MAFES RESEARCH

HIGHlights

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Mississippi Agricultural and Forestry Experiment Station

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from the

DIRECTOR

Have you ever read a job announcement that calls for the successful candidate to be a good listener? Most don't, but listening is an important and valuable skill, especially for individuals who make decisions that can impact the livelihoods of thousands of individuals.

Each year, several hundred producers gather in Verona and Raymond to provide input on the research activities and Extension programs they need to support their agricultural enterprises. The individuals who belong to the producer advisory committees provide a valuable service to MAFES and Extension personnel by giving them opportunities to listen. A report on the 2004 producer advisory committee meetings begins on page 14.

Commodity groups also help Mississippi State focus its agricultural research and outreach programs on the needs of producers. One example is the Grower Advisory Committee of the Mississippi Poultry Association, and the article beginning on page 19 of this issue of Highlights details some of the ways the grower group is helping university personnel make their activities more in-tune with industry needs.

Mississippians are engaged in dozens of agricultural enterprises, ranging from the traditional row crops to activities that are relatively new to the state, such as cut-flower production. Advances in technology and changing market factors affect all of these businesses, making listening to the needs of the individuals involved an important part of our jobs.

Vance H. Watson

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Director

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MAFES RESEARCH HIGHlights

MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION

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Rotational Grazing Benefits Pastures

By Bonnie Coblentz

Rotational grazing may sound like a way to get a cow dizzy, but this method of forage management gives producers the highest efficiency from their pastures.

Stan Pace, agronomic crops agent in Wiggins with the Mississippi State University Extension Service, said using rotational grazing can increase efficiency to as much as 75 percent compared with conventional grazing's 30 percent to 35 percent efficiency.

"Cows are selective grazers, just like people. They'll eat butter beans and leave the beets," Pace said.

"When put in a selective forage situation, they'll overgraze some spots and undergraze others. Over time, you will have poor-quality grass and less total forage production."

Rotational grazing places cows on limited acreage for a short period of time before they are moved to the next area of limited acreage.

Pace set up a demonstration of rotational grazing in Hancock County. He divided a 25-acre field in half and then subdivided the 12.5 acres into seven paddocks of about 1.7 acres each. Paddocks were created using temporary electric fences.

"They're very easy to move and work with after the setup," Pace said.

Twenty-five mature cows are rotated through the seven paddocks, spending three or four days in each area, depending on the condition of the forage. The other half of the field has not been used. The cows graze the entire paddock and by day three or four are waiting at the gate to be moved into the next paddock.

Pace said moving the cattle every three or four days yields a 50 percent to 60 percent forage utilization efficiency.

"To increase efficiency to about 75 percent, I'd move them every day," he said.

Forage typically needs 15 to 25 days to rest after it has been grazed. In a selective grazing setting, cows will overgraze some areas and keep the forage an inch tall. This stresses the roots, which cannot recover quickly. Areas that are undergrazed become fibrous and the protein content drops. Cows stop grazing these areas and weeds develop.

James S. (Sammy) Eastridge owns the land Pace used to conduct the demonstration. A retired Army sergeant major, he and his wife now live in Hancock County. He has raised cattle for 25 years since his retirement.

"I think rotational grazing works very well if you don't make your paddocks too small and confine yourself to a daily operation like a dairy,"

Mr. And Mrs. Sammy Eastridge have increased the efficiency of their Hancock County cattle operation with rotational grazing.

Eastridge said. "Moving the cattle every two to three days is all right, but if you make it too intensive, then it's too confining."

Eastridge said he feels this management technique has increased his efficiency, and he plans to keep using it. He has another 30-acre pasture he intends to divide into paddocks and put into a rotational grazing system as well.

Deciding how many acres to use, how many cattle to graze and how long between moves is not hard. Pace said a 1,000-pound cow needs about 20 pounds of forage a day, or 2 percent of its body weight. An average bermudagrass field produces 350 pounds of forage per inch height of grass per acre.

A field 10 inches deep in forage has about 3,500 pounds of forage, of which 7 inches or 2,400 pounds can be grazed without harming the grass. Since each cow eats 20 pounds of forage a day, 100 cows can graze for one day on that one acre.

"This system manages the forage instead of managing the cattle," Pace said. "Moving them every day or every few days also allows the cattle producer to look at them regularly as they walk past while they are being moved."

While it may sound like a lot of extra work, Pace said rotational grazing is not difficult to manage once the fields are set up. The cows learn quickly and are ready to move when the field has been grazed. There is additional, one-time work erecting fences, but electric fences simplify this job.

> "Rotational grazing is just a way of managing a resource better, and it improves both the production and quality of forage."
>
> RICHARD WATSON

"The biggest challenge is planning around a water system if there's not a lot of easy water sources," Pace said. "Funds are available through the National Resource Conservation Service and other organizations to help producers increase the number of water sources they have."

Richard Watson, Mississippi Agricultural and Forestry Experiment Station forage specialist, said rotational grazing is a long-time, university-recommended practice, but one most producers do not use. Producers have grown accustomed to using stored feeds or processed feeds for livestock, but with recent high prices for these feeds, producers are once again looking at the benefits of rotational grazing.

"Rotational grazing is just a way of managing a resource better, and it improves both the production and quality of forage," Watson said. "Rotating your animals through pastures can be as simple as dividing one paddock in half and moving the cattle backward and forward."

Watson said this one change in management can increase productivity by 20 percent to 30 percent.

Stan Pace

Grower Input Focuses MSU Poultry Programs

By Bob Ratliff

Big business and families don't often go hand-in-hand, but they do when it comes to the Mississippi poultry industry.

"For nine consecutive years, poultry has been the No. 1 commodity in Mississippi, with 2003 sales of poultry and poultry products topping $1.5 billion," said Wallace Morgan, head of Mississippi State University's Department of Poultry Science. "There are about 3,000 farms producing poultry in the state, most of which are family-run farms with four to six poultry houses, with each house producing about 140,000 birds every year."

Providing research and education support for all segments of the industry is a major part of the work of the poultry program at MSU, which includes the poultry science faculty, Extension specialists, and research scientists and technicians with the Mississippi Agricultural and Forestry Experiment Station. An individual often has responsibilities in all three areas.

Because of the nature of the industry, university personnel often make "house calls" when a grower requests help with a particular situation.

"There was an instance last year where a grower thought some of his birds might not be getting an adequate supply of drinking water," Morgan said. "Three of us with Extension responsibilities, including agricultural engineer Jim Thomas, visited the farm and made some suggestions, one of which proved to be an inexpensive method the grower used and, as a result, got better weight gain from his birds."

In addition to inquiries from individual growers, the university personnel receive significant input on research and Extension needs from the Grower Advisory Committee of the Mississippi Poultry Association. Formed in 2000 the committee currently includes 22 growers, who work with integrators and vendors who supply the poultry industry.

"The committee was formed to represent all aspects of Mississippi's poultry industry," said Leslie Threadgill, grower relations coordinator for the Mississippi Poultry Association. "The group meets quarterly, and education is one of our main concerns."

By identifying current issues facing growers, the committee can communicate specific needs to university personnel.

"Input from the committee provides input that helps us focus our research and Extension programs and publications on the areas that growers and integrators see as most critical," Morgan said. "It's a way for the university poultry personnel to work directly with all aspects of the industry."

A water stick, opposite page, can be used to check the flow to a poultry watering system. Poultry scientist Berry Lott, left, uses a water stick in a broiler house on the Winston County farm of Dewayne and Deana Watkins. Callie Watkins, below, helps care for the broilers.

Providing growers with seminars and other educational activities related to management of family-operated poultry enterprises is a priority for the committee. Wayne County grower and Grower Advisory Committee chairman Robert Brannon said recent educational activities have helped with efforts to provide growers with insurance and sales tax exemptions for some of the equipment necessary for poultry operations.

"Several states, including Alabama, have these benefits for growers, and Mississippi State has been helpful in securing information about those programs," Brannon said. "They also recently conducted a seminar on budgeting and provided a computer program growers can use to determine the costs associated with adding new equipment and making other production changes."

Having an active group for poultry producers helps university personnel make their activities more in-tune with what the industry needs, Morgan said.

"The Grower Advisory Committee has really become active during the past year, and the input they are providing is helping us focus our Extension programs and experiment station research on the needs of growers," he said. "Their seminars and other activities also provide opportunities to communicate directly with growers."

Photos by Marco Nicovich

Students Assist Horse Births

By Jessica Bowers

The Reflector

It is Friday night and Sabrina McClain is getting dressed to go out. But instead of putting on dress pants and a party shirt, McClain dresses in a sweatshirt and old jeans. She is going to MSU's South Farm.

It is her turn at foal watching. As part of the equine reproduction special study, McClain and a partner must be on call at the farm from 8 p.m. to 2 a.m. in case one of the pregnant mares gives birth.

Foal-watching duties for the students include half-hour checks on the mares in the pastures.

"We have to walk around and make sure these horses aren't about to foal," said McClain. "We also have to go into the barns and check on the mares that have recently foaled," she said.

In the event of a birth, the students must call a graduate student to help them. The students are there to ensure there are no difficulties during the birth. After the birth, the students run tests and perform various procedures on the foals.

"We have to stay until the foal is up and walking around," McClain said.

MAFES animal scientist Peter Ryan said foal watching developed as a result of current research projects on campus.

"We need to collect samples at the time of the birth from the blood and the placenta," Ryan said. "We look for the things that can complicate the pregnancy."

"We give the students as much hands-on experience as possible," Ryan said. "We let them do as much of the routine procedures as they can."

In some cases, these "routine procedures" can make a student queasy. For McClain, however, that's not the case.

"It doesn't gross me out. I know I just have to do it. Since I live on a farm, I've seen all this before," she said.

Nevertheless, she understands how the process could be "gross," especially if someone has never seen a birth before.

Jake Key, a student in the equine class and also a worker on the farm, was lucky enough to be on duty when a foal was born.

"It was neat to see a baby being born, to see how that happens," Key said

Ryan said newborn foals and the pregnant mares

require a 24-hour watch because "once a mare goes into labor, she can foal within five minutes."

Graduate students used to be the only ones on call for the foaling, but they cannot handle it alone. When undergraduate students got involved, the foal-watching program was born.

"Right now this is designed as a special topic on equine reproduction, but we hope to present it as a class next year," Ryan said.

The new course, when offered in spring 2005 will be open to all undergraduate students interested in the horse, but those in biological and animal sciences are more likely to have the necessary prerequisites.

"Students can use the hours on foal-watch duty as 'animal experience' toward their veterinary school applications," Ryan said.

"For somebody who's really into horses, foal watching is really educational," Key said. "Even if they aren't into horses, it can be really fascinating."

David Christiansen, a professor of pathobiology at the College of Veterinary Medicine, said the class gives students opportunity to learn hands-on.

"Lots of students who have been around horses all their lives never get the opportunity for something like this," Christiansen said. "The foal-watch program gives us the extra help we need to watch the mares in the middle of the night."

For McClain, the benefits are not only in the education she receives, but also in the friendships she makes while foal watching.

"You learn a lot about someone sitting out there for six hours with them," she said.

Photos by Marco Nicovich

MSU Collection Preserves State's Rural Heritage

By Bob Ratliff

In 1848, a clerk in Monroe County, Mississippi carefully folded the deed to a tract of land in north Mississippi before placing it in an envelope with the inscription: "Please keep in this envelope and pass it on to your successors."

For more than 150 years the deed, as well as the land that is part of the Lenoir Plantation in Monroe County, was handed down from generation to generation of the Lenoir family. Today, the deed is one of thousands of documents and other items in the Lenoir Collection at MSU's Mitchell Memorial Library.

The items related to the Lenoir Plantation are part of the materials being preserved by the Consortium for the History of Agricultural and Rural Mississippi, or CHARM.

The goal of the CHARM project is to ensure the preservation and access to materials related to Mississippi's rural heritage, said Mattie L. Sink, manuscripts librarian for MSU Libraries.

"The materials in the CHARM collection document everything from small farms to large-scale corporate agriculture," she said. "They also range from items related to the beginnings of Mississippi's agricultural heritage, such as those in the Lenoir collection, to material from recently retired individuals."

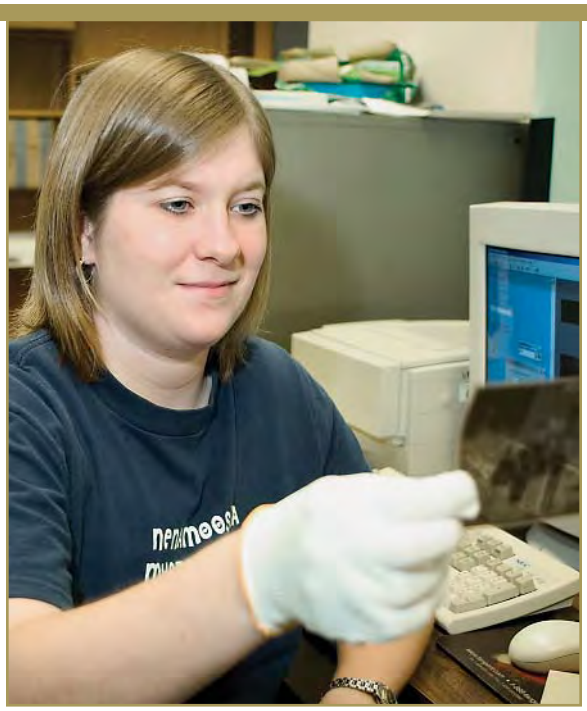
> **"Mississippi has a rich and diverse rural past, and we're using CHARM to collect material on all aspects of that past."**
>
> MATTIE L. SINK

Most of the individuals who donate materials to the collection do so out of a desire to preserve knowledge of Mississippi's past and to ensure that future generations will have access to items that give first-hand accounts of rural life in the state. That was the motivation behind Betty and Whitman Lenoir's donation of the items from their family's ancestral home.

"We could not properly preserve the documents and other items," Betty Lenoir said. "By donating them to the library at MSU, we knew they would be preserved and made available for others to use and enjoy."

Established in 2002, the CHARM project has already brought together an impressive array of documents and artifacts. Among the more unique material is the "Farm Family of the Week" collection.

Farm Family of the Week was a program developed for WLBT-TV in Jackson by Howard Langfitt. It aired from 1955 until 1961 and each week featured a family within the WLBT viewing area that met standards for farming excellence set by Langfitt and county Extension agents in the area.



Betty and Whitman Lenoir, opposite page, look over some of the documents from the family's Monroe County plantation. Student worker Leanne Sloan, above, checks negative in the CHARM photo collection. Folder, below, contains an early 1800s map of the Lenoir plantation.

Photos by Russ Houston

The collection consists of scripts and photos used on the program and is a rich source of information for individuals doing genealogical research on the families featured on the program.

Sam Wilkes of Starkville used the Farm Family of the Week Collection while doing research on members of the Laird family of Jefferson Davis County, who were featured on a 1955 program.

"The pictures in the collection are excellent and the scripts are very informative about how they were operating their dairy and other farm activities," he said. "In addition, the library staff is very accommodating to individuals doing this type of research."

Another important part of the CHARM collection is oral histories from individuals who have first-hand knowledge of the state's rural past.

"These individuals are a valuable resource and having their stories in their own words provides insights that are not available from other sources," Sink said. "Mississippi has a rich and diverse rural past, and we're using CHARM to collect material on all aspects of that past."

To make the CHARM materials more accessible, the library staff is digitizing materials in the collection and making them available on the World Wide Web at http://library.msstate.edu/charm.

Partners in the CHARM project include the MSU Libraries, the Mississippi Agricultural and Forestry Experiment Station, the MSU Extension Service, the College of Veterinary Medicine, the college of Forest Resources, and the College of Agriculture and Life Sciences.

Families and individuals who wish to preserve material related to Mississippi's rural heritage can contact the MSU Libraries about a possible donation. Materials accepted for the CHARM collection will be preserved, cataloged and made available for research use.

For additional information on CHARM, contact Sink at (662) 325-3848, or by email at msink@library.msstate.edu.

Bob Ratliff

Freeze-dried wheatgrass is used in the project's NMR analyses.

Ken Jones

University of Toronto graduate student Neil Meikhan, left, with Andre and Myrna Simpson.

The Simpsons' NMR center at UTSC is the first of its kind in the world dedicated to research in environmental chemistry. The lab's state-of-the-art equipment is specially designed for separating and analyzing complex mixtures.

High-Tech Research Gets Nitty-Gritty on Dirt

By Bob Ratliff

For most people dirt is just dirt. Farmers, however, know all too well that soil properties can mean the difference between success and failure of a crop.

Soil scientists also don't take dirt for granted. That's especially true of a group of Mississippi State and Canadian researchers changing the way natural organic matter in soil is studied.

MAFES soil scientist Billy Kingery and the husband-and-wife team of Myrna and Andre Simpson at the University of Toronto at Scarborough (UTSC) are leading a project that includes the use of nuclear magnetic resonance, or NMR, technology to study organic matter in soil ecosystems.

The research is funded in part by a MAFES Special Research Initiative. The Mississippi Department of Environmental Quality, the National Estuarine Research Reserve System and the Canadian Foundation for Climate and Atmospheric Sciences also provide support for the MSU/Canadian collaboration.

"With this project, we're using NMR to take an unprecedented look at the biochemistry and structures of plant material and natural organic matter," Kingery said. "From an agricultural standpoint, the study will provide information about the effects of herbicides, pesticides, and nutrients on plant growth."

The NMR spectrometer is similar to magnetic resonance imaging (MRI) equipment found in hospitals. Both rely on advanced technology that uses magnetic fields and radio waves to acquire detailed information.

"MRI looks at the human body," said Andre. "NMR works on a much smaller scale, looking at compounds found in organic matter. By placing samples in a tube and inserting them into the NMR, you can look at soil, leaves, air particles, really anything found in nature. It basically produces a molecular map."

The collaboration between the Canadian researchers and Mississippi State scientists focuses on pollutants deposited in the soil by various means.

"NMR has been used for decades for routine analysis of small molecules," Myrna said. "But it's rarely used to analyze the components of matter from various sources within the environment, such as soil, air and/or water."

The Simpsons' NMR center at UTSC is the first of its kind in the world dedicated to research in environmental chemistry. The lab's state-of-the-art equipment is specially designed for separating and analyzing complex mixtures.

In addition to Kingery, MSU personnel working on the project include civil engineering professor David Huddleston, postdoctoral researcher Brian Kelleher, graduate assistant Rachel Stout, and research technician Grady Jackson. Kelleher, Stout and Jackson are all in the Department of Plant and Soil Sciences.

The MSU/Canadian connection began in 1997 when Andre, then with the Chemistry Department at the University of Birmingham in England, collaborated on Mississippi State's experimentation with NMR for the study of natural organic matter in soils. He then spent a year advancing the initial studies as a postdoctoral scientist at the Starkville campus.

MSU's role in the research includes the growth and isotopic labeling of plants. A special growth chamber on the North Farm is used to grow the plants. In the chamber, the input of carbon dioxide to the plants can be regulated and nutrients can be added in accordance with the research goals and objectives.

"The plants are grown with carbon and nitrogen enriched with isotopes, or labels, that allow a more in-depth study of the plant make-up and biochemistry, as well as the molecular structures of natural organic matter derived from plant tissue decomposition," Kingery said. "Once labeled and freeze dried, wheatgrass produced in the North Farm chamber is 100,000 times more sensitive to specific NMR analyses than normal grass."

In addition to tracing what happens to crop inputs such as fertilizer and pesticides, the NMR process also is used to track carbon. The release of carbon in the form of CO^2 can influence climate.

"A significant portion of the earth's carbon is tied up in the soil, but it's unclear how long it takes for it to move into a different part of the carbon cycle," Andre said. "The process we're working with will help improve accounting of global carbon."

The carbon part of the study, Kingery said, may lead to a better understanding of how agricultural practices can be used to help hold carbon in the soil and the potential impact that can have on climate change.

"The results of this study and their potential for management of crop inputs and residue can be used to generate significant economic benefits for producers and also to create new tools for environmental protection," he said.

That potential makes dirt more than just dirt.

Bob Ratliff

University of Toronto scientist Andre Simpson, left, and MAFES soil scientist Billy Kingery.

Photos by Bob Ratliff

Producer Advisory Groups

Meet to Discuss Needs

By Bob Ratliff

Producer advisory groups gathered during March at the North Mississippi Research and Extension Center in Verona and at the Central Mississippi Research and Extension Center in Raymond to provide input on their research and education needs.

More than 200 producers of crops and livestock ranging from corn to catfish gathered in Verona for the March 4 meeting. The North Mississippi Producer Advisory Council is the oldest such group in the state, meeting this year for the 51st time.

During the morning session at Verona, the producers divided into 13 commodity groups to discuss the research needed to support their enterprises and the Extension programs that apply to their operations. MAFES personnel and MSU Extension specialists and county directors were on hand to answer questions and participate in the discussion.

Following a catfish lunch, representatives of the various commodity groups presented a summary of their discussions.

Paul Wellborn of Union County represented the turf producers. He reported that the turf industry in Mississippi would benefit from Extension programs designed to assist with marketing of their products. The primary research activity requested by the turf producers was continued work with shade-tolerant varieties.

Continued support for the Wiley L. Bean Swine Demonstration Unit at the Pontotoc Ridge-Flatwoods Branch Experiment Station is a priority for north Mississippi producers, according to Chickasaw County producer Kevan McQuary. The swine group also discussed the need for a support network to assist independent producers with securing feed and other supplies.

Calhoun County producer Stephen Bailey reported that the sweetpotato group discussed the need for additional research with herbicides and insecticides for their crop and for assistance with securing Section 18 permits for the use of needed pesticides on sweetpotatoes.

The producer group for ornamental plants discussed support for national field trials at the North Mississippi Research and Extension Center's Magnolia Botanical Gardens, according to Lafayette County producer Jack Brown.

Ben Harlow of Monroe County reported north Mississippi grain producers want more dryland soybean variety trials. Their discussion also included the need to evaluate seed treatments and insecticides for corn and soybeans.

The fruit and vegetable group report was presented by Ralph Hanskiewicz of Union County. He reported that the group discussed the need for additional information on organic gardening and on muscadines and blackberries. The producers also requested additional research with greens, carrots and butterbeans.

Economic issues were a major topic in the forestry group, according to Marshall County producer Art Waymire. Of particular interest was the TimTek pilot plant on the Starkville campus. TimTek is a process for producing manufac-

tured lumber from small-diameter trees. The forestry group also cited the need for more research with invasive insect species that threaten their industry.

Beverly Jones of Oktibbeha County reported the equine group discussed the need for a state Extension equine specialist. Better access to information via newsletters and a Web site for the MAFES stallion service also were major topics of discussion in the equine group.

Research needs dominated the discussion in the dairy group. Tate County producer James Barham said more research is needed on the problems of heel warts and other foot problems in dairy cattle. He also reported that the dairy producers would like to see additional research with forage production for dairy operations.

Research also dominated the cotton discussion, according to Tippah County producer Keith Morton. The north Mississippi producers asked for additional ultra-narrow row research. Their research requests also included additional work with Roundup Ready varieties.

Marketing and controlling production costs were the major topics in the beef group. Reporting for the group, Tom Breland of Oktibbeha County said producers would like to see more research with ways to control input costs, especially those related to hay production.

Alcorn State University Extension Administrator Dalton McAfee addressed the Central Mississippi Advisory Council.

Ben Koehn of Clay County reported the catfish producers would like more information on meeting industry grade and yield standards. The catfish group discussion also included the need for continued off-flavor research and work with ways to improve aeration.

Following the producer reports, Extension Assistant Director Will McCarty thanked the participants and adjourned the meeting.

"What we have learned today is some things that, if implemented, will improve our agricultural enterprises," he said.

Almost 200 producers, industry leaders, Extension personnel, and MAFES scientists representing seven production areas met March 17th for the eighth annual Central Mississippi Research and Extension Agricultural Advisory Council at the Central Mississippi Research and Extension Center.

For the first time, an equine group was part of the Raymond meeting. Lynn Strickland of Newton County was one of the nine participants.

"Mississippi has quality horses. If you can compete in Mississippi, you can compete anywhere," she said during the group's discussion of equine activities in the state.

Shelby Bearden, County Extension director in Copiah County, presented the equine group report. He noted that the group discussed the need for additional horse health programs, especially for first-time buyers. The participants also cited a need for more publications dealing with horses, including marketing, and the potential benefits of an Extension horse short-course.

The beef cattle report was given by MAFES animal scientist Ronda Vann. The group discussed the need for seminars related to beef production in their area of the state. The producers also noted the need for continued funding of Extension and research programs for beef cattle.

Walthall County Extension director Lamar Adams presented the dairy report. Forward contracting of milk was discussed. The dairy group also cited the need for continued research and educational activities dealing with health issues, including foot care and BSE.

Producer Kendall Garraway of Hinds County reported the row crop group would like to see more cotton plot tests in the area and a variety trial in Rankin County. The row crop producers also expressed interest in more peanut research in the central part of the state, including a study with peanut/corn rotation.

MAFES horticulturist Bill Evans reported that the fruits and vegetables meeting included an update on where producers can take samples for diagnoses of diseases and other problems with their plants. The fruit and vegetable group also discussed the need for additional integrated plant management training.

Concern about the high cost of fuel was a major topic in the ornamentals group, according to producer Willie Rivers of Rankin County. The group requested that MSU provide a team to help address concerns about fuel for use in greenhouses and nurseries. The need for an agricultural economist to work with the state's green industry also was discussed.

Central Mississippi forest landowners would like to see timber price reports in a form useful to small producers, according to the group report from Joe Fox of Newton County. The forestry group also asked for a separate wildlife advisory group for the 2005 meeting.

The meeting was adjourned by MAFES Associate Director Reuben Moore, who noted that the Central Mississippi Research and Extension Center is a model for cooperation because of the work it carries out in conjunction with Hinds Community College, Alcorn State University, Louisiana State University and the U.S. Department of Agriculture/Agricultural Research Service.

MSU Program Promotes ABC's of Good Health

Marco Nicovich

By Bob Ratliff

There's an epidemic across the nation that can't be stopped with any type of medication. Overweight, especially in children, is reaching alarming proportions in the U.S. and Mississippi has the highest per capita number of overweight children.

"The cause of overweight for the majority of children is poor eating habits, inadequate exercise and other lifestyle factors," said Sylvia Byrd, associate professor in Mississippi State University's School of Human Sciences. "The results can lead to health problems later in life ranging from diabetes to cardiovascular disease."

Byrd is a member of a team of MSU experts from a variety of disciplines that is tackling the state's childhood health problems through a coordinated school health program named CATCH, or Coordinated Approach to Child Health. They are busy building an alliance of parents, teachers, child nutrition personnel, school staff and community members to teach children and families how to be healthy for a lifetime.

Coordinated school health seeks ways to improve the health of children in K-2 schools by focusing on comprehensive school health education; physical education; school health services; school nutrition services; school counseling, psychological and social services; healthy school environment; school-site health promotion for staff; and family and community involvement in schools.

"When you look at the possibilities for improving the welfare and health of the population of this state, you see that proactive intervention at the childhood level is the best way to solve problems—before they become health issues," said Vance Watson, MSU's vice president for agriculture, forestry and veterinary medicine.

The Mississippi Agricultural and Forestry Experiment Station provided seed money to initiate the program. Providing expertise are MAFES scientists, Mississippi State University Extension Service specialists, faculty and staff from several departments within the College of Agriculture and Life Sciences, and members of the Department of Kinesiology, who are developing exercise programs for use with the project.

"A school is the one environment with the greatest potential to impact the most individuals over time," Byrd said. "By collecting data at schools, we can identify the behaviors and barriers to physical activity and nutrition."

CATCH began as a research study founded by the National Heart, Lung, and Blood Institute, a part of the National Institutes of Health. The Mississippi program, Byrd said, is the first to take a comprehensive approach to the links between school environment and health and as a result is being closely watched by the Environmental Protection Agency

The pilot school for the Mississippi CATCH project is Starkville's Sudduth Elementary School. Byrd is coordinating a community-driven advisory council to work with the MSU personnel on the project. The group also is publishing a newsletter and has sponsored a program for parents on healthy snacks.

Menu and recipe analysis, Starkville School District Nutrition Director Beverly Lowry said, is done regularly in all cafeterias in the district, but she noted that CATCH is providing a fresh approach.

"What we particularly like is the inclusion of adults to work with us to help the children make good food choices when they go home," she said.

Home involvement is a critical part of the program, said Jane Clary, associate Extension professor of human sciences.

"We will be working with parents to help them continue the instruction provided at school," she said. "The goal is to help children make healthy eating and other lifestyle choices a permanent part of their lives."

CATCH is, in fact, about making healthy choices in all aspects of life and as such, it involves some areas of expertise that might seem surprising.

For example, MSU landscape architecture and interior design students are studying ways to adapt the school environment to promote a more active lifestyle.

The almost 40 students are divided into six teams under the direction of Pete Melby, director of the Center for Sustainable Design and associate professor of Human Sciences Beth Miller. Each team is developing interior and exterior plans for Sudduth that promote both health and learning.

"We're looking at ways to use more natural finishes and other 'green' products in classroom construction and design as a way to eliminate potential pollutants in interior air," Miller said. "Studies have shown that natural daylight promotes learning better than artificial light, so we're also looking at ways to bring more natural light into classrooms."

The student teams also are looking at ways to actually move some classroom activity outside, Melby said.

"Some of the student designs incorporate outdoor patios into classrooms to encourage teachers to schedule activities that include outdoor learning," he said. "Opening classrooms to the outside and placing more plants in the landscape also helps improve the quality of air students breathe while at school."

Incorporating those design elements at Sudduth, he added, can make the Starkville school a model for others in the state.

Marco Nicovich

MSU landscape architecture and interior design students are studying ways to adapt the school environment to promote a more active lifestyle.

Marco Nicovich

Marco Nicovich

Jim Lytle

Marco Nicovich

CATCH is, in fact, about making healthy choices in all aspects of life and as such, it involves some areas of expertise that might seem surprising.

CATCH began as a research study founded by the National Heart, Lung, and Blood Institute, a part of the National Institutes of Health.

Jim Lytle

Marco Nicovich

Photos by Marco Nicovich

UNIVERSITY SCIENTISTS

STUDY CEMETERY GRASS

By Bob Ratliff

Since last summer, drivers along Highway 82 near the Mississippi State University campus have been inquiring about the school's cemetery.

The rows of white, round-topped "tombstones" visible from the highway adjacent to MSU's North Farm don't mark final resting places. They are, instead, part of a turf grass research project.

"This is an economic-type study where we're looking for grass that can give us the best looking and performing turf for a cemetery with the least amount of maintenance," said Wayne Philley, a research associate with the Mississippi Agricultural and Forestry Experiment Station at MSU.

Last summer, six different turf grasses were installed as sod on the North Farm. The grasses on the plot include St. Augustine, zoysia, centipede, Tifway Bermuda and two Bermuda varieties developed at MSU—Mississippi Choice and Mississippi Supreme.

The tombstones are actually wood painted and cut to a size and shape to resemble markers in national cemeteries.

"Everything we're doing simulates as much as possible what you would encounter in a cemetery," Philley said. "The grass received just a minimum amount of fertilizer when it was sodded. Since then it's been Mother Nature taking care of it. There's been no irrigation, no additional fertilization or anything else."

The grass is mowed on a regular basis during the growing season—usually when it reaches a height of about 3 inches, which is marked on each of the simulated tombstones.

At the end of the 3-year study, the university's Department of Plant and Soil Sciences will release its findings on which of the tested grasses offers the best quality turf and require the least mowing and other maintenance in a cemetery setting.

"Cemetery maintenance is something a lot of landscape firms do as part of their routine work," Philley said. "If we can provide those businesses with data that will reduce the number of times they have to mow or do other maintenance, it will have some real economic benefits. This study can also provide guidelines for individuals and volunteer groups who maintain many of Mississippi's small rural cemeteries."

IN Brief

Bob Ratliff

Jack Huerkamp of Macon, Miss., left, recently presented a check from the U.S. Prawn and Shrimp Growers Association to MAFES Director Vance Watson. The $1,000 from the producer group will help fund a freshwater prawn and shrimp marketing study. Huerkamp is a member of the association's board of directors.

Jody Stovall

The rice variety "Priscilla," developed at the Delta Research and Extension Center, was recently awarded a Plant Variety Protection certificate by USDA's Agricultural Marketing Service. MAFES agronomist and Priscilla developer Dwight Kanter, right, received the certificate from MAFES associate director Clarence Watson.

Marco Nicovich

Scott Field: A Winner!
MSU's Scott Field has been selected as the 2004 Collegiate Football Field of the Year by the Sports Turf Manager's Association of America. Opposing players and coaches regularly praise the field as one of the best playing surfaces in the country, in part because of the performance of its turfgrass—MS-Choice. Developed through research in the Department of Plant and Soil Sciences, MS-Choice has proven to be one of the best turf-grass choices for sports fields in warm-season climates and is in use on professional and collegiate fields across the southern half of the nation.

University Honors MAFES Rural Sociologist with Ralph Powe Research Award

A nationally recognized authority in rural sociology is the 2004 winner of the Ralph E. Powe Research Excellence Award.

Domenico Parisi was among 24 faculty and staff members and graduate students honored May 4 during the university's annual research awards banquet. He is an assistant professor in the Department of Sociology, Anthropology and Social Work and conducts MAFES-supported research through the Social Science Research Center.

A memorial to the vice president for research who died in 1996, the Powe Award is given to a Mississippi State researcher whose investigations have made significant contributions to the economic welfare or cultural growth of the university, state and nation.

"He is an outstanding researcher who has developed an important program of research in the areas of community issues, economic development and environmental justice," President Charles Lee said of Parisi.

"He has been responsible for securing the resources to develop a research infrastructure that enables him, his colleagues and his students to carry out state-of-the-art community research," Lee added.

Russ Houston

Duane Gill, center, accepted the 2004 Ralph E. Powe Research Excellence Award on behalf of winner Domenico Parisi, who was traveling at the time of the awards ceremony. Presenting the award were the late Ralph Powe's sons, David, left, and Ryan.

Russ Houston

MAFES scientists honored with 2004 research awards included, from left, research associate Wayne Philley, and animal scientist Scott Willard. Also honored with the graduate student research award for the College of Agriculture and Life Sciences was Kori Brabham of McComb. MAFES associate director Clarence Watson, right, presented the awards.

UPDATES

Russ Houston

Plethora of patents—Nancy Reichert of plant and soil sciences was among MSU faculty members recognized at the 2004 Office of Intellectual Property awards luncheon. Helping hold plaques denoting her seven patents were plant and soil sciences interim department head Frank Matta, left, and Jonathan Pote, interim vice president for research.

Gene Wills

Wayne Ebelhar

Joe E. Street

Delta R & E Scientists Honored

One former and two current MAFES scientists at the Delta Research and Extension center recently received awards from their respective professional organizations.

Gene Wills was named Weed Scientist of the Year by the Southern Weed Science Society.

Agronomist of the Year honors were awarded to Wayne Ebelhar by the Mississippi chapter of the American Society of Agronomy.

The Rice Technical Working Group presented Joe Street with its Distinguished Service Award. Street was the Delta Research and Extension Center's leader for rice research before assuming the duties of head of the North Mississippi Research and Extension Center earlier this year.

New Entomologist at Coastal Research and Extension Center

Entomologist David W. Held has joined the staff of the Coastal Research and Extension Center in Biloxi. He has both MAFES and Extension responsibilities.

Held received his bachelor's in horticulture at the University of Kentucky. He also earned a master's and doctorate in entomology at UK.

His extension and research work at the Costal R & E Center covers insects that attack turfgrass, as well as pests of nurseries, greenhouses and landscapes.

Watson Named MAFES Agronomist

Richard H. Watson has joined the faculty of the Department of Plant and Soil Sciences as an assistant professor of agronomy with MAFES and Extension responsibilities.

A native of New Zealand, Watson received his bachelor's in agricultural science, a master's in animal science and a doctorate in animal science with an emphasis on grazing systems management, all from New Zealand's Massey University.

Prior to joining the Mississippi State faculty, he was an agronomist with Ampac Seed Company in Tangent, Ore.

Collins Assumes Department Head Duties

A veteran crop scientist has been named head of the Department of Plant and Soil Sciences.

Michael Collins assumed his new duties in April, following more than 25 years in research, instruction and administration at the University of Kentucky and the University of Wisconsin.

The university's strong commitment to agriculture, especially row crops, is important to the new department head.

"The thing that attracted me is the emphasis on land-grant activities," he said. "At MSU, research is tied closely to both Extension and teaching."

Collins earned his bachelor's degree in agriculture from Berea College, a master's in crop science at West Virginia University and a doctorate from the University of Kentucky. He is a fellow of the American Society of Agronomy and of the Crop Science Society of America.

He has edited or co-edited four volumes on forage management and quality, including the leading U.S. textbook on the subject—*Forages: An Introduction to Grassland Agriculture*. His awards include the National Young Crop Scientist Award from the Crop Science Society of America and the Merit Award for research contributions from the American Forage and Grassland Council.

Xia New Agricultural Economist

Expertise in agricultural marketing and international agricultural trade and policy are among the qualifications of the newest member of Mississippi State's Department of Agricultural Economics.

Tian Xia joined the MSU faculty in May, following completion of his doctorate at the University of California, Davis. His doctoral dissertation was titled "Cattle, Contracts, and Grocery Retailers: Three Essays on Industrial Organization in Agricultural Markets."

He also has a master's degree in agricultural economics from the University of Delaware and a bachelor's in economics from China's Wuhan University.

Xia has both teaching and MAFES research responsibilities.

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