<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>On the Cover</td>
<td>Bees do more than harvest nectar from plants to make honey. They also are important to agriculture because of their role in plant pollination. Unknown enemies, however, are attacking bee populations in several areas of the nation. The story is on page 6. (Photo by Jim Lytle)</td>
</tr>
<tr>
<td>6</td>
<td>Back Cover</td>
<td>Mississippi State University Extension specialists and wheat growers from throughout northwest Mississippi gathered at the edge of a freeze-damaged wheat field on April 13 near Vance. The growers were given information and a hands-on demonstration on recognizing the damage from freezing temperatures on the mornings of April 7 and 8. (Photo by Jim Lytle)</td>
</tr>
<tr>
<td>4</td>
<td>Coastal Growth</td>
<td>New center stocks tools for managing population surges.</td>
</tr>
<tr>
<td>6</td>
<td>Bee Mystery</td>
<td>There are clues but no clear answers to why bees are disappearing.</td>
</tr>
<tr>
<td>8</td>
<td>Champion Sale</td>
<td>The annual Sale of Champions is not your usual livestock auction.</td>
</tr>
<tr>
<td>10</td>
<td>Winning Photos</td>
<td>4-H Photography winners find different perspectives.</td>
</tr>
<tr>
<td>12</td>
<td>Mobile Clinic</td>
<td>Teaching and service are connected through the CVM mobile clinic.</td>
</tr>
<tr>
<td>14</td>
<td>Forest Management</td>
<td>Good forest management benefits landowners and wildlife.</td>
</tr>
<tr>
<td>15</td>
<td>Reviving Rails</td>
<td>An MSU study looks at the benefits of reviving a closed railroad line.</td>
</tr>
<tr>
<td>16</td>
<td>Focus Section</td>
<td>4-H is celebrating 100 years of service to youth.</td>
</tr>
<tr>
<td>22</td>
<td>Genetic Research</td>
<td>MSU genetic research may lead to better livestock reproduction rates.</td>
</tr>
<tr>
<td>23</td>
<td>Wild Things</td>
<td>They are wild, but a new study finds ways to manage feral hogs.</td>
</tr>
<tr>
<td>24</td>
<td>Peanut Possibilities</td>
<td>Peanuts are gaining ground as part of the Mississippi agricultural economy.</td>
</tr>
<tr>
<td>26</td>
<td>Producers Advise</td>
<td>North Mississippi agricultural producers tell MSU what they want at annual meeting.</td>
</tr>
<tr>
<td>27</td>
<td>Landmarks Editorial</td>
<td>The well-being of children and families is the focus of an MSU research unit.</td>
</tr>
<tr>
<td>28</td>
<td>News Notes</td>
<td>News of people and activities in the Division of Agriculture, Forestry and Veterinary Medicine.</td>
</tr>
<tr>
<td>24</td>
<td>Breaking New Ground</td>
<td>Development partners provide essential support for the division.</td>
</tr>
</tbody>
</table>
Toyota recently selected Mississippi as the home for the company’s newest North American automotive manufacturing facility.

Availability of a skilled workforce in areas surrounding the plant’s Union County site was a big factor in Toyota’s choice of Mississippi over Arkansas and Tennessee. The recruiting efforts of local and state officials also played a role, but company officials cited another important advantage in Mississippi: air quality.

The air is cleaner in north Mississippi than in the areas around other possible locations, and that was a major consideration for the international automotive manufacturer.

The Toyota experience underscores the value of Mississippi’s natural resources and the importance of making informed decisions about their use. Natural resource education and research is the mission of the College of Forest Resources at Mississippi State University.

The college’s three units—the Department of Forestry, Department of Wildlife and Fisheries and Department of Forest Products—train students for careers in forestry, wildlife management, forest product development and other natural resource management fields.

Scientists in the college work with state, federal and private organizations on research to protect, manage and develop the state’s natural resources for the benefit of all of its citizens.

Mississippians know the value of a good fishing spot, abundant hunting opportunities, a family outing to a state park or just a leisurely stroll in the fresh air. Now it appears multinational corporations also appreciate those quality-of-life factors.

The College of Forest Resources, along with the College of Agriculture and Life Sciences, the Mississippi Agricultural and Forestry Experiment Station, the Mississippi State University Extension Service and the College of Veterinary Medicine, form the Division of Agriculture, Forestry and Veterinary Medicine at MSU. Each unit has a distinct mission, but they are united in their dedication to serving the needs of all Mississippians.

Vance H. Watson

Vice President’s Letter
Dr. Dayton Whites is as proud as anyone could be of his hometown, and he should be. In addition to being a physician, Whites also serves as mayor of Lucedale, the only town in George County.

“We have beautiful woodlands, the Pascagoula River and a 30-acre greenway we’re developing in downtown Lucedale,” he said. “Lucedale also has the best medical facilities of any small town in the state, with 18 board-certified physicians on staff at our community hospital.”

One of the things his community lacks is major industry, but the mayor does not see the absence of big factories as an obstacle to the quality of life in his area of Mississippi.

“We have about 1,500 people in George County working at Ingles shipyard in Pascagoula in Jackson County, and they enjoy living the country life here,” Whites said.
George County, along with Pearl River and Stone counties are just north of Mississippi’s Gulf Coast counties—Hancock, Harrison and Jackson. The three inland counties have been mostly rural and sparsely populated, despite being neighbors to New Orleans on the west, Mobile on the east and the industrial and tourist areas along the Gulf Coast, which is less than 30 miles from their southern boundaries.

“Mississippi’s three counties just north of the Gulf Coast are projected to experience rapid population growth,” said Patricia Southerland. “With the right planning, these areas can retain much of their small town or rural character while avoiding some of the problems associated with development.”

Southerland is project manager of the Center for Urban Rural Interface Studies at Mississippi State University’s Coastal Research and Extension Center in Biloxi.

The center was established in 2006 with a grant from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration. The mission of the center is to produce information to help local officials throughout the Gulf Coast region make growth-management decisions.

“Before hurricanes Katrina and Rita hit the Gulf Coast, growth was moving north of I-10 into rural areas from Texas to Florida in the form of sprawling developments,” Southerland said. “Almost two years later, growth continues to move north of I-10 into counties adjacent to the coastal counties, and in some areas it is occurring faster than before the hurricanes.”

While new construction can add tax money to city and county coffers, Southerland said the extra income often does not make up for the loss of quality-of-life factors resulting from sprawl.

“Sprawl occurs when everything is scattered: schools, civic buildings, shops, etc., and everyone must get in their car to get to any of these places,” Southerland said. “Smart growth is a viable concept that communities can use to manage growth without sprawl.”

Smart growth is a term most coastal residents probably had not heard prior to Katrina. Since the storm, it has been debated and discussed in most south Mississippi communities.

“Smart growth is a comprehensive land-use planning tool that addresses more than just land use zoning,” Southerland said. “It takes into account transportation, public welfare, health issues and aesthetics, as well as guides for creating new housing developments. One important principle of smart growth is designing walkable communities where neighborhoods have sidewalks and are within easy walking distance of shops, parks, schools and civic buildings.”

The other principles of smart growth, Southerland said, are to mix land uses, take advantage of compact building design, create a range of housing opportunities and choices, preserve open space, farmland, natural beauty, and critical environmental areas, strengthen and direct development toward existing communities, provide a variety of transportation choices, make development decisions predictable, fair, and cost-effective, and encourage community and stakeholder collaboration in development decisions.

Following Hurricane Katrina, architects and planners from across the nation came to the Mississippi Gulf Coast for a series of “charrettes,” or planning sessions with their local counterparts. The result was a master plan for applying smart growth and new urbanist principles in rebuilding 11 coastal cities and towns.

“The master plan produced in the charrettes is incredible,” Southerland said. “The challenge now is implementing and adapting the plan to meet the needs of the coastal communities. The next challenge is to develop a sustainable regional plan that addresses the new growth areas in George, Stone and Pearl River counties.”

Stone County is an area where implementing elements of the master plan could have a significant impact in years to come, according to county engineer Jon Bond.

“Stone is the same size as the surrounding counties, but right now we only have about 17,000 people,” he said. “We are beginning to grow, and a couple of big development are planned that could affect growth tremendously. We can do one of two things—we can cover the land like an urban sprawl and then figure out where we went wrong, or get some things implemented in the next couple of years to manage growth.”

Once fully established, the Center for Urban Rural Interface Studies will be available to provide technical and design assistance and information to local policy-makers about land-use strategies and related population growth issues. The center also includes a resource library with publications, DVDs and CDs showing examples of communities designed for sustainability and successful policies used in other areas.

“Good examples are out there,” Southerland said. “County and city officials are overwhelmed and understaffed at this time, and it costs a lot of money to hire firms to write comprehensive plans. With the center, we are able to offer assistance by bringing in experts for workshops and charrettes in order to demonstrate the successful examples already in use.”
An unknown enemy is destroying honey bee colonies across the nation, and researchers are scrambling to discover what is causing it and how it can be prevented.

The problem is being called colony collapse disorder, and it was identified in late 2006. It has mostly appeared in Florida and up the East Coast to Pennsylvania, but beekeepers nationwide are concerned, especially those who transport their hives across the country to pollinate crops.

Hives with the disorder go from a robust colony with a large adult bee population to an empty hive with the queen and brood abandoned in the space of a few weeks.

Clarence Collison, an MSU Extension Service entomologist and head of the Department of Entomology and Plant Pathology, said the colonies are collapsing without leaving quantities of dead bees to study.

A workforce composed of state apiculturists (scientists who study honey bees), personnel from state departments of agriculture and the U.S. Department of Agriculture’s Agricultural Research Service are investigating the problem, collecting samples and dissecting dead bees to learn about the problem.

“They’re finding a lot of pathogens in the adult bees. Most of these pathogens are related to stress diseases,” Collison said. “We firmly believe the bees are under some type of stress, and a scientist at Penn State has been able to show that these bees have suppressed immune systems.”

When colony collapse disorder strikes, beekeepers can lose up to 90 percent of their hives in a very short time.

“Ultimately, it will affect fruit and vegetable production if we don’t have adequate pollination forces,” Collison said. “Bees pollinate many plants that affect wildlife and birds, so it’s not just our diet that would suffer if bee populations are decimated.”

Similar phenomena have been recorded before under such names as spring dwindling, disappearing disease and autumn collapse. Collison cited a similar collapse in 1896, and he recalled problems like this in the mid-1970s and early 1990s.

“These are somewhat cyclical. Each time we go through one, it seems like the worst, but this one seems definitely the worst in my time,” Collison said.

Richard Adee owns the Woodville-based Adee Honey Farms, the largest bee keeping operation in the nation. He takes his bees to California each year to pollinate the almond crop before bringing them back to Mississippi to split and requeen his colonies.

“If they would just come home and die, then we could diagnose the problem,” Adee said.

In late March, Adee was in Washington, D.C., for the congressional hearing on honey bee colony collapse disorder. He said bees are very important to several agricultural industries as they provide the pollination that allows crops to produce.

“At one time, honey drove this industry. Now it’s pollen,” Adee said. “Every third bite we take is from a bee-pollinated nut or flower.”

Harry Fulton, state entomologist with the Mississippi Department of Agriculture’s Bureau of Plant Industry and secretary/treasurer of the Mississippi Beekeepers Association, said Mississippi’s agriculture is not as dependent on bee pollination as is the agriculture in some states.

“In Mississippi, we have $250 million a year in crops that rely on bee pollination. Nationally, a Cornell University study said the value of bee pollination is $14.7 billion annually,” Fulton said.

While no cause or trigger for the disorder has been identified, researchers have several suspects. These include pesticides, including imidacloprid, a systemic insecticide used extensively in fruit and vegetable production; parasitic mites and the viruses they can transfer to their hosts; chemicals used to control bee mites; and a new nosema disease of Western honey bees, which is a disease caused by protzoa.

Fulton said dry weather across the nation last year probably hurt the quality of pollen produced. Pollen provides the nutrition bees need to survive. Poor nutrition would stress the bees’ bodies, making them susceptible to other factors, such as cold weather.

“The scientists haven’t yet decided what is causing the problem, but it may be a deadly combination of stress on the bees and one of these other factors that normally is not pathogenic,” Fulton said. “If we know what it is and what causes it, we might be able to do something to predict when it’s going to happen and stop it.”
Pollinator Conservation

By Merry Johnson

Pollinator...with this word a mental image of a honey bee generally appears in one’s mind, but who would imagine that the population of these incredibly beneficial insects is decreasing at an extremely alarming rate? In Arizona, feral honey bee losses have increased 61 percent in one year. Sacramento, California, has experienced a 75 percent decrease in the number of feral honey bee colonies. The introduction of exotic parasites and diseases, the extensive use of herbicides and insecticides, the loss of plant diversity, the cultivation of monocultures, and the development of land for human occupation are a few of the most influential factors in this astounding honey bee decline.

The blame for a major portion of honey bee decrease can be placed on introduced parasites. Varroa and tracheal mites have been responsible for the death of up to 90 percent of feral honey bees. Since these mites were introduced to North America in the 1980s, they have created havoc in honey bee colonies. When the pin-sized varroa mite attacks a bee, it attaches itself and sucks the bee’s hemolymph fluid, which causes adults to be badly deformed and sometimes results in death. They also feed on developing honey bees and lay eggs inside the brood cells. The varroa mite can destroy an entire honey bee colony in only a few seasons. The tracheal mite is perhaps an even more serious pest than the varroa mite. Tracheal mites infest the bee’s trachea in which they lay eggs. These microscopic invaders are capable of killing a whole colony before an infestation is even detected. The best method to rid a colony of mites is the utilization of an effective, safe miticide such as fluvalinate for varroa mites or menthol crystals for tracheal mites. Such treatments have saved many domestic honey bee colonies, but unfortunately there is no way to detect and treat feral honey bees and as a result many continue to perish.

Diseases prove to play an active role in honey bee population decreases. The American foulbrood is a serious bacterial
disease that destroys honey bee larvae and pupae. A bee colony should be treated with an antibiotic every spring for this disease. There is no cure for American foulbrood. If the colony is ever infected, it must be burned because sleeping cells can remain intact for up to 70 years. The European foulbrood shares many of the same symptoms, but this disease is treatable with antibiotics and the hive does not have to be destroyed.

Also, honey bee populations are seriously suffering from herbicide and insecticide use. Presently, there are over 50 common pesticides on the market that are toxic to honey bees. Every year since 1971, the amount of pesticides produced and sold has increased. This increase has had a devastating effect on honey bees because more deadly pesticides are patented each year. Cotton spray continues to be especially lethal. In Arizona, before this pesticide program was used, there were 110,000 honey bee colonies; but, in seven short years, only 53,000 were located. California reports the heaviest loss of 62,500 colonies per year. These negative effects may be reduced by the utilization of nontoxic, synthetic pesticides, the elimination of repeated applications of high-dosage, broad-spectrum pesticides, the ground application of pesticide instead of aerial, and the use of combinations of diluted pesticides. Spraying at night reduces danger to foraging worker bees. Nonchemical control is also a viable way to control pests. The following are all very successful ways to control insect pests without harming honey bees: insect attractants and repellents, insect pathogens and predators, traps, insect-resistant plants, the manipulation of planting and harvest dates, as well as integrated pest management in which chemicals are used only after all other options have been exhausted.

The loss of plant diversity and the cultivation of monocultures are two closely intertwined issues that are seriously affecting honey bee density. Fragmentation of natural habitats creates a situation in which plants become spread far apart, separating them from their native pollinators; as a result, both plant and honey bee populations decrease. The production of large monocultures, consisting of exotic crops, also assists in the plant diversity loss because bees are attracted away from native plants, causing these plants to lose the majority of their vital pollination. Many times, when honey bees are lured to monocultures, pesticides poison them. Conservation of both native plants and honey bee populations are very closely related issues that must be quickly addressed in a unified fashion before any more ecological decline is experienced.

Another factor in pollination conservation is that honey bee decline has also been negatively affected by the development of land for human occupation. Urbanization consistently fragments land vital for honey bee survival, resulting in the invasion of diseases and parasites. This fragmentation of honey bee habitat decreases pollinator density, separates them from their natural environment, and in general completely alters their surroundings. Plant diversity also shrinks as a result of fragmentation and causes honey bees to loose their native nectar sources. The most highly recommended way to combat fragmentation is the creation of honey bee sanctuaries or pastures. A bee sanctuary consists of an open, undisturbed meadow that has a wide variety of annual and perennial flowering plants which produce large quantities of nectar and pollen. It is vital to select plants with different blooming dates so that the bees will be provided with adequate nectar throughout the season, but the sanctuary should never be in bloom at the same time as local crops as this could result in an ecological conflict between the sanctuary flowers and the crop for pollination rights. It is advised that industrialization occupy no more than 75 percent of an agricultural landscape and the remaining 25 percent be left as a bee sanctuary.

In conclusion, precautionary measures must be promptly utilized to counteract these disastrous trends that are producing such heavy honey bee population decline. Honey bees have always been of inestimable value to mankind, and they must be conserved at all costs.
Organized 38 years ago to encourage youth to become involved in exhibiting livestock, the Dixie National Sale of Junior Champions still meets that goal and much more.

R.O. Buckley of Starkville said magnificent animals, hard-working youth and generous buyers are the key components in one of the best youth livestock sales in the country.

Buckley, now 89, was instrumental in establishing the sale. A charter member of the sales committee in the late 1960s, he promoted the sale beyond his retirement as a livestock specialist from Mississippi State University’s Extension Service in 1979, serving on the sale committee for almost four decades. He remembers when the goal was to sell each animal just a little above the market price.

“We wanted to encourage other kids to try harder and to inspire more kids to get involved in the livestock program,” Buckley said. "Over the years, the buyers have been faithful and generous. They want to help the kids and know it’s a good program.”

Since the sale began in 1970, buyers have paid more than $3.5 million for the champion and reserve champion market animals exhibited at the Dixie National by Mississippi’s 4-H and FFA youth.

In this February’s sale, the prices were more than “a little above” market prices. The 2007 grand champion steer tied the previous record of $17 per pound, a far cry from that month’s national average market price of 91 cents per pound. Because of his size, the animal brought a record total of $22,916.

Buyers helped set a new record price for the grand champion lamb when they paid $60 per pound for a total price of $9,060. At a public bid sale, the price would have been closer to 82 cents per pound.

The grand champion market goat brought a record $80 per pound, significantly higher than the $1 per pound averages posted at public bid sales in February. Even though the grand champion hog did not set a record at $25 per pound, it was still much better than the 35 cents per pound live weight average.

“The buyers like the idea of rewarding the hard-working young people,” said Bill Lampton, chairman of the sales committee.

His family’s company, Ergon, has been involved with the sale since the first years. Lampton said the sales committee also works hard all year to round up buyers to take part in the sale each February.

“Sometimes buyers come from the exhibitor’s community out in the state just to support that young person, but usually buyers return year after year because they appreciate the benefits of the program,” he said.

In 1993, the sales committee added scholarship opportunities for livestock exhibitors who did not have animals in the sale, Lampton said. They awarded a single $1,000 scholarship that year.

In 2007, the sales committee distributed $35,500 worth of scholarships to 33 exhibitors. The five largest scholarships, $1,500 each, were awarded to the premier exhibitors in beef, dairy, lambs, hogs and goats. Academic scholarships for $1,000 each went to 25 high school seniors. Additional $1,000 scholarships were awarded to three supreme exhibitors in the categories of dairy female, beef female and beef bull.

Dean Jousan, 4-H livestock specialist, said the scholarship requirements vary for each category, but all are the result of hard work and dedication.

“These scholarship recipients have developed perseverance and learned a lot of life skills,” Jousan said. “Now, they can take the money from these scholarships as a reward for their hard work. We want to encourage them to continue with their life goals by going to college and equipping themselves for the next stage of life.”

A 1997 scholarship recipient, Jana Sims Everett, and her two siblings were active in the Tishomingo County 4-H livestock program.

“Showing livestock was our biggest 4-H activity; it was our life. It’s also how I met my husband,” she said.

While her brother was the only sibling in their family to place a hog in the sale, they all benefited from the livestock experience and the scholarship program.

“As a child, I was totally shy. Being in the livestock program made a difference in my ability to stand in front of people,” said Everett, now a teacher in the Starkville School District. “All three of us depended on scholarships and grant money to be able to attend college.”

Bryan Williams of Jackson took part in the Dixie National Junior Livestock Show for 10 years before earning his spot in the 2001 Sale of Junior Champions.

“It was always my goal to make it into the Sale of Champions. In the process, I learned a lot of responsibility and self-discipline,” Williams said. “I was able to take the money from selling my steer and use it for my education.”
Finding a different perspective is often the difference between a great photograph and one that’s just so-so.

The 4-H photography project teaches participants to find the perspectives that add interest to their photos. Volunteer leaders and 4-H personnel also teach members enrolled in the project other photography skills.

Each year, students from across the state enter their best photos to be judged. Ten pictures are selected for exhibition at the Mississippi State Fair in Jackson and then at the state 4-H office on the MSU campus.

These pages contain 10 winning photographs from the 2006 4-H photography competition.
“Musical Focus”
Summer Lucky, age 17, Lauderdale Co.
Digital

“Gift of the Sea”
Sarah Miller, age 15, Oktibbeha Co.
Film

“Retired Rake”
Leah Burns, age 9, Lauderdale Co.
Film

“Bottled Reflection”
Leah Burns, age 9, Lauderdale Co.
Digital

“Magical Moments”
Summer Lucky, age 17, Lauderdale Co.
Digital

“Sleeping at the Wheel”
Belle Failla, age 10, Pearl River Co.
Film
An 8 a.m. class may seem early for some college students, but MSU College of Veterinary Medicine students who volunteer for the spay and neuter program often begin their day before sunrise.

That was the case for four students one crisp March morning. On that day, the school’s mobile unit was making the 100-mile trip to Oxford to provide spay and neuter services for animals eligible for adoption at the Oxford Humane Shelter.

“The mobile unit, acquired in early 2007 by CVM as an emergency response vehicle with a grant from the American Kennel Club Companion Animal Recovery, is also equipped as a surgical suite,” said Dr. Philip Bushby, professor of surgery and Marcia Lane Professor of Humane Ethics and Animal Welfare.

Contributions from the Humane Society of the United States, along with private donations, provide funding for operating the unit. HSUS played a major role in animal rescue efforts in south Mississippi following Hurricane Katrina. Because of that experience, the organization decided to invest significant resources to reduce the number of unwanted and homeless dogs and cats in the state.

The mobile unit is used to conduct spay and neuter programs in economically depressed areas of the state for pet owners who otherwise could not afford the service. The vehicle also travels to humane shelters around the state for spay and neuter days. The Oxford trip was the first shelter visit.

Focused on early-age spay and neuters, the shelter program is aimed at helping reduce overpopulation of unwanted dogs and cats, providing educational experiences for veterinary students and increasing the adoptability of pets at shelters, Bushby said.

“We see this as a win-win-win situation,” he added. “It’s a win for the animals because it gives them a better chance of finding a home. It’s a win for the students because they gain valuable experience. It’s a win for the shelters because they receive spay and neuter services, as well as other minor services, at no cost.”
In the United States, up to 6 million dogs and cats are euthanized at shelters each year due to overpopulation and lack of homes. The service provided by the MSU program is part of the solution to the overpopulation problem, said Cyd Dunlap, president of the board of the Oxford Animal Shelter.

“When adopted, these animals will be ready to go home, already altered, and we won’t have to worry about them ever reproducing again…which is the very reason we are here,” she said.

Dr. Bob Guy, an Oxford veterinarian who has been actively involved in spay and neuter programs for several years, visited the shelter to see the mobile unit in action.

“This is great. This is just what is needed,” he said. The program, he added, is a key step in reducing the problem of too many unwanted puppies and kittens.

During the Oxford visit, the CVM students performed 15 surgeries under Bushby’s supervision.

The students who volunteer for work with the mobile unit become more aware of the role of the humane shelters while gaining valuable experience.

“The mobile unit allows us to practice advanced veterinary medicine and gives the shelter animals a high quality of care that most shelters cannot afford to provide,” said CVM junior Tai Curry of Hattiesburg.

Curry, along with seniors Ashley Martindale of Pampa, Texas, and Stephanie Gandy of Charlotte, N.C., and junior Hunter Corley of Okolona, participated in the unit’s initial shelter visit.

“The mobile unit teaches us to apply our clinical skills in a way that emphasizes efficiency and cost-effective care while maintaining a high quality of practice,” Martindale said. “It allows us to learn while we provide a service to our communities and the animals that are our responsibility as citizens.”

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

The mobile clinic currently hits the road one day a week to visit shelters, economically depressed areas of the state and south Mississippi locations still recovering from storm damage.

The goal, Bushby noted, is to increase the frequency of trips in support of local humane shelters and to increase awareness of veterinary services.

“The mobile clinic will help thousands of pets in the state live longer, healthier lives, while reducing the number of stray and unwanted animals,” he said. “It also will introduce a segment of the population to the services provided by their local veterinarians.”
When it comes to competition, athletic fields are not the only arenas in Mississippi. The state’s 3 million acres of plantation pine are sites of fierce competition for available sunlight and nutrients.

Undesirable hardwoods in the understory of the plantations compete with pines and wildlife, said MSU forestry professor Andy Ezell.

“Forest managers know that managing competition is essential for timber production, but it’s often overlooked that undesirable trees in pine plantations impact wildlife habitat,” Ezell said.

Ezell, along with wildlife and fisheries scientists Steve Demarais and Wes Burger, have studied how thinning, selective herbicide use and prescribed burning can improve both timber production and wildlife habitat quality.

“Wildlife populations are influenced by the structure and composition of plant communities, so specific habitat requirements of targeted wildlife species must be understood and emphasized in planning,” Demarais said. “Conditions that limit sunlight and nutrients for pine production also degrade habitat quality for these wildlife species.”

Midrotation thinning allows sunlight to reach the understory for several years, and the sunlight improves wildlife habitat on the forest floor. A pine plantation reaches the midrotation period in about 15 years.

The heavier the thinning, the longer sunlight can promote wildlife habitat. Dense, undesirable hardwoods capture sunlight and compete for resources with pines. Removal of undesirable hardwoods with the selective herbicide imazapyr eliminates this problem. In addition, prescribed fire eliminates the pine straw litter and promotes germination of beneficial plant communities.

The MSU research also found that midrotation removal of dense, undesirable hardwoods significantly increases pine height and diameter growth.

“The responses are not immediate, but after four years the combination of herbicide and fire increased pine basal area by 29 percent compared to untreated plots,” Ezell said.

Initial results indicate that fertilization provides a better pine growth response than hardwood control. However, long-term studies indicate that pine growth resulting from midrotation herbicide applications and prescribed burning surpasses growth spurred by fertilization.

The research also found that midrotation treatments benefit the deer population by improving the food supply.

“An inadequate supply of high-quality forage is the habitat factor that most frequently limits antler quality in the Southeast,” Demarais said. “Correcting this limiting factor is the key to improving deer habitat quality in managed midrotation pine stands.”

The cost of producing high-quality protein with the midrotation treatment regime is one-third the cost per pound of producing protein in food plots.

Food plots produce more protein per acre so they should continue to be used, but producing quality forage under managed pines is the key to optimizing deer and timber products, Demarais added.

The open forest structure created by thinning, herbicides and prescribed fire stimulates the development of a lush understory composed of native grasses, legumes, forbs and shrubs.

“This open forest structure provides essential habitat for many pine-grassland bird species,” said Wes Burger.

Midrotation stands managed with a midrotation treatment regime support more individual birds, more bird species and more species of regional conservation concern, including turkey, bobwhite quail and nongame species, Burger added.

“Many of these species have exhibited long-term population declines in Mississippi because of fire exclusion and the loss of open pine-grasslands,” Burger said. “Active pine management with midrotation treatment practices can reintroduce the characteristics of natural pine-grassland habitat for these species.”

Midrotation practices, the foresters and wildlife specialists agree, result in a win-win situation for Mississippi’s forest landowners and its wildlife.
The 92 miles of rail connecting Greenwood and West Point were considered inoperative in 2002, but work is under way to revive the link between the Delta and the eastern part of the state.

It has gone through several name changes, but what is today the Columbus and Greenville Railway, commonly referred to as C&G, was built in the late 1800s to ship cotton and other agricultural products out of the Delta to points in the Southeast. Most of the line was taken out of operation in 2002 because costly repairs were needed for the 156 bridges and deteriorating track throughout the six counties—Webster, Clay, Oktibbeha, Carroll, Montgomery and Leflore—in the line.

“When the railroad first made its way through Mississippi, it not only transported goods but indirectly helped establish rural communities near the railroad depots,” said Cynthia Wilson, Webster County development council executive director. When the line first became inactive, the idea for a “rails for trails” tourism line developed. However, after meeting with other economic developers in the six counties and officials with the railroad, it became apparent that the best option was to refurbish the line, Wilson added.

“We also had to establish a regional rail authority in order to acquire state and federal support in refurbishing the line,” Wilson said. “By establishing a regional rail authority and an executive board, we will hopefully secure funding for the rail line.”

The economic development council applied for and received a $40,000 grant from the Appalachian Regional Commission to initiate an exploratory study of revitalizing the Columbus and Greenville Railroad line. Wilson, a retired MSU Extension employee, immediately turned to the university for help.

An MSU team including experts from the Mississippi State Community Action Team, Industrial Outreach Service, Political Science and Administration, and Industrial and Systems Engineering was assembled to address the potential of the inactive railway.

“In light of escalating fuel prices, rail is the most fuel-efficient and environmentally friendly mode of transportation,” said Roger Bell, president and chief executive officer for the C&G railway. “Rail transport is also considered an advantage many times when an industry is looking to locate to an area.”

The MSU team is evaluating the impact of reopening the line on recruitment of industry to north-central Mississippi by estimating how it would affect freight flow throughout the state. “Currently, there is not an east-west line north of Jackson,” said Bill Martin, Industrial Outreach Service project manager. “The research team will determine what, if any, benefit will be realized in the distribution of goods, including use of the Port of Greenville, the state’s largest river port.”

The cost to renovate the line is estimated to be almost $40 million. To determine if the benefits will outweigh the cost, the team is evaluating the economic potential to rural counties, including the role a rail line will have in attracting industry, Martin added.

The MSU-led project includes the creation of a freight-flow map for Mississippi to demonstrate how goods move through and around the state. “The team will evaluate the inactive line to determine if reopening would improve the movement of goods considering the other modes of transportation,” Martin said. “This includes reviewing the current transportation system that serves Mississippi and the region including the ports of Mobile, New Orleans, Greenwood and Memphis.”

The research team is also conducting informal, one-on-one interviews with industry representatives to determine the current methods and cost of freight shipment used by regional industries. The interviews will determine if and how much refurbishment of the line will result in cost savings to industries. Upon completion of the project, a market assessment of refurbishing the line will be presented to C&G.

Martin, however, is already optimistic about the potential. “We see, on this dormant railroad, an opportunity to improve transportation and attract new industry to the state,” he said.

If he is right, the sounds of locomotives may return to many small towns in central Mississippi.
This year, 2007, is the centennial year for the 4-H youth program in Mississippi. While 4-H is marking 100 years as an organization in the state, its roots reach back almost another 50 years.

The Morrill Act of 1862 created the land-grant university system, with its mission of advancing agriculture and the mechanical arts. Mississippi A&M College, the forerunner of Mississippi State University, was established in 1878 as part of the national land-grant system.

The late 1800s were a time of rapid and important changes in agriculture. Research with fertilizers, new planting methods, the use of improved seed and other farming practices had shown farm production could be improved, resulting in better lives for farmers.

Teaching these new methods to farmers was part of the mission of the land-grant schools, and programs to introduce rural youth to practices shown to produce larger and better crops were introduced in several Midwest states.

In 1903, A.F. Meharg came to Mississippi A&M as a demonstration agent with the U.S. Department of Agriculture’s Farm Demonstration Program. He soon took notice of the work being done by William H. Smith, superintendent of education in Holmes County.

As a teacher, Smith saw the then-common practice of rural students leaving school because they were not learning things that would help them on the farm. As a result, he invited farm boys to a meeting with professor Robert R. Perkins from A&M College in February 1907. Perkins gave each boy enough corn seed to plant one acre and instructed him on how to raise the corn.

The clubs formed by Smith were the first of their kind in Mississippi and earned him the name “Corn Club” Smith. The methods learned in the corn clubs soon proved their value. Most of the boys more than doubled the yield their fathers were getting on acres surrounding their one-acre plots. In some cases the boys’ acres produced about 100 bushels, compared to less than 20 bushels an acre on the rest of the farm.

By the end of 1907, Smith’s success with organizing corn clubs had earned him a job as a collaborator with the U.S. Department of Agriculture. Although his salary was just $1 a year, the federal job allowed Smith to use government mail privileges to send information to corn clubs throughout the state. This was USDA’s first time to become directly involved in a youth program and established the three-way partnership of county, state and federal governments working together in the youth club movement. The partnership also is the basis for Mississippi’s claim as the birthplace of 4-H.

The Mississippi corn clubs soon became the model for similar clubs in other states.

The success of the boys’ corn clubs led to a similar program for girls. By 1910, girls’ canning clubs were being formed in the South. Seaman A. Knapp, head of the federal Farm Demonstration Program, invited Susie V. Powell, school improvement supervisor of the Mississippi Department of Education, to a conference in Washington about girls’ tomato clubs in 1911. Powell agreed to organize clubs in rural Mississippi, and she held the state’s first canning demonstration in July 1911 at Whitworth College in Brookhaven. In the fall of that year, 152 tomato club girls, wearing green-and-white uniforms, exhibited their canned products at the county and state fairs.

Work with African-American rural youth through the Farm Demonstration Program began in 1906 with Thomas M. Campbell, an assistant to George Washington Carver at Tuskegee Institute in Alabama. Club work with black girls, however, did not begin in earnest until 1917, when the wartime emergency led to federal funding of food production and conservation programs for African Americans.

Passage of the Smith-Lever Act in 1914 created the Cooperative Extension System, and county Extension agents, working with local leaders, began organizing 4-H clubs.

During the past century, Mississippi’s 4-H youth program has grown into one of the strongest and most active in the nation. As an organization dedicated to providing educational programs to help youth achieve success in life, Mississippi 4-H has responded to the changing needs of its members.

Today, 4-H offers rural and city members opportunities in leadership, career development, home improvement, computer technology and other program areas dedicated to the development of young people.

The following pages illustrate the first century of 4-H.
Boys’ corn clubs brought a new form of education to rural youth in the early 1900s. The boys applied new production techniques to corn on one acre of their families’ farms, and their success soon led to the application of the same principles to cotton and other crops.
Well-organized boys’ corn clubs were soon active in all areas of Mississippi. The success of the practical education provided by the boys’ corn clubs led to the organization of Mississippi’s first girls’ canning clubs in 1911.
The boys’ and girls’ clubs were united as 4-H clubs following the passage of the Smith-Lever Act in 1914. By the 1920s, Mississippi youth were participating in a variety of projects to improve life on the farm. Mississippi also became a leader in national 4-H activities.
By the time the original boys’ corn club members celebrated their 50th anniversary in 1957, 4-H clubs could be found in almost every Mississippi community, and club members were learning skills that would help them be leaders in almost any career field. Today’s 4-H program emphasizes leadership skills, healthy living and community service.
Cutting-edge genetic research by a Mississippi State University animal scientist may help solve a problem that costs livestock producers millions of dollars each year.

The research by Erdogan Memili, an assistant professor in the Department of Animal and Dairy Sciences, is aimed at improving fertility in cattle and can be applied to other mammals.

“In mammals, the mother has crucial genetic materials in her egg. Following fertilization, these materials provide critical support for early embryo development,” Memili said. “Newly formed embryos undergo embryonic genome activation, or EGA, during which new proteins and ribonucleic acids are made in the right amounts and at the right time for further development.”

In their research, Memili and colleagues at the University of Wisconsin-Madison and the University of Alabama-Birmingham have examined the genetic blueprints of cow eggs and embryos during EGA. Their findings can help livestock producers who use in vitro fertilization and embryo transfer in their herds.

“Embryonic mortality is one of the biggest roadblocks in livestock reproduction,” Memili said. “Some of the genes we identified using panoramic pictures of eggs and embryos at the molecular level can be used to help select eggs and embryos that will support full-term development of offspring.”

Terry Kiser, head of the MSU Department of Animal and Dairy Sciences, said the work conducted by Memili and his colleagues will impact other scientists working to improve animal genetics and help livestock producers with an expensive problem.

“Infertility costs Mississippi cattle producers millions of dollars each year,” he said. “If cows do not successfully establish and maintain pregnancies, producers have the expense of maintaining them until their next reproduction cycle.”

The findings of the team of scientists have paved the way for more research and have caught the attention of the scientific community, Kiser added.

“A scientific paper on the research was published Dec. 1, 2006, in the prestigious journal of The Proceedings of the National Academy of Sciences,” he said.

MSU’s Life Sciences and Biotechnology Institute funds the collaboration between Memili and the Wisconsin and Alabama scientists.

Memili received his doctor of veterinary medicine degree from the University of Istanbul in Turkey. He also holds a master’s degree in bacteriology and a doctorate in endocrinology and reproductive physiology, both from the University of Wisconsin-Madison.

Before joining the MSU faculty in 2004, Memili worked in industry and completed postdoctoral training on embryonic stem cells and epigenetics in development at the Harvard Medical School.
Feral hogs have perhaps the worst reputation of any wild game animal in the nation, and Mississippi State University researchers hope to gain the upper hand by studying their habitat and populations.

While hunters enjoy pursuing these elusive and dangerous animals, most landowners view wild hogs as nuisances because of their extremely destructive foraging habits.

“One of the primary problems with feral hogs is that they root through the soil in search of food, causing various problems in both agricultural and natural settings,” said Sam Riffell, MSU wildlife and fisheries assistant professor. “This type of behavior can cause soil erosion, destroy native plant communities, reduce nesting cover and available forage for other wildlife species, and cause economic damage to crops.”

In addition to consuming vegetation, feral hogs carry diseases that can be passed on to livestock, humans and other wildlife.

To determine ways to better manage feral hogs, Riffell and graduate student Clay Hayes initiated a research project through the university’s Forest and Wildlife Research Center. Hayes, a native of Milton, Fla., examined the home range, habitat use and survival of 29 feral hogs in central Mississippi. From April 2005 through April 2006, Hayes trapped and radio-collared the hogs and then located them two to three times per week using radio telemetry.

“Our study found that several factors influence the preferred habitat of wild hogs,” Hayes said. “First, because hogs have no sweat glands, they prefer moist areas during hot weather and may become primarily nocturnal during the hottest parts of the year.”

Other factors include food availability and a need for cover, Hayes added.

Sponsored by the Mississippi Department of Wildlife, Fisheries and Parks, the Mississippi Agricultural and Forestry Experiment Station, and the Berryman Institute at MSU, the study revealed that rainfall also influences home range size. In general, the home ranges in this study were larger during the dry season than the wet, possibly due to seasonal flooding of some areas within the home range.

“Understanding the home range of feral hogs is important for minimizing negative interactions between feral hogs and native wildlife,” Hayes explained. “Managers need to know what types of habitat the hogs are using, as well as how large an area they roam.”

At the end of the year-long study, 14 of the 29 radio-collared hogs were still alive. Hunting or trapping caused mortality for 12 of the 15 that did not survive.

“Hunting, trapping and harassment may be the best tools managers and landowners have to reduce damage to sensitive areas,” Hayes said. “Private landowners may legally take hogs on their property at any time of the year, whereas state wildlife management areas have seasons.”

Hogs tend to move from areas where they are heavily disturbed into more peaceful surroundings. For this reason, the MSU researchers found that hunting with dogs may be particularly effective if the object is to remove a few animals and cause the remaining ones to relocate. At the end of the year-long study, 14 of the 29 radio-collared hogs were still alive. Hunting or trapping were the causes of mortality for 12 of the 15 that did not survive.

“Hunting with dogs bred and trained for hog hunting is usually safest, he added, but dogs used to hunt wild hogs should be equipped with heavy vests to limit chances of injury. Larger caliber (above .243) repeating rifles are best because the bullet must penetrate a tough hide, a lot of muscle and quite a bit of cartilage around the shoulders.

“If you happen upon a feral hog unarmed, try not to spook it,” Riffell warned. “Because they have poor eyesight, they may run over you if panicked. It is best to back away slowly.”

Other wild-hog-related research being conducted at MSU includes a human dimensions study by Edith Parks, a graduate student under the guidance of assistant professor Kevin Hunt. Her work includes a survey to determine the distribution of feral hogs and attitudes toward them.

Rich Minnis, an assistant research professor, is conducting a study on avian influenza in duck and hog populations around the state. Research of feral hogs by MSU’s Department of Wildlife and Fisheries also is expanding into the Mississippi Delta.

“Though feral hogs are widespread and extremely damaging to natural and agricultural habitats, current knowledge is comparatively limited,” Riffell said. “Through studies like these, scientists provide a stronger foundation upon which to base management decisions.”
Mississippi producers are showing that working for peanuts is not a bad thing.

The state produced the second highest per-acre peanut yield in the country in 2005 with between 1.7 and 1.8 tons grown per acre. Since 2001, Mississippi jumped from obscurity in peanut circles to No. 9 in the nation on the strength of about 17,000 acres of the crop. Peanut acreage is expected to increase about 10 percent this year.

Mike Howell, Mississippi State University Extension Service southeast district area agronomist, said the 2002 Farm Bill opened the door for the crop in Mississippi.

“When the quota system was eliminated, it became possible for a lot more farmers to grow peanuts,” Howell said. “The interest really sparked in the southeast corner of the state, where a few farmers had already been growing peanuts for several years. Peanuts now are grown there, throughout the Delta and in the northeast part of the state.”

Diseases can transfer between peanuts and soybeans, but peanuts make a good rotation crop for corn or cotton. Peanuts can be grown on any soil type, although they perform best on sandy soils. Heavy soils make harvest difficult for this belowground crop.

“We can find sandy spots in most counties in Mississippi,” Howell said. “The southeast part of the state will probably remain the best part of the state for peanuts, but peanuts can be grown anywhere there is sandy soil, such as along rivers and creek bottoms.”

PEANUTS
Gain Ground in Mississippi

By Bonnie Coblentz
Photos by Robert Wells

With facilities in Anguilla and Greenville, Delta Peanut, LLC, is one of Mississippi’s first peanut businesses. Trey Heigle, right, is a partner in the company, which cleans, dries and stores Mississippi-grown peanuts before they are shipped to a Georgia processor.
Howell said the state has high yields because it has low disease pressure.

“You have to rotate peanuts because of disease pressure,” Howell said. “We’re on new soils so we don’t have the disease pressure now that other states face, but we probably will in five or six years.”

Peanut harvest equipment is significantly less expensive than harvest equipment for corn or cotton, and peanut inputs match cotton’s input cost of $500 to $600 an acre. With good per-acre yields and a minimum price of $355 per ton, peanuts are as economically attractive as cotton grown on good land, Howell said.

George County in southeast Mississippi leads the state in peanut acreage with more than 2,000 acres in 2005 and 2006. Mike Steede, George County Extension director, said he expects no real change in peanut acreage in his county until a new Farm Bill changes farm policy again.

“Peanuts perform well in this area and do fairly well in a drought situation compared to other crops,” Steede said.

Steve Tanner is a George County farmer who has found a place for peanuts in his farming operation.

“Peanuts work pretty well in our operation as a rotation crop. They are a nitrogen-fixing crop that saves us a little money on fertilizer because fertilizer has gone so high,” he said. “It’s one of the higher dollar cash crops right now, peanuts and cotton.”

Another consideration for south Mississippi producers, Tanner added, is that “hurricanes don’t blow them away.”

Ken Hood, Extension agricultural economist, said peanuts’ estimated value of production was $7.83 million in 2006.

“I expect this to increase in 2007 if weather during the growing season is normal,” Hood said. “Prices have held steady, but if speculation is correct about large tracts of Georgia peanut acreage moving to corn this year, we may benefit as buyers offer premiums over the loan rate.”

Hood said total peanut acreage nationwide has steadily declined since 2002. Peanut stocks are down from 2006, and it appears that national peanut production will decline again in 2007.

A bill to establish a $2.50 per ton checkoff on peanuts was passed by the Mississippi Legislature and signed into law by the governor in March.

Howell said the state’s peanut growers’ association will use the checkoff program to fund research and promotion of the crop in Mississippi.

“MSU has already done some peanut variety trials at several locations around the state and the checkoff will make more research possible,” he said. “The growers will decide what types of research projects they want to fund through the checkoff program.”

Howell said peanuts grown in the southeastern United States are of the highest quality in the world, and most Mississippi peanuts end up in candy or peanut butter or are packaged as snacks.

In 2006, MSU entered the peanut retail market with 18-ounce cans of crunchy and smooth Bully’s Peanut Butter, as well as 1-ounce foil packages and 12- and 60-ounce cans of Bully’s Party Peanuts. Each of these products is available for purchase on campus in the Mississippi Agricultural and Forestry Experiment Station Sales Store, also known as the MSU Cheese Store.

“We are offering the peanut products as a way to support the state’s peanut industry and to make consumers aware that peanuts are now a Mississippi product, along with sweet potatoes, blueberries and other food crops,” said Vance Watson, vice president of the MSU Division of Agriculture, Forestry and Veterinary Medicine.
Each year for more than 50 years, representatives of agricultural producer groups in 27 northeast Mississippi counties have met to talk about their needs and to tell those needs to Mississippi State University research scientists and Extension professionals.

In the early 1950s, meetings were held under the oak trees at the Mississippi Agricultural and Forestry Experiment Station in Holly Springs. More recently, the site of the gathering has been the North Mississippi Research and Extension Center in Verona.

At the 2007 North Mississippi Producer Advisory Council meeting, the need for research with value-added products and for market development programs were among the most talked about items.

Representatives of 11 producer groups attended the meeting. Each group met to discuss their specific needs among themselves and with representatives of MAFES and the MSU Extension Service. Following those meetings, a representative of each commodity group presented a report to the entire council.

- **Beef Cattle**
  The need to form alliances to market feeder calves was one of the topics discussed in the beef group meeting, reported Noxubee County beef producer Jacob Megehee. The producers also want more research and information on forage systems for brood cows and on carrying feeder cattle to higher weights.

- **Ornamentals**
  The ornamental plant growers group requested that MSU scientists focus on research to help stabilize and develop small ornamental business in local communities, said group chair Linda Camp of Itawamba County. The ornamental group also requested that the university provide general information for maintenance of water gardens, including natural algae control.

- **Cotton**
  Cotton is a major row crop in the northeast section of the state, and growers would like more research on conventional cotton varieties for hill production, said group chair Clay West of Calhoun County. The cotton producers also asked for more research on strip tillage and herbicide-resistant weeds.

- **Dairy Cattle**
  Forage research and work with record-keeping systems were among the requests of the dairy producer group. Producer chair Jeremy Graham of Pontotoc County also said the group would like to see more educational programs on how to deal with hairy heat wart outbreaks in dairy herds.

- **Equine**
  Horse shows, rodeos and other equine events have a significant economic impact in Mississippi, and Beverly Jones of Oktibbeha County reported that the equine group discussed ways to bring horse organizations together to further strengthen this industry in the state.

  The group also noted the need for better communication of research results to horse owners and other segments of the horse industry.

- **Forestry**
  Continued university work with alternative markets for timber resources was among the requests of the forestry group. The group’s chair, Butch Steele of Itawamba County, said the discussion also included the need for adequate state funding for agencies providing necessary services to Mississippi’s forest landowners.

- **Fruits and Vegetables**
  The fruits and vegetables group discussed the need for updated publications on peaches, pears, apples and nectarines. Group chair Bill Coggins of Itawamba County said producers would like the university to conduct pumpkin variety trials, as well as provide pest management information and a marketing contact list.

- **Soybeans**
  A request to fill the vacant Extension soybean agronomist position was a priority for the soybean producer group. Chair Ben Harlow of Monroe County said the producers also discussed the need for more stored grain information and for information on shattering ratings for soybean varieties.

- **Sweet Potatoes**
  The sweet potato producers discussed the need for continued university research with insects that attack their crop, according to group chair Stephen Bailey of Calhoun County. The producers also noted the need for more work with variety development and identification of viruses in sweet potato plants.

- **Turf**
  Turf producers, according to group chair David Rainey of Alcorn County, need research and information on the economic impact of their business. The growers cited the need to educate the public on how to better manage turf in lawns.

- **Swine**
  The swine producer group discussed the need to get meat packing businesses back to Mississippi. Chair Byron Wilson of Chickasaw County said the group also supports the construction of a new swine center on the MSU campus.

  “The experiment station and the MSU Extension Service report back to the producer groups on their requests,” said MAFES Associate Director Reuben Moore. “In most cases we are able to meet their needs through an existing or new research project or an Extension educational program.”
The Family and Children Research Unit (FCRU), originated in 1998 as a division of MSU’s Social Science Research Center, conducts research on issues affecting the health, safety and well-being of children and their families.

Using an interdisciplinary approach and partnering with public and private agencies, and with support from the Mississippi Agricultural and Forestry Experiment Station, the FCRU conducts research and does program planning and evaluation to build effective service systems.

In 2001, a collaborative agreement was reached with the American Academy of Pediatrics’ Center for Child Health Research. A major product of this collaboration is About Children: An Authoritative Resource on the State of Childhood Today. About Children contains input from more than 60 of the nation’s leading experts on children and is the focus of plans for a Public Broadcasting Service documentary series.

It is recognized that experiences in early childhood have long-term health consequences and that health-related behaviors are formed at very young ages. This, coupled with the fact that children are spending increasing amounts of time in non-parental care, has promoted the exploration of child-care centers as primary research venues for FCRU scientists. Their research studies include:

- **Building Research Infrastructure Capacity**, funded by the Agency for Health Care Research and Quality, was a five-year study focused on prevention and delayed onset of early-childhood caries, also known as tooth decay, among low-income children within a 12-county region of the Mississippi Delta. Refining risk-assessment items on screening tools has been a significant outcome of this project.
- **Clean Air, Rewarding Environments**, funded through the National Institutes of Health’s National Cancer Institute in concert with the University of Arizona, is a project examining the viability and practicality of training child-care workers to conduct brief interventions with parents and caregivers on the harmful effects of environmental tobacco smoke on children.
- **The Delta Child Health and Well-Being Research Program**, funded through the Delta Health Alliance from Health Services Resource Administration, conducted in spring 2007 an assessment of Mississippi Delta child-care directors and parents, focusing on the health and well-being of children enrolled in child-care centers.

Several continued and emerging FCRU partnerships hold promise for exploring factors related to children’s health and well-being outside of the child-care setting:

- The FCRU continues to play a major role in the Child Health, Early Education Research consortium of the Provisional Section on Early Education and Child Care of the American Academy of Pediatrics, which emphasizes the importance of linking social and behavioral sciences with clinical pediatric intervention. An example is the recent survey of licensed child-care directors, conducted from a FCRU-compiled, first-ever database of 97,000 licensed child-care centers in the United States.
- The FCRU has been named the evaluator of an exciting new endeavor: the North Mississippi Health Foundation’s HealthWorks! project, a children’s interactive health museum in Tupelo.
- Another partnership is with the College of Veterinary Medicine. Research is planned to provide health messages to children using pets and to gauge and monitor the social climate of the animal-human bond.
- The newest and potentially most visible initiative of the FCRU is the result of a January 2007 grant from the Annie E. Casey Foundation for the MS KIDS COUNT program. Each year, the foundation publishes the national KIDS COUNT Data Book, and the MS KIDS COUNT program will serve as a major source of statistical data about the status of Mississippi’s children. The MS KIDS COUNT Web site is being developed and will be available online by mid-summer at www.ssarc.msstate.edu/MSKidsCount.

What began as an idea in 1998 has flourished with the dedicated work of numerous scientists and research associates and because of the support of the SSRC through MAFES. Most importantly, we strongly believe in staying true to the guiding force that propels our commitment to research and development activities: improving health, safety and well-being of children and their families, both in Mississippi and the nation.
**NEWS NOTES**

**MSU Graduate Students Sweep Research Competitions**

Four wildlife and fisheries science graduate students in the College of Forest Resources are top winners in recent regional research competitions.

Heather J. Theel of Aurora, Ill., Nathaniel C. “Nate” Hodgins of Sioux City, Iowa, and Amy B. Spencer of Columbus, Ohio, competed at the annual meeting and technical conference of the Mississippi American Fisheries Society. Others involved in the Vicksburg program represented the universities of Southern Mississippi and Louisiana at Monroe.

Theel received the first-place award. Her presentation dealt with the effects of hydrilla, an invasive, nonnative aquatic plant found in many waterways that alters aquatic habitats and fish foraging behavior, among other major impacts. Her work is directed by associate professor Eric Dibble.

Hodgins took second place for his report on the growth of black carp at different water temperatures. Also a nonnative species, the fish is negatively impacting native mussel and snail populations, its primary foods of choice. Professor Hal Schramm directs his research.

Spencer won third place for presentation and second in the people’s choice category. Her investigation, also directed by Schramm, used spatial analysis in a visual display explaining aquatic habitat changes along the Tennessee-Tombigbee Waterway.

In a separate event at Destin, Fla., Tyler S. Harris of Louisville took first place in the visual display competition at the Southeastern Bat Diversity Network and Colloquium on Conservation of Mammals in the Southeastern United States.

Harris’ research, directed by associate professor Jeanne Jones, deals with the effects of herb-eating mammals on hardwood reforestation in the lower Mississippi Alluvial Valley.

**MSU Forestry Students Honored for Research at Professional Meeting**

Current and former graduate students in MSU’s College of Forest Resources were top winners at the recent 14th Biennial Southern Silvicultural Research Conference.

Forestry majors Michael R. Guttery of Leoma, Tenn., and David W. “Dave” Wilkinson of Dayton, Wash., were among students from 15 universities competing at the conference.

Guttery, who completed a master’s degree in May, received the outstanding student paper award. His research evaluated regeneration and waterfowl forage potential in an Arkansas greentree reservoir; specifically, the production of willow oak acorns. Professor Andrew Ezell directed his work.

Wilkinson, a current doctoral student, received the outstanding student visual display award. Directed by associate professor Robert Parker and professor Tom Matney, his work measured the response of thinned pine plantations to competition following a fertilization treatment.

**Mississippi Wildlife Federation Honors MSU Faculty and Student**

The Mississippi Wildlife Federation recently honored associate extension professor Debbie Gaddis and undergraduate student Amber Breland.

Gaddis was recognized as the 2006 Forest Conservationist of the Year by the organization. She is a specialist on timber taxes. Gaddis offered 40 workshops following Hurricane Katrina on casualty losses for tax purposes. Her tax documents were recognized by a U.S. Forest Service tax specialist as, “the most up-to-date tax information on casualty losses and involuntary conversion available anywhere.”

Gaddis is active on Boards and Committees of the Mississippi Forestry Association, Mississippi Forestry Commission, Mississippi Association of County Agricultural Agents and Forest Landowners Tax Council.

Breland was recognized as the 2006 Youth Conservationist of the Year. A native of Maben, she is majoring in wildlife science in the College of Forest Resources.

In addition to her studies, Breland volunteers at the Noxubee National Wildlife Refuge, where she helps check and maintain wildlife nest boxes, set nets for capture of rare Wood Storks and identify wildlife food and cover plants.

**Biological Engineering Student Receives National Recognition**

A Mississippi State biological engineering major is a top winner in a national essay competition sponsored by the Institute of Biological Engineering.

Sophomore Thomas D. Ware of Brandon placed third in the 2007 Bioethics Contest developed by the professional organization to encourage inquiry and interest in biological engineering.

Ware’s essay, titled “Transgenic Crops: Human and Ecological Health in the Balance,” was among 83 submitted from universities throughout the country. Students from Cornell and Ohio State universities earned first- and second-place honors, respectively.

As part of the recognition ceremony, Ware and other authors of the top five essays were required to formally present their works and answer questions about their research—another part of the organization’s goal to expose the students to practicing professionals in the academic field.

Ware said his idea for the essay originated while thinking about organic and natural foods sold in grocery stores. He was considering whether the organic and natural foods he bought were worth the extra cost.

“I bought it before and wondered if I spent my money wisely,” he added.

Ware’s essay will be among those featured in a future edition of the IBE’s newsletter.
D’Abramo Honored for Shellfish Industry Contributions

A senior Mississippi State aquaculture scientist has received a major honor from an international professional society.

Louis R. D’Abramo was presented with a meritorious award recognizing outstanding leadership and dedicated service to the National Shellfisheries Association at the organization’s annual meeting.

A specialist in crustacean and fish aquaculture and nutritional ecology, D’Abramo is a professor in the university’s wildlife and fisheries department and a scientist with the Mississippi Agricultural and Forestry Experiment Station.

NSA is a professional organization for researchers, industry officials and others dedicated to proper management of the world’s shellfish resources.

D’Abramo’s 23-year MSU career has focused primarily on the development of efficient and environmentally friendly management strategies for alternative species, including freshwater prawns, crayfish and hybrid striped bass. His work has yielded several dietary regimens for shellfish and finfish that lower feed costs, as well as a better understanding of the nutrition of crustaceans and mollusks.

He also played a key role in breakthrough research toward the use of formulated feeds to replace high-cost, labor-intensive live feeds in the culture of larval fish and shrimp. His work is recognized as a significant step in overcoming a major limitation to the growth of global commercial aquaculture.

In March, D’Abramo also received the 2007 Ralph E. Powe Research Excellence Award, MSU’s highest research honor.

Presenting Louis D’Abramo, center, the 2007 Ralph E. Powe Research Excellence Award were MSU vice presidents Vance Watson, left, and Kirk Schultz.
Class of 2010: Creating Its Legacy Today

Students of the MSU-CVM Class of 2010 can breathe a slight sigh of relief now that they have completed their first year of veterinary school. Even though they have three more years of classes ahead of them, these students already realize they, as future veterinarians, can positively impact their profession while at the same time helping the CVM accomplish its goals. The class has proudly pledged $10,000 to the Pegasus Partners Endowment Fund. The class is the first to make such a pledge.

The Pegasus Partners Endowment Fund was established in 2002 as a way to enrich activities at CVM. The goal for the endowment is $2.5 million.

“Our class is serious about our education and about those students who follow behind us,” said Keith Youngblood of Laurel, president of the Class of 2010. “The contributions made by people that preceded us have made it possible for us to have a better opportunity for an education.”

The students will donate $500 of class dues each year to the fund and will raise the rest of the pledge in various ways.

“We are pleased to have students who truly understand the importance of philanthropy and the impact it can have on their college,” said Keith Gaskin. “These students have proven that it is never too early to invest in your college. Many people think if they aren’t able to contribute a very large gift, they should not donate at all, but all gifts are important to our success. The class of 2010 has set an example for many, and we hope others will choose to support the CVM as they have done.”

For more information on how you can join the Class of 2010 and become a Pegasus Partner, contact Keith Gaskin, director of development for CVM at (662) 325-3815.
Urban Forestry Scholarship Established

Urban forestry is becoming increasingly important throughout the nation as cities and towns consider the numerous benefits of trees. In Mississippi alone, 29 communities have been designated as Tree City, USA, by the National Arbor Day Foundation.

As the need for trees in towns becomes more apparent, demand for trained urban foresters continues to rise.

“Currently, there are not enough urban foresters to fill the numerous positions available in cities and towns across the nation,” said Steve Grado, professor in the department of forestry. “A scholarship to encourage students to pursue urban forestry is both timely and relevant.”

In August 2006, the Professional Arborist Association of Mississippi and the Mississippi Urban Forest Council established the Arboriculture/Urban Forestry Memorial Scholarship at MSU to address the need for trained professionals in urban forestry.

“The scholarship is for a junior or senior student in the urban forestry option of the forestry major with an interest in arboriculture and a grade point average of 3.0 to 3.5,” said Sue Buckalew, secretary/treasurer of the arborist association.

The scholarship honors deceased members of the association, Buckalew added.

The recipient should be a junior or senior, and preference will be given to junior college transfer students and students whose interests lie in tree care and urban forestry.

The Professional Arborist Association of Mississippi is a nonprofit organization dedicated to ensuring the future health and vitality of urban forests by promoting public awareness, good stewardship, continuing education, professional training and adherence to best practices in the field of arboriculture.

Mississippi Urban Forest Council is a nonprofit organization aimed at fostering and promoting proper management of urban forests for social, economic and environmental benefits to people through innovation, leadership, communication and educational services.

If you are interested in contributing to the Arboriculture/Urban Forestry Memorial Scholarship, please contact Jeff Little at 662-325-8151 or by e-mail at jlittle@foundation.msstate.edu.

Couple’s Gift Demonstrates a Passion for Two University Units

Take just one look at the life of Allan Tucker and you will quickly discover a love for the land and an enthusiasm for Mississippi State athletics.

Through a gift of agricultural property in northeast Arkansas, Allan and his wife, Barbara, are supporting two areas of the university that match their passions—the College of Agriculture and Life Sciences and the Bulldog Club. Proceeds from the sale of this property will be split between these two entities. The college’s portion will be used to establish a significant endowed fund for student scholarships within the Department of Agricultural Economics.

Allan became involved in agriculture at a young age, growing up on a Sharkey County row-crop farm in the Mississippi Delta. He followed his passion to Mississippi State, earning a bachelor’s degree in agriculture from the university in 1959.

Following three years with the Mississippi State University Extension Service, Allan embarked on a career with the Prudential Insurance Company of America and its subsidiaries. For the next 30 years, he specialized with Prudential’s farm mortgage and farm acquisition offices. He served an additional 12 years with Prudential’s Capital Agricultural Property Services in farm management and real estate sales.

Allan and Barbara have always enjoyed Mississippi State athletic events but are now truly able to soak up the Bulldog atmosphere. The couple retired to Starkville in 2005 to enjoy the closeness of the university.

“The ‘Ag School,’ as it was called when I was attending Mississippi State, provided me with a great education,” Allan said. “And the university provided one for two of our children as well.”

While benefiting the university in several ways, the Tuckers’ gift will also benefit them through a significant tax savings. By deeding their Arkansas property outright to the MSU Foundation, the couple was able to avoid a capital gains tax.

“We all want to see Mississippi State prosper, and I would encourage others to help the university and take advantage of the most beneficial tax situation offered to them,” Allan said.

The College of Agriculture and Life Sciences works with donors to arrange the terms of gifts to suit individual needs. Contact Jud Skelton, director of development, at 662-325-0643 for more information.
It’s all in the name. Check it out for news and information from the Division of Agriculture, Forestry and Veterinary Medicine.