MAFES RESEARCH

HIGHlights

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Mississippi Agricultural and Forestry Experiment Station

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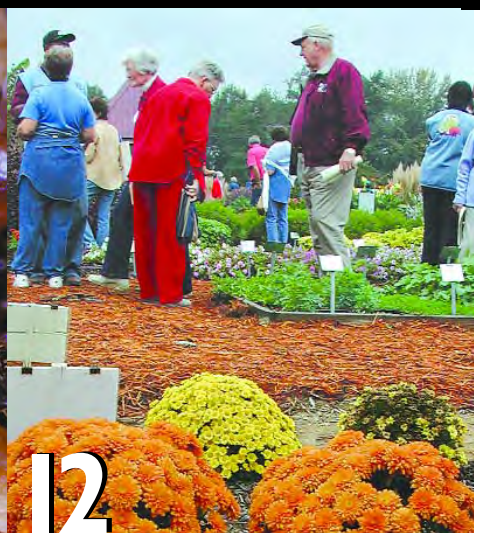

from the DIRECTOR

Many people's concept of research comes from movies and TV and involves white lab coats and laboratories of beakers and test tubes filled with bubbling, smoking concoctions. There are, in fact, some MAFES labs that resemble the classic laboratory setting, although most aren't working with mixtures that bubble and smoke.

MAFES scientists involved in basic research work in such environments, seeking ways to apply new technology to biochemistry, molecular biology, animal physiology, biological engineering and similar fields. The results of their work help other scientists apply new knowledge to projects with direct application to improving crop and livestock production methods, food safety or other areas affecting the quality of life for individuals both on and off the farm.

Most MAFES scientists, however, do not work in the classic laboratory environment. Their days often are spent in research plots at the 16 MAFES branch stations and research units throughout the state or on the farms of producers whose cooperation helps apply research to actual on-farm situations.

MAFES personnel don't work in isolation. They are daily involved in cooperative efforts with colleagues from the Mississippi State University Extension Service, the U.S. Department of Agriculture, extension and experiment station staff members from other states and industry representatives. Most often, when progress is made it is a direct result of such cooperative efforts.

Recently, I read an account of the work of Miss Dorothy Dickins, who in 1924 became the first woman scientist employed by what was then the Mississippi Agricultural Experiment Station. She conducted pioneering research into the food habits of Mississippi farm families. As a result of her work, Mississippi was one of the first states to pass legislation requiring the addition of nutrients lost through processing to white bread, degerminated cornmeal and other food staples.

Her lab on the Starkville campus was important to her work, but what Miss Dickins learned in the kitchens and backyard gardens of Delta sharecroppers and on small farms in the hills of north and central Mississippi was the key to providing information that improved the lives of all Mississippians. That pioneering spirit is still embodied in the men and women who are today's research scientists.

Vance H. Watson
Director

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MAFES RESEARCH HIGHlights

MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION

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AGRICULTURAL
economists tackle aquaculture risks

Jim Lytle

Fish health research, such as this project at the Thad Cochran National Warmwater Aquaculture Center in Stoneville, is an important part of the risk management study.

By Bob Ratliff

Keith Coble and Terry Hanson are listening a lot as part of their effort to reduce the economic risks associated with production of catfish and other aquacultural species.

Coble and Hanson, both agricultural economists with the Mississippi Agricultural and Forestry Experiment Station at Mississippi State University, are the principal investigators for the National Risk Management Feasability Program for Aquaculture, a four-year U.S. Department of Agriculture-funded partnership. They are working with USDA's Risk Management Agency and the Federal Crop Insurance Corp. to find ways to protect producers of the nation's top farm-raised aquacultural species from devastating economic losses.

As part of their work, they are listening to producers of catfish, salmon, trout and baitfish. U.S. producers of those species received more than $568 million for their products in 2001, the most recent year with complete sales data. Catfish accounted for 68 percent of the total.

"One of the biggest concerns among producers is disease," Coble said. "In fact, producers have told us that they worry about the impact yet-undiscovered diseases could have on their industry."

One way to provide economic protection for aquaculture would be a federal crop insurance program similar to those available for cotton and other row crops. The fact that no other livestock enterprise is covered by a government insurance program and the very nature of aquaculture make developing a plan difficult.

"Catfish and other aquaculture enterprises don't have the long-term production data available for row crops," Hanson said. "It's also difficult to determine fish numbers and pounds in the pond."

That's why Coble and Hanson are listening to producers, insurance experts, USDA personnel, industry leaders and aquatic disease experts in their quest for the best approach to providing insurance and other protective measures.

"Producers have told us that they don't want just normal losses covered," Coble said. "They already factor those losses into their operations. What they want and need is protection from catastrophic losses due to a disease outbreak or a natural disaster, such as flooding."

A benefit of a federal crop insurance program, Hanson added, is that USDA's Risk Management Agency will subsidize premiums, which will help address the cost issue.

"Producers tell us, however, that they don't want a program that will entice new producers with the idea that fish production is risk-free," he said.

As part of their research efforts, the economists are working with Carla Huston, an assistant professor at MSU's College of Veterinary Medicine. Huston organized an aquatic animal disease workshop for the project, which brought

"Producers tell us, however, that they don't want a program that will entice new producers with the idea that fish production is risk-free."

TERRY HANSON, MAFES AGRICULTURAL ECONOMIST

more than 30 scientists from across the nation to the Starkville campus to discuss health issues involving the projects's four species.

Over the course of the two-day workshop, participants discussed disease issues in aquaculture and their own research into many of the problems. On the second day, the scientists toured the National Warmwater Aquaculture Center in Stoneville and several commercial catfish operations in the Mississippi Delta.

One of the goals of the workshop was to stimulate ideas among the researchers for potential research projects that could be funded by the MSU program.

"Risk management is new to aquaculture and the workshop helped position Mississippi State as a leader in addressing health issues," Huston said. "Bringing together Mississippi State's veterinary medicine personnel with scientists who are working with species other than catfish was a way to look at some of our disease problems from different perspectives."

The workshop participants will be submitting reports to help provide guidelines for disease management.

Coble and Hanson are about halfway through the four-year project and will continue to gather input from agricultural insurance experts in this country and overseas.

Mississippi's catfish ponds have an annual average production of more than 4,000 pounds of fish per acre.

Tom Thompson

Scientists from across the nation attended the aquatic animal disease workshop on the MSU campus.

Jim Lytle

MAFES fisheries biologist David Wise duplicates on-farm conditions as part of his catfish health research.

Marco Nicovich

MSU *facility turns small-diameter trees into engineered lumber*

By Maridith Geuder

A new demonstration plant recently unveiled at Mississippi State has the potential to stimulate alternative, profitable markets for small-diameter trees thinned from pine plantations.

Through a partnership with TimTek Australia Ltd., scientists at the Forest and Wildlife Research Center will demonstrate technologies they hope will ultimately produce commercially viable engineered wood products from three- to eight-inch diameter yellow pines.

Following an international search, company officials earlier selected Mississippi State as a partner because of the university's long-established and widely recognized composite wood product research program in the department of forest products.

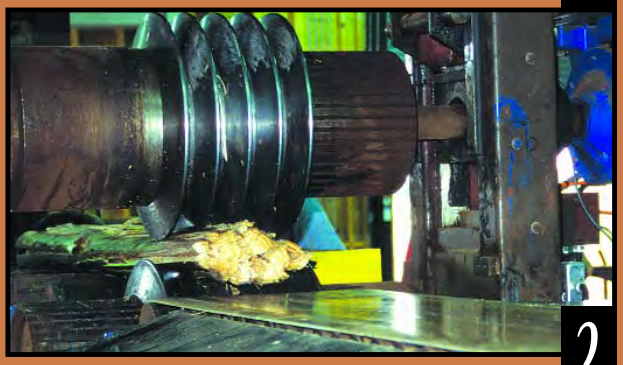
Developed in Australia by the Commonwealth Scientific Industrial Research Organization, the TimTek process forms high-strength, engineered lumber using small-diameter trees that are crushed into strands. Coated with an exterior-type adhesive and dried, the strands then are formed to desired shapes in a specialized steam-injection hot press.

Recently completed with $1 million funding from the state Land, Water and Timber Resources Board, the plant is located on the western edge of campus, near the intersection of Blackjack Road and Locksley Way.

During Dec. 12 opening ceremonies, TimTek representatives and MSU President Charles Lee joined Lester Spell, state commissioner of agriculture and commerce, in emphasizing the significance of the collaboration to the state's economy.

1

Raw materials are conditioned prior to crushing.



2

Logs are crushed.

3

The crushed logs are processed into scrim—long, thin lengths of wood.

Photos by Karen Brasher

The scrim is placed on trays for drying

Adhesives are applied to the scrim.

Scrim is layed up in preparation for the press.

Scrim is then placed in the patented steam injection press.

"This plant and the technology being developed here once again demonstrate Mississippi State's desire to help stimulate competitive markets for Mississippi landowners and the state's forest industry and to help create new value-added products for Mississippi manufacturers," Lee said.

Spell, observing that Mississippi has more than 18 million acres of forestland, said the partnership "will be good for our state, especially for private landowners who hold about 70 percent of the state's forest lands and are seeking new revenues for their small-diameter trees." A member of the Land, Water and Timber Resources Board, he praised TimTek for exemplifying the kind of innovative project the board supports.

Company director Walter Jarck said TimTek's product "is a unique, long-fiber structural engineered lumber with high-strength properties of select-grade sawn timber. It can be produced in lengths and cross sections greater than can be achieved from the largest logs available."

Since the process can be incorporated into existing plants, owners of wood-processing operations have the potential to realize immediate economic benefits, Jarck added.

Further research will both determine the strength values of the product and test the product to help gain building code acceptance. Initial examinations in MSU's forest products department indicate that the engineered lumber has the potential to compete favorably with beams and timbers used in residential and commercial construction.

After trimming, the TimTek beam is complete for use as is or for processing into other products.

Photos by Karen Brasher

MSU Scientists Open Multifront Attack on FIRE ANTS

Graduate student Sandra Woolfolk searches mounds for pathogens that can be used for biological control of fire ants.

Photos by Marco Nicovich

By Bob Ratliff

If you live in Mississippi, or almost anywhere else in the Southeast, imported fire ants are a fact of life.

Imported fire ants, scientists believe, first arrived in the U.S. during 1918 at the port of Mobile, Ala., as stowaways on a ship from South America. Since then, the invaders have spread across most of the Southeast. Their name comes from the "fiery" sting of their bite.

"There are two species of imported fire ants in Mississippi—*Solenopsis invicta*, or red fire ants; and *Solenopsis richteri*, or black fire ants," said Mississippi State University entomologist and Mississippi Entomological Museum director Richard Brown. There's also a hybrid cross of the two imported species.

All three are serious pests because their mounds can interfere with crop cultivation, make pasture and lawn maintenance difficult, kill young birds and small animals, and inflict painful, possibly deadly bites on humans. The ants reproduce rapidly and a mound can reach a height of 10 inches or more with populations often topping 100,000.

A variety of control measures have been used against fire ants, ranging from pouring boiling water into mounds to a host of insecticide treatments. Success rates vary, but nothing has stopped the pest's spread.

In 2003, Brown and other scientists with the Mississippi Agricultural and Forestry Experiment Station at Mississippi State began a project that may provide new approaches to the fire ant problem. They include entomologists, plant pathologists and agricultural engineers, along with graduate students under their direction. The scientists are conducting research related to their respective areas of expertise, with the goal of filling in the gaps in our knowledge of fire ants and their impact.

Entomologist Jack Reed is looking at ways to control fire ants in row crops and other locations without reducing native ant populations. He is working with agricultural engineers Phillip To

Photos by Marco Nicovich

and David Smith to develop equipment to detect and apply control treatments just to fire ant mounds in row crops. The result will be more effective and economical control of the pest in crops.

Another part of Reed's fire ant research is being conducted with U.S. Department of Agriculture-Agricultural Research Service entomologist J.T. Vogt in Stoneville and involves determining when fire ants are the most active.

"We're looking for times when fire ants are most active so treatments can be made when they will have a high potential for killing those species without affecting native ants," Reed said.

One reason fire ants have been so prolific since arriving in the South is the absence of natural enemies. Plant pathologist Richard Baird and graduate student Sandra Woolfolk are digging into mounds in hopes of finding pathogens that can be used for biological control.

"We are assuming that since the population of ants in the mounds is so high, there might be fungi or bacteria present that might be pathogens that can be used for fire ant control," Baird said. "In tests at MSU's Insect Rearing Laboratory, several of the pathogens we've found were effective in repelling fire ants."

During the spring and summer of 2004, Woolfolk will be doing additional fieldwork with the red imported fire ant, which is expected to become the dominant species in Mississippi.

Entomologists Peter Ma and Gerald Baker are studying the physical and chemical makeup of fire ants as part of their search for more effective control methods.

"We are studying the ants' physiology in order to develop a way to disrupt their communication," Ma said. "This could be used to block their mating cycle."

Ma and Baker also are studying the interaction between fire ants and a type of small wasp-like insect that preys on the ants, with the hope of using information about the communication between the prey and the predator in control methods.

Entomologist Evan Nebeker and graduate students under his direction are studying the ants in forest environments.

While fire ants are most common in pastures and other open areas, they do inhabit forests, especially in areas adjacent to open fields, Nebeker said.

"We know fire ants destroy quail nests and cause other problems for wildlife, but we don't know their full impact on wooded areas," he said.

Graduate students Tim Mensel and Sara Self are studying how various forestry practices influence movement and distribution of fire ants and how the ants impact commercial Christmas tree operations.

Nebeker and his students also are locating areas along the Natchez Trace that attract large numbers of fire ants.

"Identifying high-risk areas will help identify the characteristics that attract fire ants," Nebeker said. "It also will allow control measures to be concentrated on areas where the ants are a threat to visitors."

While imported fire ants cause problems for Mississippians throughout the state, there are dozens of other varieties of ants that go virtually unnoticed. Identifying, studying and recording data on these other species is part of the research conducted by Richard Brown and Joe MacGown, assistant curator of the entomological museum.

"Ants are among the most numerous creatures on the planet, but they are a very troublesome group to identify and classify," Brown said. "As part of an effort to better understand the ants of Mississippi, the museum is conducting ongoing surveys of ants in the state. The ultimate goal is an updated species list with distribution maps, identification keys and diagnostic drawings."

While imported fire ants are a problem across the South, Brown added, most species of ants are actually beneficial, helping to aerate soil, disperse plant seeds, control insect pest species, and aid in the decay process of dead plants and animals, as well as other beneficial activities.

There currently are 152 identified species and subspecies of ants in Mississippi, including 25 recently identified by MacGown and JoVonn Hill, an entomology graduate student under Brown's direction. Some of the recently discovered species have some unusual social structures.

MAFES entomologist Richard Brown and some of the more than 150 species of ants found in Mississippi.

Anthony Pranschke with the USDA/ARS Biological Control of Pests Research Unit in Stoneville empties a container of disease-carrying larvae into a healthy fire ant colony.

Jason Oliver, right, from Tennessee State University and Kenneth and Rufina Ward from Alabama A&M University collect fire ants along the Natchez Trace.

J. T. Vogt with the USDA/ARS Biological Control of Pests Unit and Jack Reed examine a trap used to collect fire ants underground.

Photos by Marco Nicovich

"We have a species of ant in Mississippi that uses a variety of aphid as 'cows,' to produce honeydew to feed on," Brown said. "The ants actually build 'barns' to house their aphid herds."

Another variety recently discovered in Winston and Oktibbeha Counties raids the mounds of other ant species for pupa to raise as workers.

"This species only has reproducers and soldiers, so they can't feed themselves," Brown said. "They enslave other ants to work for them. This is one of only six slave-making species known to exist in the U.S. and was previously unknown in this area of the South."

Brown and graduate student JoVonn Hill have found native species and fire ants coexisting in areas of the Tombigbee National Forest.

"It appears our native ant species are able to compete well with fire ants, especially in less disturbed areas," Brown said. "We have found as many as 31 species of native ants living in the same area as imported fire ants."

The multidisciplinary study of fire ants is expected to result in a much clearer understanding of the pest, but the scientists agree that their work likely won't result in a "magic bullet" for control. They do, however, expect the results of their work to provide guidelines for more effective and economical ways to reduce problems with fire ants in crops, lawns and other areas where they cause the most damage.

Clint Parish

The DigiTop partnership between the MSU libraries and the National Agricultural Library was recently signed by MSU Dean of Libraries Frances Coleman, left, President Charles Lee, NAL Director Peter Young, and MAFES Director and Vice President for Agriculture, Forestry and Veterinary Medicine Vance Watson.

MSU-National Ag Library Project Brings Research to Desktops

By Maridith Geuder

A unique collaboration between Mississippi State and the Maryland-based National Agricultural Library is allowing Mississippi researchers easier and faster access to the most recent science-based agricultural information available.

In a recent campus ceremony, university President Charles Lee and NAL director Peter R. Young officially inaugurated the first-of-its-kind partnership between the Bethesda facility—the world's leading repository of agricultural materials—and MSU.

"This demonstration project will provide MSU faculty members, researchers and students the ability to access leading resources electronically," Lee said. "Through NAL, it brings the latest, most up-to-date research literally to their desktops."

Called DigiTop—or Digital Desktop—the service now being demonstrated at Mitchell Memorial Library on campus provides full-text electronic access to resources in the agricultural sciences, as well as reference and article delivery services. The project also is testing the feasibility, costs and effectiveness of the system, with the goal of potentially expanding to other universities.

"Mississippi State was selected because of its significant agricultural instructional and research programs," Young said.

MSU Dean of Libraries Frances N. Coleman said DigiTop "will greatly enhance our ability to support instructional, research and extension programs by electronically linking us with NAL, the principal U.S. source for information about food, agriculture and natural resources."

For agricultural researchers at the Starkville campus and at MAFES branch stations, the project will mean easy access to thousands of current journals and newspapers, said Vance Watson, MAFES director and MSU vice president for agriculture, forestry and veterinary medicine.

"Electronic access through DigiTop will improve research productivity of MSU agricultural researchers and will ultimately benefit all Mississippians," Watson added.

The MSU Libraries already participates in the NAL's Agricultural Online Access, or AGRICOLA, which contains bibliographic records of materials acquired by NAL and cooperating institutions in agricultural and related sciences.

The National Agricultural Library is part of the Agricultural Research Service, the U.S. Department of Agriculture's primary agency for scientific study. It's on the Web at http://www.nal.usda.gov.

Fall Flower & Garden Fest

Celebrates Its Silver Anniversary

By Bob Ratliff

"I've never seen those before!"

"I have that in my garden."

"How do they do that?"

For the more than 5,000 visitors to the 25th annual Fall Flower & Garden Fest, there was a lot to see, a lot to do and a lot to learn.

The Oct. 17-18 event at the Truck Crops Branch Experiment Station in Crystal Springs got off to a soggy start, but that didn't dampen the spirits of the individuals who came from almost every area of the state to see the results of work at the station with flowers, vegetables and landscaping materials, as well as to attend seminars and demonstrations on everything from composting to willow furniture making.

At the butterfly garden and gazebo, visitors learned about the benefits of butterflies and how to attract them.

Another feature of the silver anniversary event was the "corn" maze, with its trails carved through a field of 10-foot-high stalks of what resembled corn but was actually Sudax, a hybrid of Sudan grass.

Visitors looking for plants to take home could find a large selection of flowers and other plants for sale in the plant vendors' area.

Master Gardeners from Warren, Hinds, Rankin, Copiah, Lauderdale, and Madison Counties were on hand to answer questions and provide gardening tips.

The Master Gardener Program is an educational activity of the Mississippi State University Extension Service designed to train volunteers in horticultural skills and to help Extension agents in promoting gardening activities and community projects.

MAFES researchers and Extension specialists and agents also were available to answer questions about vegetable production and other aspects of horticulture.

The current overall program of the Truck Crops Branch involves research and extension activities with fruits, field and greenhouse vegetables, and ornamentals.

MAFES, the Mississippi State University Extension Service, the Truck Crops Branch Experiment Station, and Mississippi State University sponsor the annual Fall Flower & Garden Fest.

Photos by Bob Ratliff

Photos by Bob Ratliff

National Legislation

Will Name Horticulture Lab

Bob Ratliff

Dan Batson, owner of Greenforest Nursery in Perkinston, was one of the speakers during groundbreaking ceremonies for the horticulture laboratory complex at the South Mississippi Branch Experiment Station.

By Bob Ratliff

A new horticulture complex in Poplarville will bear the name of the current chairman of the U.S. Senate's Agriculture, Nutrition and Forestry Committee, pending congressional approval.

Rep. Gene Taylor, D-Miss., has introduced a bill, H.R. 3372, in the U.S. House of Representatives calling for the facility to be named the Thad Cochran Southern Horticultural Laboratory. Cochran, R-Miss., is serving his fifth term in the U.S. Senate.

Mississippi's other congressmen, Chip Pickering, Bennie Thompson and Roger Wicker, are cosponsors of the bill.

The 30,000-square-foot horticultural laboratory complex is on the grounds of the South Mississippi Branch Experiment Station. The facility will house research laboratories and offices for U.S. Department of Agriculture and Mississippi State University personnel. The laboratories will be used for ornamental horticulture and small fruit research.

"Sen. Cochran recognizes the importance of the horticulture industry for south Mississippi," Taylor said. "The research done here will help that industry continue to grow, creating more jobs."

The $10 million complex will be the only major horticultural research facility on the Interstate 10 corridor between Florida and California, said Vance Watson, MAFES director and vice president of MSU's Division of Agriculture, Forestry and Veterinary Medicine.

"Mississippi has the nation's best federal/state partnership for research and other support for agriculture," he said. "The decision to build this important research facility in Poplarville is evidence of the strength of that partnership. The work done here will benefit horticulture from Texas to South Carolina and well beyond."

Records Set at 2003 Production Sale

"A record number of 600 people were on hand for the sale,"

MIKE BOYD

MAFES ANIMAL SCIENTIST

By Bob Ratliff

Each fall for the past 21 years, students enrolled in ADS 4412, Managing Livestock Sales, have managed a sale of top-quality livestock from MAFES herds. The 2003 MAFES Production Sale was a record-breaking event.

"A record number of 600 people were on hand for the sale," said animal scientist Mike Boyd, whose students conduct the sale.

Another record set at the 2003 sale was the amount paid for a horse. A bay colt born in April 2003 brought $3,000, the most ever paid for an animal at a MAFES Production Sale.

Animal scientist Peter Ryan, who conducts equine reproduction research, said the outstanding bloodlines of the colts offered at the sale generated a lot of interest.

"We had a good batch of weanlings this year out of high-performing mares and top-quality stallions," he said. "The students also did an excellent job of preparing the colts for the sale, including making sure all were halter broken."

The 17 colts in the 2003 sale brought an average of $925, up from $530 the previous year. Two mares and three hackney ponies also were included in the sale.

The improved cattle market generated higher prices for the bulls and heifers offered at the MAFES sale. Angus were the most popular bulls at the 2003 sale, bringing an average of $1,752.50, up more than $40 from the 2002 average.

The average for bred heifers was $879.27, up about $90 from the previous year.

Students are responsible for most aspects of the production sale except the auctioning, which for the 2003 sale was handled by auctioneer Jarvene Shackelford.

Proceeds from the annual sale go back into the MAFES livestock research programs.

Photos by Marco Nicovich

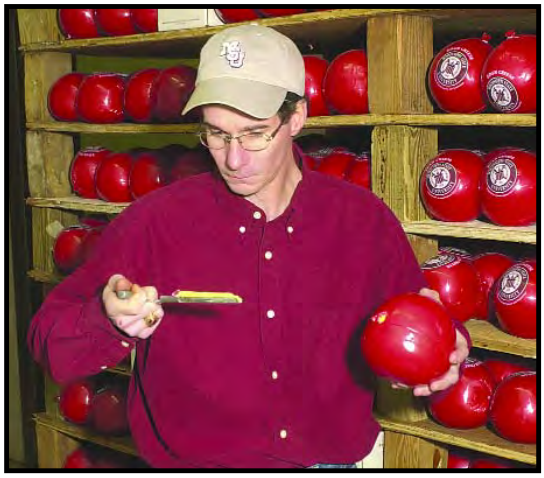
MSU Offers Famous Cheese With Less Fat

Photos by Jim Lytle

By Tricia Hopper

As common as cowbells and bulldogs, Mississippi State University's bright red Edam cheese "cannon ball" is easily recognized at tailgates and parties across the state and beyond.

Ever since Edam cheese was first introduced on the Starkville campus in 1938, fans of this dairy delight have made it a university hallmark. The Mississippi Agricultural and Forestry Experiment Station's Sales Store sold about 42,000 regular Edam cheese balls during the 2002 Christmas holiday season.



Dairy Manufacturing Plant Manager David Hall checks a sample from an Edam cheese ball.

As the times have changed, however, so has the cheese. In a health-conscious society, people have become more wary of fat intake, which spurred the Department of Food Science and Technology into researching and manufacturing a reduced-fat Edam cheese ball. During last year's holiday sales, the MAFES Sales Store sold more than 1,800 reduced-fat cheese balls.

"We realize that because of nutritional practices, some people might prefer reduced-fat cheese. Thus, lots of research went into developing a quality version with a similar flavor to a regular cheese," said Charles White, professor and head of the Department of Food Science and Technology.

Flavor is the key in creating a reduced-fat version of the Edam cheese. David Hall, manager of the Dairy Manufacturing Plant and a former National Champion Taster (1986), has worked for companies such as Kraft, Dean Foods and Luvel Dairy. He brings his tasting expertise to the table to ensure that every reduced-fat batch of cheese meets the flavor standard.

"There is very little difference in the regular and the reduced-fat cheeses other than the reduced-fat version is a little firmer," Hall said.

The same process is used in making both cheeses, only a different percent of milk fat is used. For the regular cheese, 3.2 percent fat milk is used, whereas the reduced fat cheese uses milk with 1.8 percent fat.

"It's the same idea as when you go to the grocery store and you buy 2 percent milk or you buy a low-fat milk," Hall said. "The difference is the percentage of fat in the milk that is used, which produces a reduction of fat in the cheese."

The reduced-fat Edam cheese has about one-third less fat content than the regular, while still maintaining flavor quality. With little difference in texture, flavor or color, the reduced-fat cheese makes a nutritious party food for the otherwise fattening holiday season.

Consumers will find a slight difference in the price of the two cheeses. The reduced-fat Edam cheese is $1 more at $16 per ball. Each Edam cheese ball weighs 3 pounds and is dipped in red wax to minimize mold growth.

Customers interested in purchasing a cheese ball can call the MAFES Sales Store at (662) 325-2338. Other cheese products available are cheddar cheese blocks, vallagret wheels, jalapeno pepper cheese blocks, crocks of cheese spread, and crocks of jalapeno pepper cheese spread.

Untangling Pine Forests

Benefits Wildlife

Scientists in Mississippi State's Forest and Wildlife Research Center have found a new way to replicate certain features of pre-colonial forests and untangle the pine forests of today. Their goal: to benefit both 21st century forests and the wildlife species inhabiting them.

"Fire was a natural and essential process in Southern pine forests used by Native Americans for land management," said wildlife biologist Steve Demarais, a professor in the university's wildlife and fisheries department. "These fires burned underbrush and promoted growth of vegetation beneficial to wildlife."

Today, however, many Southeastern pine forests are a tangled mess as a result of fire exclusion. Demarais said the thick, low-quality hardwood brush and trees that flourish beneath the pine canopy make wildlife habitat scarce.

In 1998, MSU's Forest and Wildlife Research Center joined with BASF Corp. to test the effects of a combined vegetation management regime known as Quality Vegetation Management, or QVM, in a Noxubee County site. MSU graduate student Scott Edwards of Meridian researched the test site.

"The key to re-establishing pine wildlife habitat quality is to 'recapture' the pine forest from the controlling influence of low-quality, hardwood underbrush such as hickory and sweetgum," Demarais explained. "Our initial study showed that QVM accomplishes this goal."

With the competition eliminated, the soil nourishes high-quality, broad-leaved plants and grasses—native vegetation that provides beneficial habitat for wildlife species.

"We identified 99 plant species in QVM-treated forests, compared to 38 in untreated areas," said Wes Burger, avian ecologist and wildlife and fisheries professor. "This native vegetation serves as a buffet table for deer, turkey, quail and certain other wildlife."

In the QVM regime, a selective herbicide is applied in the fall, followed by a prescribed burn during winter. Fertilizer is not required but will promote faster growth and greater seed production of native plant communities.

"QVM provides cost-effective, long-term benefits," Demarais said. "Establishing QVM costs as little as $115 per acre, and the benefits can be maintained with prescribed fire every three to five years. Planting wildlife food plots is nearly three times more expensive without many of the benefits," he said.

Private, nonindustrial landowners hold about 135 million acres in the Southeast. Not realizing the need for active management, many have adopted a "hands-off" forest management approach that promotes low-quality wildlife habitat.

"Landowners can create a mosaic of habitats that game and nongame species use for food and cover by rotating QVM treatments throughout their property," Burger said. "This type of management creates diversity that benefits all wildlife."

As a result of the MSU research, agencies within the U.S. Department of Agriculture included components of QVM for cost-sharing as part of the federal 2002 Farm Bill. Landowners with conservation reserve program pine plantations may benefit from these financial programs. Additionally, the Mississippi Forestry Commission offers financial assistance to establish QVM.

A new study comparing the cost-effectiveness of QVM on midrotation pine production and wildlife habitat quality is being funded by the U.S. Fish and Wildlife Service as part of MSU's Wildlife and Fisheries Economic Enterprises federal initiative. Research and demonstration sites have been established in northern and southern parts of the state by the Forest and Wildlife Research Center, Mississippi Agricultural and Forestry Experiment Station, MSU Extension Service, and BASF Corp.

In Brief

Marco Nicovich

Poinsettias used in research were on display during the December open house at the MSU greenhouses on Stone Boulevard. The annual event also includes a seasonal plant and wreath sale and classes on holiday design and plant care. MAFES, the University Florist, the Department of Plant and Soil Sciences, and the MSU Extension Service sponsor the open house.

New Web Address for Deltasoy

The Deltasoy program was developed by Agronomist Ling Zhang at the Delta Research and Extension Center.

Deltasoy, an Internet-based soybean information system, has a new location on the Web. Mississippi soybean producers and breeders can find information on currently available varieties at http://www.msucares.com/deltasoy.

Deltasoy helps growers sort through Mississippi State University's annual soybean variety trial results to find the best seed for their needs and location.

An additional feature of the site is SoyPheno, a maturity date calculator for predicting soybean growth based on planting date and maturity group.

Deltasoy is supported by the Mississippi Soybean Promotion Board. The new Web site was designed and is maintained by the Office of Agricultural Communications Web team at Mississippi State University.

Tombstone Territory

Research associate Wayne Philley checks the height of grass around wooden "tombstones" in a simulated cemetery on the North Farm. Philley and agronomist Michael Goatley are evaluating six turf grass varieties and a range of maintenance practices to determine which are the most economical and attractive for cemeteries.

Marco Nicovich

CALENDAR OF UPCOMING EVENTS

Aug. 4	**North Mississippi Agronomic Row Crop Field Day** Lee County Agricenter, Verona
Aug. 18	**Cotton Field Day** Delta Research and Extension Center, Stoneville
Aug. 19	**Rice/Soybean Field Day** Delta Research and Extension Center, Stoneville
Sept. 25	**North Mississippi Garden Expo** North Mississippi Research and Extension Center, Verona
Oct. 15	**Fall Flower and Garden Fest** Truck Crops Branch Experiment Station, Crystal Springs
Oct. 19	**Youth Fall Garden Days** Truck Crops Branch Experiment Station, Crystal Springs

UPDATES

MAFES Scientists Recognized for Outstanding Contributions

Jim Lyle

Five MAFES scientists were recognized at the 2003 MAFES/Extension Service awards banquet for their outstanding research contributions. Award winners congratulated by MAFES Director Vance Watson were, front row from left, animal scientists Peter Ryan and Scott Willard, Grantsmanship Award; entomologist Peter Ma, Sustained Grantsmanship Award; agricultural engineer Alex Thomasson, Publication With Most Relevance to Mississippi Agriculture Award; back row, agricultural and biological engineering department head Jerry Gilbert accepted the Most Outstanding Scientific Publication Award on behalf of biological engineer Joel Bumgardner.

Jim Lyle

The Northeast Mississippi Branch Experiment Station at Verona received the 2003 Outstanding Facility Award for maintenance and overall image. Accepting the award from Associate Director Clarence Watson were horticulturist Crofton Sloan, left, and agronomist Normie Buehring

Jim Lytle

Michael Kidd, left, receives the MAFES Outstanding Worker Award from Gary Gaines, CEO of the Land Bank of North Mississippi and MAFES Director Vance Watson.

Michael Kidd
2003 MAFES Outstanding Worker

A poultry scientist recognized as a leading poultry nutritionist received the MAFES Outstanding Worker Award for 2003.

Michael T. Kidd is recognized as a world authority on limiting amino acids in poultry and has published extensively on the impact of nutrition on immune responses of birds.

"His research efforts have resulted in savings in the poultry industry of many million of dollars," said MSU poultry science department head Wallace Morgan. "Through identification of the specific amino acids most limiting growth, feed efficiency and especially processing yield of white meat, Michael's research has provided opportunities for commercial poultry companies to produce much more efficient and cost effective diets."

The 2003 MAFES outstanding worker earned his doctorate at North Carolina State University, with a major in nutrition and a minor in immunology. His master's degree and bachelor's degree, both in poultry science, are from the University of Arkansas.

The annual Outstanding MAFES Worker Award is sponsored by the Federal Land Bank of Mississippi.

UPDATES

The South Mississippi Branch Experiment Station received the 2003 Most Improved Facility and Grounds Maintenance Award. Accepting the award were research associates Mike Anderson, left, and Lawrence Fitzgerald.

Marty Brock, Extension instructor in Computer Applications and Services, received a Special Service Award for her work in support of MAFES during 2003.

Photos by Jim Lytle

Moore Named MAFES Associate Director

Reuben Moore

By Bob Ratliff

Reuben Moore has been named MAFES associate director. He is responsible for the overall coordination of operations relating to on-campus departments, research and extension centers, and branch experiment stations.

Previously, Moore served four years as head of the North Mississippi Research and Extension Center in Verona. He was responsible for administration of research programs at four branch experiment stations: Northeast Mississippi in Verona, North Mississippi in Holly Springs, Pontotoc Ridge-Flatwoods in Pontotoc and Prairie in Prairie.

He also served for 11 years as an Extension dairy specialist at Mississippi State. In that position, he was responsible for Mississippi dairy educational programs and dairy waste management research. He also established the annual Mississippi-Louisiana Dairy Management Conference.

Before joining MSU, Moore owned and operated a dairy farm in Philadelphia for 10 years.

He earned a bachelor's in dairy science from Mississippi State, a master's in animal nutrition at the University of Tennessee in Knoxville and a doctorate in animal physiology from MSU.

As MAFES associate director, Moore replaces Marty Fuller, who resigned to assume MSU's new position of director of federal relations.

Street Selected to Head North Mississippi Center

Joe E. Street

By Bob Ratliff

A scientist with almost 25 years of experience has been selected as interim head the North Mississippi Research and Extension Center in Verona.

Joe E. Street will have administrative responsibility for MSU's research programs and extension activities at four branch experiment stations: Northeast Mississippi in Verona, North Mississippi in Holly Springs, Pontotoc Ridge-Flatwoods in Pontotoc and Prairie in Prairie.

The Tippah County native earned his bachelor's and master's degrees at Mississippi State and a doctorate at Auburn University. He has served at the Delta Research and Extension Center in Stoneville since 1980, first as a plant physiologist and most recently as the center's leader for rice research.

"Dr. Street's experience with addressing the needs of producers will be a valuable asset for the research and extension programs in north Mississippi," said Vance Watson, MSU's vice president for agriculture, forestry and veterinary medicine and director of the Mississippi Agricultural and Forestry Experiment Station.

Mississippi's oldest producer-advisory group started at the NMREC. The group connects commodity producers with advisors to discuss needs and concerns and helps extension specialists and researchers learn what issues need to be addressed.

Vance Watson

Watson Named Vice President for Agriculture, Forestry, Veterinary Medicine

By Bob Ratliff

MAFES Director Vance Watson, a 37-year MSU employee, has been named vice president for agriculture, forestry and veterinary medicine at Mississippi State. He will remain as MAFES director and continue to serve as dean of the College of Agriculture and Life Sciences.

He was named interim vice president and interim dean in 2002. His appointment to the permanent posts was approved by the state College Board at its November meeting on the recommendation of MSU President Charles Lee.

As interim vice president, Watson reallocated resources to higher priorities within the Ag Division and led in implementing performance-based planning, budgeting and goal setting, Lee said.

Consolidating the related roles of vice president, director and dean contributes to more efficient operations, said Lee, who had been vice president for agriculture, forestry and veterinary medicine and dean of agriculture and life sciences before becoming president.

"This position is of critical importance and interest to a wide range of constituencies across the state that have a tremendous impact on Mississippi's economy," Lee said. "Dr. Watson has earned the confidence and support of the state's agricultural, forestry and natural resources community, as well as the high regard of his university colleagues on and off campus. I am confident that he will provide outstanding leadership and that he is fully committed to our university and our state."

Watson was named director of the experiment station in 1996.

The Missouri native graduated from Southeast Missouri State University in 1964 with a degree in general agriculture and earned a master's degree in agronomy at the University of Missouri in 1966. He completed a doctorate in agronomy with a minor in botany at MSU in 1969 and has spent his entire career serving the people of Mississippi

Starting as an assistant agronomist with MAFES in 1966, Watson was appointed assistant professor of agronomy in 1969. He advanced to the rank of professor of agronomy and was appointed agronomist in 1977. He became assistant to the MAFES director in 1982 with responsibility for coordinating forage programs.

In 1987, he took on added duties as head of the MAFES auxiliary units responsible for foundation seed stocks and variety evaluations. In 1990, he was appointed head of the MAFES main station and became head of MAFES research support units in 1992. In 1995, he was appointed MAFES assistant director for research support and became director in 1996.

Watson is the author of more than 300 publications, including six textbook chapters, and has traveled in more than 50 countries on a variety of agricultural missions. He served five years as executive vice president of the Association of Official Seed Certifying Agencies, an international organization for genetic standards and certification of 3,500 varieties of crops produced in nine countries.

He was a member of the United States delegation for setting world policy on seed certification and served as team leader for review of Peace Corps agricultural programs in Thailand for the U.S. State Department.

Watson is a Fellow of the American Society of Agronomy and the Crop Science Society of America and received the First Mississippi Corporation Award for outstanding MAFES worker and the MSU Alumni Association Award for excellence in research. He has been named professor of the year by two different student organizations.

Experiment Station

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