture concerned with the culture and production of grapes.

The state law changed in early 1976 with the passage the Native Wine Act, which allowed the commercial production and sale of wines from native grapes in the state. Wild grapes, or muscadines, grow in forests throughout Mississippi.

MSU scientists were ready to start working in the lab when it was completed in 1975 because the Mississippi Agricultural and Forestry Experiment Station already had research plots established by horticulturist Pat Hegwood,
containing about 80 grape varieties at Crystal Springs, Richton, Stoneville and Verona.

The university also had individuals with the expertise to staff the enology lab.

The head of enology research at the new lab was Boris J. Stojanovic. A native of Yugoslavia, Stojanovic grew up on his family’s vineyard and was trained in chemistry at the University of Bonn in Germany. He joined the Mississippi State faculty after earning a doctorate in microbiology and biochemistry at Cornell University in 1956.

The viticulturist for the lab was Jean P. Overcash. He was in charge of the production of the muscadine grapes cultivated to supply the enology research.

Gale P. Ammerman, professor of food science and technology in the Department of Horticulture, worked at the lab with food products made from grapes, including fruit drinks, jams and jellies. The lab’s first processing engineer was Fred L. Shuman.

During the fall 1976 semester, MSU offered its first course on winemaking: HO 1003 “Introduction to Enology.” It was a survey course taught by Stojanovic and touched on all aspects of winemaking, preservation and marketing.

By 1977 the lab was ready for its first cellar master, the individual in charge of production at a winery. Richard P. Vine, former head of production at Taylor Wine Co. in upstate New York was hired to fill the post. During the late 1970s, he and other members of the lab staff began providing research data Mississippi farmers and winemakers needed to develop a winemaking industry in the state.

The MSU lab contained all the equipment and other facilities found in a modern winery, including corking machines and
tasting cubicles. It also had a special touch: a Vinitheca or “library” of bottles of all the wines made at Mississippi State for use by students to compare vintages and variations.

By the early 1980s, five commercial wineries were operating in Mississippi, and the MSU enology lab had earned a reputation for quality. Though not publicized at the time, President Jimmy Carter’s mother, Lillian, had sampled MSU-produced wine during a campus visit and insisted that it be served at the White House. In a 1983 article, Clarion Ledger wine columnist John R. Hailman noted that the MSU facility was “perhaps the finest in the Southeast and one of the finest for its size in the country.”

During the mid-1980s, other types of food-related research began at the lab, including work with the byproducts left over from winemaking. Out of that research came important discoveries by nutritionist Betty Ector about the health benefits of a compound found in the thick skin of muscadine grapes. She found that resveratrol in muscadine skins helps lower cholesterol and cancer risk. At the same time, food scientist Juan Silva and others worked at the lab to develop new products from muscadine byproducts and from other fruits produced commercially in the state.

Research with native wine production has ceased at the MSU Enology Lab, but the university still produces and markets a popular nonfermented muscadine grape juice, which is shipped nationwide by the MAFES Sales Store.

The Enology Lab currently houses campus meeting facilities, and plans are under way to locate a center for healthy living in the historic building. The center would include labs for research with grain and fruit processing.
A new endowed scholarship has been established at Mississippi State University in honor of Mississippi Farm Bureau President David Waide of West Point.

The scholarship is in recognition of Waide’s commitment to and efforts on behalf of Mississippi agriculture, said Vance Watson, MSU vice president for agriculture, forestry and veterinary medicine.

“David is passionate about the value of agriculture to Mississippi and its importance in the success of this nation,” Watson said. “He and the entire Farm Bureau organization work hard to support Mississippi’s farmers and to educate the public about the role agriculture plays in our economy, the nation’s security and our personal well-being.”

Waide has served as the Mississippi Farm Bureau president since 1995. He is a row crop and cattle producer in Clay County and previously served as director of the Federal Land Bank of Houston, director of the Mississippi Soil and Water Commission and chairman of the Federal Intermediate Credit Bank. He and his wife, Sandra, have two children, Whit and Linda Bess.

Candidates for the David Waide Endowed Scholarship must be full-time undergraduate students in the College of Agriculture and Life Sciences or the College of Forest Resources at MSU. Priority will be given to sons or daughters of Mississippi Farm Bureau members.

The scholarship is an open fund in the MSU Foundation and may be increased through contributions to the foundation. For additional information on the Waide Endowed Scholarship, contact Jud Skelton, College of Agriculture and Life Sciences development director, at (662) 325-0643.

A new painting by Mississippi State associate professor Jeanne Jones is benefiting the Bear Education and Restoration (BEaR) program in the state.

Sales of the artist’s limited edition signed and numbered prints of a mother bear with two cubs help fund the Rolling Fork-based nonprofit organization. Founded in 2004, BEaR works to conserve healthy populations of black bears throughout the Magnolia State.

Jones, an MSU doctoral graduate, is a wildlife and fisheries faculty member at the Forest and Wildlife Research Center.

The 2004 birth in Mississippi of two cubs—the first such documented event in more than 40 years—inspired her painting. The work captures the elusive, federally protected species in one of its native habitats, along the river’s edge in a bottomland hardwood forest.

Until nearly a century ago, black bears were prevalent throughout the state. In 1902, President Theodore Roosevelt’s refusal to kill a captured bear while hunting near Rolling Fork resulted, over time, in the national popularization of teddy bear toys as much-sought gifts for children of all ages.

The animals’ decline in Mississippi was due, in large part, to habitat alteration and overharvest. Efforts in recent years to restore habitats and pass protective laws have reflected changing public attitudes about the native species.

Prints of Jones’ work are $50 each, plus $5 for shipping and handling. Orders may be completed via the BEaR Web site (www.msbear.org/).

Along with a print, purchasers receive a free, one-year membership in the organization.

By Karen Brasher

By Bob Ratliff
Whether you want a career designing medical devices or award-winning landscapes, Mississippi State University’s College of Agriculture and Life Sciences has a program for you. The same is true if you want to work with animals, plants or food products.

When parents and students hear about CALS, they often associate the potential career opportunities with production agriculture. Educating students who will produce food and fiber is an important part of our mission, but only a small percentage of our students actually work on farms.

When Jennifer Little, the college’s recently hired admissions coordinator, speaks to prospective students, she likes to say, “We have an academic home for everybody.” That may be an overstatement, but prospective students and parents are amazed at the diversity of academic programs available and the career opportunities they open up—often responding with comments like “I had no idea this existed” or “you offer that?”

The 10 academic units within the College of Agriculture and Life Sciences offer 16 undergraduate majors within which students may pursue 52 different concentrations. At the graduate level, we offer six master’s programs with 15 concentrations and four doctoral programs with 13 concentrations.

Here is just a sample of what the College of Agriculture and Life Sciences is and what it has to offer:

- Forty-seven percent of our students are female (consistent with national statistics for colleges of agriculture). Ethnic minority enrollment is 13 percent.
- The college has a number of preprofessional program options including pre-dental, prelaw, pre-medicine; pre-pharmacy and pre-veterinary medicine. Many students also use our programs in preparation for degrees in physical therapy and nursing.
- MSU biochemistry and biological engineering graduates applying to medical or dental school have a 90 percent acceptance rate.
- For students with a creative or artistic flair, the college offers degrees in landscape architecture, landscape contracting; the apparels textile merchandizing and design concentration in human sciences and the retail floristry management concentration in horticulture.
- Biochemistry offers students career opportunities in pharmaceuticals and the forensic sciences (popularized by TV’s CSI shows).
- The food science and nutrition programs in CALS offer many exciting career tracks in the increasingly vital areas of health, nutrition and food safety.
- Four programs (poultry science, animal and dairy science, biochemistry, and food science and nutrition) offer “3+1 pre-veterinary medicine programs.” Students who complete a required curriculum of core major requirements in these programs and are accepted into veterinary school can receive their bachelor’s degree upon successful completion of their first year.
- CALS undergraduates may enhance their learning opportunities through part-time work alongside faculty and graduate students working in MSU labs, office research settings or on the university’s research farms.

Prospective students and their parents in particular are pleased to learn about the scholarship opportunities in the college. Thanks to the long-term financial contributions and support of alumni, the private sector, commodity and trade organizations and others, more than $250,000 in scholarships are awarded each year throughout the college. The bulk of these scholarships are awarded to sophomore, junior and senior students who have proven themselves academically at MSU or a community college.

Many students excel academically or develop outstanding leadership skills once at MSU even if they enter the university without stellar ACT scores and other credentials that garner premium entering freshman scholarships. College and departmental scholarships provide a means to recognize and support those students who step up and perform.

In closing, let me encourage you to help us spread the word about the exciting opportunities offered by the College of Agriculture and Life Sciences. You can let us know of prospective students by contacting Jennifer Little at 662-325-5851 or little@cals.msstate.edu.

Also, to learn more about the college and its programs visit our Website at www.cals.msstate.edu/.

By Lynn Reinschmiedt
Associate Dean
College of Agriculture and Life Sciences
**Veteran MSU Professor Named Fellow of Forestry Society**

Stephen C. Grado of Mississippi State is a new fellow of the Society of American Foresters.

A professor in the university’s Forest and Wildlife Research Center, he is being honored by the professional organization for his outstanding contributions to the society and the forestry profession.

“Dr. Grado is considered a national expert on multipurpose forestry, including urban forestry and recreation,” said Jim Shepard, MSU forestry department head. “He is very deserving of this honor.”

The Society of American Foresters is the national scientific and educational organization representing the forestry profession in the United States. Founded in 1900 by Gifford Pinchot, it is the largest professional society for foresters in the world.

Over more than a decade on the faculty, Grado also has been honored with the Gamma Sigma Delta honor society’s research award of merit and an MSU Office of Research award for outstanding research.

The Teaneck, N.J., native holds a bachelor’s degree from Villanova University, as well as bachelor’s, master’s and doctoral degrees from Pennsylvania State University. “Dr. Grado is an exceptional professor and researcher,” Shepard said. “Steve also serves as the undergraduate coordinator in the department and is currently spearheading reaccreditation of the forestry department.”

Grado currently is chair-elect of the Mississippi Society of American Foresters. He also is a member of Xi Sigma Pi honor society, Mississippi Forestry Association, Southern Forest Economics Workers Group, Wildlife Society, International Union of Forest Research Organizations, and Mississippi Urban Forest Council.

**MSU Research Professor Named Crop Science Fellow**

A member of the Mississippi State University Plant and Soil Science Department has been named a fellow of the Crop Science Society of America.

Research professor K. Raja Reddy received the honor at the society’s 2006 annual meeting in November. The fellow designation is the highest honor the 4,500-member organization confers on its members. Reddy was one of just 10 selected for the honor in 2006.

The society looks for well-rounded, experienced candidates when selecting fellows, said Steven L. Fales, president of CSSA and professor of agronomy at Iowa State University.

“CSSA chooses individuals who are committed to, and have excelled in, investigative competency, education and service,” Fales said.

Reddy’s research at MSU focuses on environmental control of plant growth and development, crop simulation model development and applications, and global change biology and remote sensing applications in natural resource management. He also teaches graduate courses on environmental plant physiology and global change biology.

The MSU professor earned his doctorate and other university degrees at India’s Venkateswara University. In addition to CSSA, he is active in the American Society of Agronomy and other professional organizations and was named the Mississippi Agricultural and Forestry Experiment Station Worker of the Year for 2006.
A senior Mississippi State University administrator has been named a fellow of the American Institute for Medical and Biological Engineering. Jackson native Jerry Gilbert was inducted during the organization’s Feb. 27 annual meeting in Washington, D.C. The honor by the 75,000-member organization recognizes those in the top 2 percent of the profession.

As a researcher in biomechanics at both the University of North Carolina and MSU, Gilbert has focused on bone modeling, orthopedic biomechanics, osteoporosis modeling and biocompatibility of biomaterials. The National Institutes of Health and the National Science Foundation have supported his research.

“Mississippi State is where I have had the opportunity to distinguish myself and become worthy of this great honor,” Gilbert said. “It is both the reflection of a professional career and of MSU’s outstanding programs in agricultural and biological engineering.”

An 18-year faculty member and former agricultural and biological engineering department head, Gilbert led in establishing MSU’s graduate program in biomedical engineering. Since 2004, he has served as the university’s associate provost and associate vice president for academic affairs.

The Mississippi Agricultural and Forestry Experiment Station and the Mississippi State University Extension Service presented their worker of the year awards during their annual conference in November. A world-class scientist whose research has impacted many aspects of crop physiology and production was named the MAFES Worker of the Year. The work of research professor K. Raja Reddy on the effects of ultraviolet-B radiation on cotton, soybeans and corn is an important part of understanding climate change. He also is well known for his leadership and management of MSU’s Soil-Plant-Atmosphere-Research (SPAR) chambers. The million-dollar facilities are used to determine the quantitative relationships between photosynthesis and anticipated changers in atmospheric carbon dioxide and temperature.

A member of the Plant and Soil Sciences Department since 1988, Reddy conducts research funded by the National Aeronautics and Space Administration that blends global climate change with crop modeling.

The Outstanding Extension Service Worker is known among her colleagues for “educating other educators.” Area family resource management agent Grenell Rogers has planned and conducted numerous workshops and other events during her 27 years in Extension. Her recent accomplishments include the Focus on the Economy: Practical Workshops for Secondary Teachers and a series of Money Matters financial literacy events for youth.

Following Hurricane Katrina, Rogers led in providing training programs and publicizing the earned income tax credit and tax breaks for hurricane victims.

The Land Banks of Mississippi sponsor the worker of the year awards.
Partnership Provides Veterinary Outreach Service

Partnerships play an important role in helping the College of Veterinary Medicine provide outreach services that benefit the state. One such new partnership is with the Humane Society of the United States (HSUS).

“The HSUS played a major role in animal rescue efforts in south Mississippi following Hurricane Katrina,” said Keith Gaskin, director of development for CVM. “Because of that experience, the organization decided to invest significant resources to reduce the numbers of unwanted and homeless dogs and cats in the state, especially in economically depressed areas and the areas still recovering from hurricane damage.”

Thanks to a $900,000 HSUS gift, CVM is establishing a statewide program to provide spay and neuter services for dogs and cats whose owners could not otherwise afford the procedures. The gift will provide funding for equipment and supplies for the program.

CVM personnel will visit with local veterinarians before scheduling a spay/neuter event in their area. Local veterinarians will have opportunities to participate in several capacities, including volunteer supervisors, paid surgeons for the local event and primary surgeons in their own hospitals paid through a voucher program.

CVM will also develop educational brochures for pet owners who bring their pets to the HSUS-supported program. The brochures will outline appropriate wellness care of pets and common services offered by practicing veterinarians.

Students in the CVM primary care rotation and those enrolled in the shelter medicine elective will have opportunities to participate in the program. Veterinary medicine students may also volunteer for the program.

“The HSUS grant will help thousands of pets in the state live longer, healthier lives, while reducing the number of stray and unwanted animals,” said Dr. Philip Bushby, CVM Marcia Lane Professor of Humane Ethics and Animal Welfare. “It also will introduce a segment of the population to the services provided by their local veterinarians. In addition, MSU veterinary medicine students will benefit from the experience they receive through participation in the HSUS-sponsored program.”

If you are interested in learning how you can help animals, as well as students who are preparing for careers in veterinary medicine, contact Keith Gaskin, at (662) 325-3815.
**Gifts of Land Provide Long-Term Benefits**

For LaRon and Ester Gober, a gift of forestland seemed like the perfect way to give back to Mississippi State University. The Gobers donated 283 acres in Attala County to the College of Forest Resources and the College of Engineering.

The Gobers made the gift in honor of the engineering career enjoyed by LaRon, as well as the enjoyment they received from the forestland. Students in both the College of Engineering and the College of Forest Resources benefit from the LaRon and Esther Gober Endowment Fund.

“We love the idea of using this land to benefit forestry and engineering students. It was a great way to give back to Mississippi State University,” said Ester Gober.

The Gobers are just one example of individuals creating a legacy with gifts of land at MSU.

Gifts of land can benefit any of the university’s nine colleges. The donated properties are managed by the College of Forest Resources using the best management practices for growth and harvest of timber.

“Forest management professionals at MSU provide professional management and assessment of each donated property,” said Jeff Little, College of Forest Resources development officer. “Funds generated from the properties provide needed support to the university for scholarships, equipment and faculty development.”

The properties are also used as living laboratories where forest management practices provide teaching, research and demonstration opportunities for students, farmers and landowners.

“The College of Forest Resources and the MSU Foundation work with landowners and their professional financial planners to arrange the terms of gifts to suit individual needs,” Little said. “A carefully planned gift of forestland will give financial benefits for the donor, including a lifetime income, a shield from capital gains and estate taxes, and income tax deductions, among others.”

For more information on donating your land to the university, contact Jeff Little at (662) 325-8151 or by e-mail at jlittle@foundation.msstate.edu.

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**Grandparents Memorialized Through Unique Gift**

For Ann Janette Moore, a plot of timberland in Lauderdale County is more than just land and trees.

The stretch of forest is a connection to her family, all the way back to the early 1800s when her Scotch-Irish ancestors immigrated to America. It also is where the Houston, Texas, resident lived on a farm with her grandparents following the death of her parents when she was in her early teens.

To honor her grandparents, Moore is using the land to make a unique gift to Mississippi State University. Funds from the sale of the timberland will be used to fund the Jennie McInnis and Joseph Voluntine Carlisle Endowed Scholarship in the College of Agriculture and Life Sciences.

Moore moved to Houston to pursue a nursing career in 1943. She later married, and Houston became her home, but she still cherishes the memories of her grandparents. They were lifelong Mississippi residents who farmed the land near Vimville. Strong proponents of education, the Carlisles encouraged their six children and later their grandchildren to attend college.

Joseph Carlisle attended Mississippi State for a year, as did his son, Moore’s father, Daniel Lamar Carlisle.

“Neither completed a degree at the university, but both were richer for the experience, and that is why I have chosen to establish a gift in this manner,” Moore said.

The Carlisle scholarship will benefit College of Agriculture and Life Sciences students who have demonstrated academic achievement. The scholarship is one of only a few providing tuition and other costs associated with attending the university, including housing, books and supplies, meals and transportation costs.

“The College of Agriculture and Life Sciences is extremely grateful to Ann Janette Moore for allowing us to transform her treasured possession into a valuable resource for our students,” said Jud Skelton, director of development for the college. For information on how you can establish a scholarship in the college, contact Skelton at (662) 325-0643.
It’s all in the name. Check it out for news and information from the Division of Agriculture, Forestry and Veterinary Medicine.