

# LOUISIANA AGRICULTURE

*Ensuring Our Future Through Scientific Research and Education*



Winter 2006  
Vol. 49, No. 1



***Stocking  
rates affect  
Louisiana calf  
production***

# Doyle Chambers' Wisdom Still Guides Programs

Though Doyle Chambers died Sept. 5, 2005, in Baton Rouge, his contributions to the LSU AgCenter, research and Louisiana agriculture will live forever.

Chambers served as director of the Louisiana Agricultural Experiment Station for 21 years until he retired in 1985. Vice chancellor was added to his title in 1979.

Chambers is most remembered for his role in creating the LSU AgCenter as a separate institution with its own administration within the Louisiana State University System. He saw the need for funding funneled straight into research and extension as critical to the future of agriculture in the state.

His plan proved correct. Though times have continued to be tough and funding always inadequate, the separation actually boosted the visibility and effectiveness of all three branches of the land-grant system – research, extension and teaching.

His most significant contribution to research is the bringing together of a fragmented operation into one unified experiment station.

"This set the stage for modern-day ag research," said Kenneth Tipton, who was the director from 1989 to 1996 and had worked for Chambers.

The Louisiana Agricultural Experiment Station now includes 20 off-campus stations and 13 academic departments on the LSU campus and is fully integrated with the Louisiana Cooperative Extension Service.

Chambers was among the first experiment station directors to push for more grants and contracts, which ultimately led to the LSU AgCenter's well-respected and envied intellectual property program, which has been called the "crown jewel" of the LSU System.

"He was a conservative man," said William H. Brown, vice chancellor emeritus and former director, who also worked for Chambers. "But he was much more visionary than a lot of people gave him credit for."

Immediately upon his retirement in 1985, Chambers established the Doyle Chambers Research Award, which has been given every year since to recognize the lifetime achievement of an LSU AgCenter scientist. The award also includes a stipend, now at \$2,000.

Through proceeds of a life insurance policy and careful planned giving, Chambers also established several endowments and scholarships, which were approved by the LSU Board of Supervisors at the December 2005 meeting. The first recipients of these honors have not yet been named.

- Doyle Chambers Distinguished Professorship in the LSU AgCenter
- Doyle Chambers Professorship in Animal Sciences
- Luella Dugas Chambers Distinguished Professorship in Human Ecology
- Michael Chambers Scholarship in Entomology
- Linda Chambers Webster Scholarship in Ag Communications
- Dorothy Chambers LeBlanc Scholarship in Human Ecology
- Basil Doles Scholarship in Animal Sciences

His estate also made funds available to add to the endowment for both the Chambers research award and the team research award that Tipton established.

Born March 24, 1918, in Line, Ark., Chambers grew up on a farm in Morehouse Parish. He received his bachelor's degree in agriculture from LSU in 1940 and enlisted in the U.S. Army. He was a decorated World War II veteran. After the war, he earned his master's degree in animal breeding in 1947 at LSU and his Ph.D. in animal science at Oklahoma State University in 1950. He served on the OSU faculty, where he conducted some of the ground-breaking research on cross-breeding cattle. In 1962, he was named associate director of the Oklahoma Agricultural Experiment Station. In

(Continued on page 14)



Doyle Chambers  
1918 - 2005

## EDITORIAL BOARD:

David J. Boethel (Chairman)  
Linda Foster Benedict  
Rick Bogren  
Michael J. Chamberlain  
Patrick D. Colyer  
Barbara Groves Corns  
Theresa Lavergne  
Kenneth W. Paxton  
Witoon Prinyawiwatkul  
John K. Saichuk

EDITOR: Linda Foster Benedict

DESIGNER: Barbara Groves Corns

ASSOCIATE EDITOR: Rick Bogren

PHOTO EDITOR: John Wozniak

CONTRIBUTORS: Tobie Blanchard, John Chaney, Mark Claesgens, Johnny Morgan, Bruce Schultz

Published quarterly by the Louisiana Agricultural Experiment Station, Louisiana State University Agricultural Center, Baton Rouge, Louisiana.

Subscriptions are free. Send requests to:

Linda Foster Benedict, Editor  
Louisiana Agriculture  
P.O. Box 25100  
Baton Rouge, LA 70894-5100  
phone (225) 578-2263  
fax (225) 578-4524  
lbenedict@agcenter.lsu.edu

The mention of a pesticide or use of a trade name for any product is intended only as a report of research and does not constitute an endorsement or recommendation by the Louisiana Agricultural Experiment Station, nor does it imply that a mentioned product is superior to other products of a similar nature not mentioned. Uses of pesticides discussed here have not necessarily been approved by governmental regulatory agencies. Information on approved uses normally appears on the manufacturer's label.

Material herein may be used by the press, radio and other media provided the meaning is not changed. Please give credit to the author and to the publication for any material used.

**www.lsuagcenter.com**

LSU AgCenter

William B. Richardson, Chancellor

David J. Boethel, Vice Chancellor  
and Director of Research

Paul D. Coreil, Vice Chancellor  
and Director of Extension

The LSU AgCenter provides equal opportunities in programs and employment.



# LOUISIANA AGRICULTURE

*Ensuring Our Future Through Scientific Research and Education*

Volume 49, Number 1, Winter 2006

- 2 **Doyle Chambers' Wisdom Still Guides Programs**  
Linda Foster Benedict
- 4 **What's New?**
- 6 **Integrated Pest Management of the Formosan Subterranean Termite in the French Quarter**  
Dennis R. Ring, Alan L. Morgan, Frank S. Guillot, Alan R. Lax and Debbie L. Boykin
- 8 **Hurricanes Don't Stop Termite Research in New Orleans**  
Rick Bogren
- 9 **What Home Builders, Homeowners and Real Estate Agents Think About Mold**  
Richard P. Vlosky and Todd F. Shupe
- 10 **Agents Answer Flood of Mold Questions**  
Rick Bogren
- 11 **L 97-128 Helps Sustain Louisiana's Sugarcane Industry**  
Kenneth Gravois, Keith Bischoff, Jeff Hoy, T. Eugene Reagan and Collins Kimbeng
- 12 **Black Raspberry May Be a New Cancer Fighter**  
Rick Bogren
- 13 **Fungicide Timing Critical for Maximum Return**  
Donald E. Groth and Rick Cartwright
- 15 **Grasp: A New Herbicide for Managing Weeds in Rice**  
Bill Williams
- 16 **New Options for Managing Weeds in Clearfield Rice**  
Bill Williams
- 18 **Herbicide Evaluations for Use in Sweet potatoes**  
Steven T. Kelly, Donnie K. Miller and Mark W. Shankle
- 19 **Roberts Named 'Mr. Yam'**  
Bruce Schultz
- 20 **Credit Card Use by College Students**  
Frances C. Lawrence, Jennifer J. Burczyk-Brown, Rebecca C. Christofferson, Sheri R. Fair, E. Barry Moser and Jeanette A. Tucker
- 22 **Effects of Pasture Stocking Rate and Method on Cow-Calf Production**  
Wayne E. Wyatt, Jeffrey M. Gillespie, Brad C. Venuto and David C. Blouin
- 24 **Master Cattle Producers Put Quality Beef on the Table**  
Bruce Schultz
- 26 **Using Sire EPDs in Cow-Calf Production**  
Sidney M. DeRouen
- 27 **Ag Leaders Experience China's Potential**  
Bobby Soileau

ON THE COVER: Hurricane damage to Louisiana's cattle industry has been estimated at about \$44 million. But experts are hopeful of recovery. Three of the articles in this issue concern the cattle industry. One article gives an overview of the preliminary results of a long-term look at stocking rates. See page 22. Another examines improvement in calf productivity. See page 26. The LSU AgCenter's new Master Cattle Producer program helps the industry become more efficient and profitable. See page 24.

## Crawfish farmers experience low yield

Crawfish farmer Carl Kincaid of Port Barre said he's never seen a year like this. His crawfish crop on 30 acres isn't even a third of last year's catch. He hopes his crawfish may just be late in developing and that he will see an improvement.

"I see a lot of small ones in the traps," Kincaid said.

LSU AgCenter aquaculture specialist Greg Lutz said crawfish farmers should not give up on this year's crop yet, because many of the crawfish should grow to marketable size.

The peak of the Louisiana crawfish harvest season usually comes in March and April, Lutz said, but this year the crop might not be at its best until April or May.

Mark Shirley, another LSU AgCenter aquaculture specialist, said rainfall in the Acadiana region is 15-20 inches less than normal, and the crawfish catch appears to be down in most areas.

"I'm guessing you only have a quarter what you should have by now," Shirley said.

Shirley said crawfish production generally coincides with the amount of rainfall from July through November. The rainfall from that period last year is similar to the scant rainfall that resulted in the drought of 1999.

Turning to another problem, Shirley explained many fields in Vermilion Parish were flooded by Hurricane Rita's storm surge – which brought redfish, crabs and garfish that fed on the crawfish. "I don't expect much production to come out of those fields," he said.

Even areas not affected as heavily by the storm are suffering because vegetation blown into the water by the hurricane has decomposed and robbed the water of oxygen, Shirley said.

In 14,000 acres of Vermilion Parish crawfish ponds, Shirley

said only three ponds have produced well during the winter. "Most of the acres across the state are bad," he said. ■ **Bruce Schultz**

## Researcher looks at salt water effects on rice miner

The salt water pushed ashore into the rice fields of Southwest Louisiana by Hurricane Rita may weaken the surge of the South American rice leaf miner – or it may not.

LSU AgCenter entomologist Boris Castro said it's possible the rice miner's population could have been weakened by the high salinity, but there's no way of knowing because the insect has only been known to be in the country the past couple of growing seasons.

"We don't know where it over-winters," Castro said, explaining the pest first appeared in 2004 but was not identified until 2005.

The researcher said he was surprised that the amount of damage in Louisiana rice fields increased significantly in 2005 as compared to 2004, when the pest first appeared but had yet to be identified as the cause of damage.

The insect also was found last year in North Louisiana, but it had little effect on rice fields there, Castro said, possibly because the insect seems to have a preference for more tropical environments.

"As far as control, we still don't have a chemical," he said.

Methyl parathion had no effect on a Cameron Parish rice field of 230 acres hit by the tiny insect last season, Castro said.

"That was the worst infestation," he said. "It was a complete loss."

Castro said there's usually not much that can be done by the time the pest strikes. The LSU AgCenter plans to conduct studies on biological aspects and behavior of this tiny pest. But for

now, the only recommendation available is to avoid late planting of rice. ■ **Bruce Schultz**

Photo by Bruce Schultz



Spring crawfish boils are part of South Louisiana culture.

## Salt-soaked fields show some improvement

South Louisiana rice fields contaminated with salt from Hurricane Rita's storm surge have shown some improvements, although not as much as expected, and salinity levels actually have increased in some sugarcane fields.

In sugarcane fields affected by the storm surge, testing has shown salt levels actually have increased in recent weeks. In some areas

the level climbed from 6,000 parts per million just after the storm to 8,000 parts per million in recent testing at soil depths up to 3 inches, according to Howard "Sonny" Viator, LSU AgCenter professor and coordinator of its Iberia Research Station.

Viator said hurricanes Rita and Katrina caused a 24 percent loss to the state's sugarcane crop.

"Hurricanes caused more damage to sugarcane by flooding the crop than by the accumulation of salts on the soil," Viator said. Tidal surges affected or flooded about 37,500 acres, he said.

Viator said experts are not certain about the effects of salt levels on future cane crops. "We can only speculate at this time," he said.

As for rice, LSU AgCenter agronomist Jason Bond said rice fields still need rainfall for a good flushing. He's not comfortable advising farmers that their crop will be safe, even if it's planted in soil with salt less than 1,000 parts per million. "All we've got is seedling data at this point, and too many factors can interact to cause damage," Bond said.

LSU AgCenter rice specialist Johnny Saichuk said experts had anticipated that seasonal winter rains would rinse the salt from the soil.

On the other hand, Saichuk predicted that by this time next year most areas should be back to normal. But the highly contaminated areas could be years away from planting.

Saichuk said he has talked with crop insurance agents, and it appears some coverage may be available for farmers who cannot plant their crops because of salty soil. ■ **Bruce Schultz**

## NBA player gives cars to 4-H leaders affected by hurricanes

"I've never won anything in my life," cried Tasha Miller, upon hearing that she'd won a new car worth \$25,000.

But her day had come. Miller, a 4-H volunteer from New Orleans who lost her home in Hurricane Katrina, won a 2006 Toyota Prius hybrid from NBA star Amare Stoudemire.

Stoudemire, a center with the Phoenix Suns, gave away cars to 10 4-H volunteer leaders. Those volunteers lost homes, jobs and even loved ones in hurricanes Katrina and Rita.

"I think it is well-deserved," Stoudemire said. "They put so much time in the community."

Stoudemire owns a Toyota dealership in Florida, his home state, and wanted to do something for victims of the hurricanes. He contacted the NBA for help, and because of 4-H's work with the New Orleans Hornets over the years, the NBA suggested he reward 4-H leaders.

"It certainly speaks well for our 4-H program," said Paul Coreil, LSU AgCenter vice chancellor and director of the Louisiana Cooperative Extension Service. "We have a group of devoted 4-H volunteer leaders. They enjoy working with the youth and making a difference in their lives. They don't expect rewards for their work. I'm thrilled that they were able to benefit from Amare's generosity."

The 10 finalists who received cars were selected from 30 applicants. They gathered at New Orleans' City Park Saturday (Feb. 18) under the impression that only one would drive away with a new car.

The 6-foot, 11-inch Stoudemire drove up in a black Prius. The



Tasha M. Miller, a 4-H volunteer from New Orleans who lost her home in Hurricane Katrina, hugs NBA star Amare Stoudemire after finding out she was one of 10 people awarded a 2006 Toyota.

finalists, all women, greeted him and took turns sitting in the car.

As the women lined up for the drawing, Stoudemire said, "You guys have been so great to the community – all of you are getting Toyotas."

The women and their family members erupted in cheers as nine more Priuses drove up. Some of the winners fell to the ground; others rushed to hug Stoudemire.

"I can't catch my breath. I'm so excited right now," said Elaine Sanchez, sitting in one of the new cars. "This is wonderful."

Stoudemire toured the site of what was Sanchez's home in New Orleans East before the giveaway.

"I just had to reach out and bless them with something that's coming from the heart," said Stoudemire, the top of his white track suit covered in make-up from hugs and kisses from the grateful women.

All the women were able to drive off in their new cars with taxes and title fees also covered by Stoudemire. ■ **Tobie Blanchard**

## Ag Leaders go to China

A trip out of the country has been part of the Agricultural Leadership Development Program since its beginnings in 1988. This year members of Class IX visited the People's Republic of China Jan. 13-24. See story on page 27. The Ag Leaders on the trip included John Earl Carroll, Jason Condrey, Andre Danos, Willie Danos, Adam Faulk, Karl Glaser, Arte Goode, Bo Holt, Mark Marionneaux, Justin Nix, Tee Richard, Kent Roblin, Hank Schumacher, Deborah Slaughter, Marty Wooldridge, Henry Harrison and his wife, Patricia, and Mary Zaunbrecher and her husband, Matthew. For more information on the program, contact its director, Mike Futrell, at (225) 578-6395. ■ **Bobby Soileau**



# Integrated pest management approach to French Quarter termite problem

Dennis R. Ring, Alan L. Morgan, Frank S. Guillot, Alan R. Lax and Debbie L. Boykin

The Formosan subterranean termite is a devastating pest that consumes wooden structures and woody plants. Billions of dollars are lost each year because of damage caused by this insect and the cost of managing it.

An integrated pest management program called the French Quarter Program is being conducted in New Orleans as a part of Operation Full Stop, a nationwide termite management program. Its focus is a community-based management strategy to reduce the densities of Formosan subterranean termites. The program is a cooperative effort among the LSU AgCenter, the U.S. Department of Agriculture, and the New Orleans Mosquito and Termite Control Board.

The federally funded program pays the pest control applicators, so homeowners have no out-of-pocket expense for the treatments. Although hurricanes Katrina and Rita interrupted the project, the French Quarter had little flooding, and the research is continuing.

The program began in 1998, and individual buildings were treated with commercially available baits or nonrepellent termiticides in three stages. The first area treated (Area 1) was a 15-square-block area in the heart of the French Quarter. See the map. In 2002, the program added 20 square blocks (Area 2) that surround Area 1. Treatment of a third area (Area 3) began in March 2004 and included an additional 20 square blocks.

Two additional areas in the French Quarter – Area 4 by the Mississippi River with no structures on it and Area 5, the remainder of the French Quarter – are not yet in the program.

All of the properties in Area 1 were treated within two years after the program began, and 90 percent of the properties in Areas 2 and 3 were under contract and treated as of January 2005. When all properties in these three areas are under contract, approximately 56 square blocks will be covered by areawide management. In addition, about 40 percent of the properties in Area 5 are receiving some termite control as a result of private contracts with commercial pesticide operators. Eventually, the program will include areas 4 and 5 under areawide management.

Formosan subterranean termites expand their territories naturally by producing winged “alates” that swarm each spring. To measure effectiveness of the program, the research team sets up alate traps during the swarming season in late spring and early summer. Alate numbers were sampled using sticky traps placed on light poles in 46 locations in the French Quarter in 1998 and 1999. One sticky trap was put on every corner of the 15-block test area (24 corners). Additional traps (20) were spaced throughout the French Quarter. Beginning in 2000, alate numbers were sampled throughout the entire French Quarter by placing sticky traps at each intersection.

Along with monitoring alates, 12 in-ground monitoring stations were put around each square block in Area 1. Holes were drilled through the sidewalks at regular intervals of approximately 25 yards throughout the treatment zone, and monitoring devices were installed. Additional monitors were similarly placed throughout the remainder of the French Quarter. A total of 229 in-ground monitoring stations were placed in Area 1, and 44 in-ground monitoring stations were spaced elsewhere in the French Quarter. These in-ground stations were monitored during 1999 through 2005. In late 2001, approximately 300 more stations were added, and monitoring of these stations began in January, 2002.

The annual alate counts in areas 1 and 2 were reduced two years after treatment began in each area. The trap catches in

**To measure effectiveness of the program,  
the research team sets up alate traps  
during the swarming season  
in late spring and early summer.**

Areas 3 and 5 showed only slight decreases in the frequency, with high catches from 1998 to 2004. This reduction is most likely because of commercial termite protection contracts by individual property owners not associated with the area-wide management program.

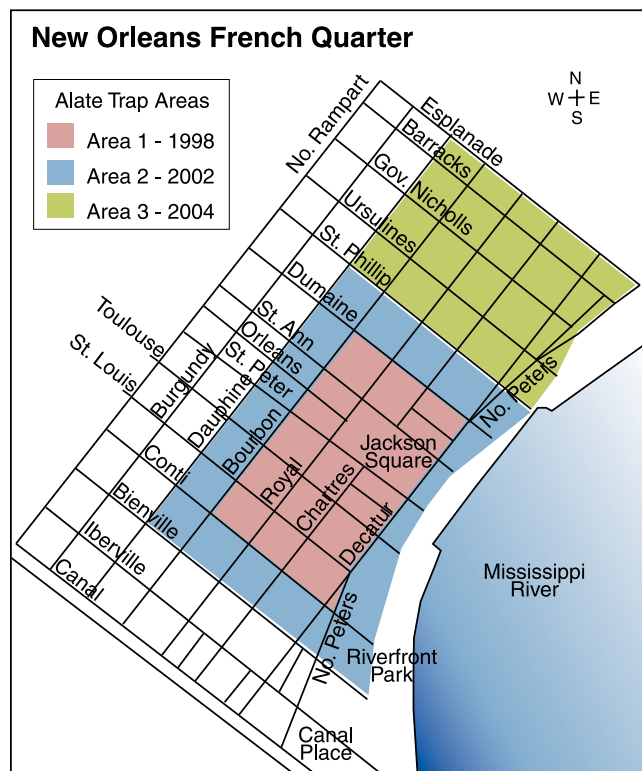
Although the results after two years of areawide management in Areas 1 and 2 were encouraging, the absence of further decline in the alate captures in Area 1 since 2000 suggested the continuing presence of mature colonies. Unlike native subterranean termites, Formosan subterranean termites are more likely to live in above-ground carton nests without going to nests in the earth. For this reason, colonies may be established in wooden structures and woody plants and may not be susceptible to customary in-ground treatments.

An intense inspection program was begun in 2003 to discover mature colonies that possibly remained within structures and trees. Since then, 158 properties in Area 1 have been inspected at least once. Inspection results show 19 percent had

St. Philip and Royal streets in the French Quarter. (Photo by Johnny Morgan)

*Dennis R. Ring, Professor, and Alan L. Morgan, Associate Professor, Department of Entomology, LSU AgCenter, Baton Rouge, La.; Frank S. Guillot, Program Coordinator of Operation Full Stop, and Alan R. Lax, Microbiologist, USDA, Agricultural Research Service, Southern Regional Research Center, New Orleans, La.; Debbie L. Boykin, Statistician, USDA, Agricultural Research Service, Jamie Whitten Delta States Research Center, Stoneville, Miss.*

The Formosan termite French Quarter Project began with a 15-square-block area (Area 1) in 1998. Area 2 was added in 2002 and Area 3 in 2004. The program in each area includes trapping flying termites (alates) during the swarming season in the spring and assessing termite activity by using traps placed in sidewalks throughout each area. The results are used to measure termite numbers following areawide treatment programs.



live Formosan subterranean termite infestations. The trees on 93 properties in Area 1 were inspected for Formosan subterranean termite infestations. Six of these properties had a total of 16 Formosan subterranean termite-infested trees representing 2.3 percent of the trees inspected.

In July 1999, in-ground monitoring stations both in Area 1 and outside Area 1 had about the same percentage of termites. From September 1999 through 2005, however, the percentage was lower in Area 1. During this period, in-ground activity within the treated area was about 50 percent less than activity in the surrounding area. These data indicated that treatments reduced termite numbers.

The architecture of the buildings and the design of many of the properties in the French Quarter add significantly to the difficulty of managing Formosan subterranean termites. Not only are these features difficult to treat with chemicals, they also offer easy access for Formosan subterranean termites and create highly favorable, moist conditions for establishment and survival of above-ground carton nests. The difficulty of controlling Formosan subterranean termites in the French Quarter is borne out by the persistently high levels of alate activity at specific trap locations in Area 1, even though nearly all structures have been treated for termites under the auspices of the areawide program. Another factor is alate immigration into Area 1.

The research team believes many of these remaining infestations are isolated above ground without soil contact. To further reduce the termite activity in the management zones, an inspection program followed by applications of above-ground bait stations or spot treatments with a nonrepellent termiticide has been initiated. These treatments are being used to further reduce the Formosan subterranean termite densities. Expansion of the program to include additional areas is anticipated to further reduce Formosan subterranean termite densities. ■

## Hurricanes Don't Stop Termite Research in New Orleans

Hurricanes Katrina and Rita did not interfere with the LSU AgCenter's efforts to control Formosan termites in New Orleans. Known as the French Quarter Program, the federally funded pilot test began in 1998.

Featuring various treatments to combat the termites, the program is a partnership among the LSU AgCenter, the U.S. Department of Agriculture's Agricultural Research Service, the New Orleans Mosquito and Termite Control Board and area pest control applicators.

Two types of treatments are used to decrease the Formosan subterranean termite numbers in the French Quarter test area, according to AgCenter entomologist Dennis Ring.

"We have baits that the pest management professionals monitor on a monthly basis and liquid treatments that are inspected yearly," Ring said. "The treatments are applied by local pest management professionals using commercially available baits or nonrepellent termiticides."

The program pays the pest control applicators, so homeowners have no out-of-

pocket expense for the treatments.

Ring said since Hurricane Katrina displaced many of the employees of the pest control operators, the research was virtually put on hold, even though the French Quarter was not flooded.

Ring said the program was reactivated in October 2005 with renewed sampling and inspections. "Most of the applicators have started sampling their stations and putting in treatments," he said.

"The best evidence we have of success in the French Quarter project comes from the inspection of buildings in the original 15 blocks included in the test area," said Frank Guillot, USDA's national program coordinator for the Formosan Termite Program.

He said inspections of properties in 2003 found 26 percent of the inspected buildings were infested with live termites. Inspection results for 2005 show 5 percent of the inspected buildings are infested.

"Another indication of success is near total elimination of heavy termite activity on the levee immediately adjacent to the French Quarter," Guillot said. "Except for

one isolated area, all other trap locations on the levee from Canal Street to Esplanade are inactive."

Guillot said some people think since parts of the city stayed under water for a long time, the termites would have drowned. Parts of the French Quarter were flooded for only a few hours, and other parts were not flooded at all.

"What people seem to forget is that there were parts of buildings and trees above the water. So continuing the pilot test is important," Guillot said. "We've found that termites did survive where flooding occurred. We do know that termites are still there, but we won't know for a while how many."

Guillot said a swampy area near Lake Charles has been home to a colony of actively thriving termites for more than 30 years. "These termites are isolated in the swamp, so they can't have ground contact, because the saltwater keeps them out, but they have enough resources in the trees that they can survive," he said. ■ **Rick Bogren**

# What Home Builders, Homeowners and Real Estate Agents Think About Mold

Richard P. Vlosky and Todd F. Shupe

Although it is uncommon in most homes, toxic mold, also known as black mold, has become a major issue for some home builders and homeowners in the United States. The effects have run the gamut from disposal to litigation. Although the Centers for Disease Control and Prevention has reported there is no test that proves an association between black mold and particular health symptoms, a number of lawsuits have been filed against wood products manufacturers and builders claiming that human health has been compromised by exposure to mold.

Mold and mildew, which appear as woolly or powdery growth, are microscopic fungi, low forms of plant life, that live off organic matter rather than a photosynthetic process. Mold spores can be found almost anywhere; they can grow on virtually any substance, provided moisture is present. They are always present in outdoor and indoor air, and almost all organic building surfaces, including lumber, can provide nutrients to support growth.

Mold can grow equally well on inorganic materials such as concrete, glass or plastics that may have nutrients on the surface. Of the more than 100,000 species of mold, at least 1,000 varieties are common in the United States. Mold is most likely to grow in the presence of water or dampness, such as in bathrooms and basements.

In buildings, high humidity is the most common cause of mold growth. The moisture is sometimes a result of construction defects or maintenance problems such as leaking windows or roofs, failed sealant joints, inadequate or missing flashing, leaking pipes, cracks in the siding or poorly designed air-conditioning systems. Mold can grow on materials with high cellulose content such as paper facing on drywall, dropped-ceiling tiles and wood that becomes chronically moist or water-

damaged because of excessive humidity, water leaks, condensation or flooding.

In 2002, LSU AgCenter researchers conducted a nationwide study to understand and compare awareness, attitudes and concerns regarding mold among home builders, new-home homeowners and real estate agents. The samples included 1) the top 500 U.S. home builders based on sales, 2) a national random sample of 1,500 new home homeowners and 3) a national random sample of 1,000 real estate agents.

The 288 respondents indicated that home cost is the most important home building, purchase or sale criterion, followed closely by resale value and energy efficiency. Being free from mold was ranked next, followed by resistance to wood-destroying insects. Respondents did not show a strong understanding of how mold forms in new construction, although home builders had the highest level of understanding. They had a higher overall level of agreement that with proper construction methods, mold is preventable in new home construction.

Only 10 percent of homeowners believe that mold is an issue in their neighborhoods. However, 35 percent of home builders and 19 percent of real estate agents said this is an issue in the homes they build or sell. More than 60 percent of respondents in all groups generally agreed that mold can be prevented if the homeowners regularly inspect their houses and quickly repair any water leaks they discover.

Respondents had a number of concerns related to mold. First ranked is "health issues for homeowners" followed by "liability/chance of being sued" (builders and real estate agents only). Although homeowner health concerns ranked first, only 24 percent of homeowner respondents identified this as an issue. Conversely, more than two-thirds of home builders and real estate agents are concerned about this issue.

When asked whom they would most trust to provide mold safety and remediation, home builders had a significantly higher level of trust for the National Association of Home Builders, builders associations and individual builders, while real estate agents had a higher level of trust for real estate agent associations, and new home homeowners trusted the Environmental Protection Agency most.

The last question in the study asked respondents if they would like to receive more information on preventing mold. All respondent groups agreed they would like to receive such information.

Keeping in mind that responses are self-reported, on average, home builders appear to be most informed about mold issues while new home homeowners are least informed. Similarly, home builder respondents had the highest level of concern about mold and homeowners were least concerned.

An understanding of the mold issue from these points of view can aid private companies, public policy makers and extension professionals in developing and disseminating unbiased, useful information to these and other groups. Results indicate that overall, respondents do not have a strong understanding of how mold forms in new construction and desire information. Opinions and concerns from these groups can help wood products manufacturers and home builders understand this issue and develop educational programs and strategies to illuminate customers and the general public about facts and myths about mold. ■

---

*Richard P. Vlosky, Professor and Director, and Todd F. Shupe, Associate Professor, Louisiana Forest Products Development Center, School of Renewable Natural Resource, LSU AgCenter, Baton Rouge, La.*

# Agents Answer Flood of Mold Questions

Hurricanes Katrina and Rita and their aftermath created a flood of questions for LSU AgCenter agents about mold, particularly in New Orleans, where homes and buildings sat in water and intense heat for several weeks.

The response included putting together and distributing a 32-page booklet "Storm Recovery Guide for Homeowners" and a flyer "Cleaning Flood-damaged Homes."

Carolyn Leperi, an LSU AgCenter family and consumer sciences agent in St. Bernard Parish, said first she had to dispel fear of "black mold," the term commonly used to describe the toxic mold *Stachybotrys chartarum* or *Stachybotrys atra*. Leperi said while many homes had black-colored mold on the walls, little of the mold was actually of the toxic variety.

Mary Ritter of Kenner had what she called minimal damage to her home – one room with water damage and several trees knocked down in her yard. But mold was growing in her den. She got help from a group of church volunteers who had come to the New Orleans area from all across the United States.

Ritter had attended several AgCenter workshops – on mold, legal matters and stress – and took away a few storm recovery booklets produced by the AgCenter.

"Boxes of booklets are being scooped up," Ritter said. "I've had comments from friends on how helpful they were. I've had really excellent feedback because of the literature from the workshops."

Along with printed materials and workshops, the AgCenter also established a toll-free Disaster Recovery Hotline to help Louisiana citizens obtain information about recovering from the disasters and damages created by hurricanes Katrina and Rita. The phone line has since been closed.

The hotline provided callers with recorded answers to frequently asked questions concerning disaster recovery 24 hours a day. Call-

ers also had an option to speak with an LSU AgCenter agent during regular business hours.

"It's a wonderful way to get answers," Alexis Navarro, family and consumer sciences agent from Jefferson Parish, said of the telephone hotline. She said a majority of the calls were inquiries about handling mold.

One query was from a woman trying to salvage the marble tops from two tables, Leperi said. Leperi said she recommended an acid wash with lemon juice and then sealing the marble.

Clothing recommendations included washing with detergents and hanging dry because heat from a clothes dryer would set stains, Leperi said.

Leperi was able to help one caller salvage an heirloom christening gown.

And another caller inquired about saving a fur coat.

Navarro said callers also asked about mold on cookware, china and crystal. And the answer, she said, was that non-porous materials could be cleaned and disinfected to be used again. "Some things are cleanable and salvageable," she said.

For questions about mold remediation and specific products, the extension agents referred callers to pest control contractors. They said it's important for people to deal with companies that are reliable, bonded and insured. ■ **Rick Bogen**

*LSU AgCenter experts have written how-to publications and fact sheets on storm recovery. Some are available as PDF files, ready for printing, on the LSU AgCenter's Web site ([www.lsuagcenter.com](http://www.lsuagcenter.com)). Others can be ordered free online or through local parish extension offices, such as the 32-page "Storm Recovery Guide for Homeowners" and the one-page fact sheet, "Cleaning Flood-damaged Homes."*



Carolyn Leperi was one of the LSU AgCenter experts who answered the toll-free hotline operated for several months after the hurricanes to answer callers' questions about disaster recovery. The hotline has since been discontinued.

Photo by Mark Claesgens

# L 97-128

## Helps Sustain Louisiana's Sugarcane Industry

Kenneth Gravois, Keith Bischoff, Jeff Hoy, T. Eugene Reagan and Collins Kimbeng

Sugarcane continues to be one of the leading row crops contributing to the Louisiana economy. New varieties play an important role in sustaining Louisiana's sugar industry and are highly anticipated upon release. On May 5, 2004, the variety L 97-128 was released to Louisiana's sugarcane growers and processors by the LSU AgCenter in cooperation with the U.S. Department of Agriculture's Agricultural Research Service Sugarcane Research Unit at Houma and the American Sugar Cane League.

Every new variety starts at the photoperiod and crossing house facilities located at the St. Gabriel Research

Station. Here, parental clones are grown in preparation for crossing. The female parent of L 97-128 is LCP 81-10, and the male parent is LCP 85-384. The cross between these two parents was made in the fall of 1992, just weeks after Hurricane Andrew.

The sugarcane variety development program can be divided into two stages – selection and variety testing. The selection stage culminates when plants considered worthy to continue are assigned a permanent variety designation in year 5 of the program. For L 97-128, the “L” indicates that the cross and selection occurred at the St. Gabriel Research

Station. The “97” indicates the year the permanent number was assigned. The “128” is a number used to identify the newly assigned variety, and this number ranges between 1 and 499 for AgCenter sugarcane varieties.

The variety testing phase of the sugarcane breeding program includes on-station nurseries, off-station nurseries and in-field trials, and a final stage referred to as outfield variety trials. These trials measure sugar yield (pounds of sugar produced per acre of land), cane yield (tons of sugarcane produced per acre of land) and sugar content (the pounds of sugar produced per ton of sugarcane).

At the same time experimental clones are introduced to the final step of field testing, they are provided to the American Sugar Cane League for “seed” increase. In the case of sugarcane, the “seed” are actually whole plants. Stalks from a plant are cut and planted, and the buds along the stalks germinate and grow to produce new plants. This increase through cutting and planting of stalks, or seedcane, is a process known as vegetative propagation. The American Sugar Cane League provides seed to sugarcane growers. For L 97-128, seed was made available to growers in late summer of 2004.

So, what is the fit for L 97-128 for Louisiana's sugarcane growers? Each year a sugarcane variety census is taken to determine the distribution of sugarcane varieties grown in the state. In 2004, the sugarcane variety LCP 85-384, released to Louisiana's growers in 1993, was grown on 91 percent of the

Table 1. Summary of Outfield Variety Trials conducted across south Louisiana comparing L 97-128 with other commercial sugarcane varieties in 78 combine-harvested, replicated trials on light- and heavy-textured soils from 2001 to 2004.

| Variety                                          | Sugar Yield (lbs/acre) | Cane Yield (tons/acre) | Sugar Content (lbs/ton) | Stalk Weight (lbs) | Stalk Population (stalks/acre) |
|--------------------------------------------------|------------------------|------------------------|-------------------------|--------------------|--------------------------------|
| Plant-cane crop: 2001-2004 (34) <sup>1</sup>     |                        |                        |                         |                    |                                |
| LCP 85-384                                       | 7578                   | 28.7                   | 265                     | 2.08               | 28120                          |
| HoCP 85-845                                      | 7276                   | 28.9                   | 253 -                   | 2.34 +             | 25025 -                        |
| HoCP 91-555                                      | 7896                   | 29.2                   | 270                     | 2.15               | 27819                          |
| HoCP 96-540                                      | 8801 +                 | 32.7 +                 | 269                     | 2.63 +             | 25343 -                        |
| L 97-128                                         | 8612 +                 | 31.3 +                 | 275 +                   | 2.60 +             | 24272 -                        |
| First-stubble crop: 2002-2004 (25) <sup>1</sup>  |                        |                        |                         |                    |                                |
| LCP 85-384                                       | 7286                   | 26.7                   | 274                     | 1.73               | 31207                          |
| HoCP 85-845                                      | 7048                   | 26.8                   | 264 -                   | 1.97 +             | 27541 -                        |
| HoCP 91-555                                      | 7269                   | 26.0                   | 280 +                   | 1.81               | 29158 -                        |
| HoCP 96-540                                      | 7697                   | 28.5 +                 | 271                     | 2.14 +             | 26901 -                        |
| L 97-128                                         | 7649                   | 27.1                   | 284 +                   | 2.14 +             | 25324 -                        |
| Second-stubble crop: 2003-2004 (18) <sup>1</sup> |                        |                        |                         |                    |                                |
| LCP 85-384                                       | 6250                   | 22.9                   | 276                     | 1.51               | 30658                          |
| HoCP 85-845                                      | 6070                   | 23.7                   | 259 -                   | 1.79 +             | 26948 -                        |
| HoCP 91-555                                      | 6276                   | 22.7                   | 279                     | 1.59               | 28813                          |
| HoCP 96-540                                      | 6310                   | 23.7                   | 269                     | 1.82 +             | 26272 -                        |
| L 97-128                                         | 6931 +                 | 24.3                   | 288 +                   | 1.89 +             | 25989 -                        |

<sup>1</sup> Number in parentheses represents the total number of trials.

Varieties that are significantly higher or lower than LCP 85-384 are denoted by a plus (+) or minus (-), respectively.

*Kenneth Gravois, Professor, and Keith Bischoff, Associate Professor, St. Gabriel Research Station, St. Gabriel, La.; Jeff Hoy, Professor, Department of Plant Pathology & Crop Physiology; T. Eugene Reagan, Professor, Department of Entomology; and Collins Kimbeng, Assistant Professor, Department of Agronomy & Environmental Management, LSU AgCenter, Baton Rouge, La.*

state's sugarcane acreage. In 2005, this popular variety covered 89 percent of the sugarcane acreage. The dominance of a single variety such as LCP 85-384 is unprecedented.

One of the issues of concern with a monoculture – or growing a single variety in such large proportions – is that certain diseases may adapt to a variety over time. This is the likely case with sugarcane brown rust disease. When LCP 85-384 was first released, it was resistant to brown rust. Beginning in 2000, this disease began to infect LCP 85-384. The disease has become more severe in each successive year, and research has shown that yield losses because of rust disease can be as high as 20 percent.

What is the best defense against diseases adapting to sugarcane varieties? The release of new sugarcane varieties is the answer. The release of L 97-128 will give Louisiana's sugarcane growers another variety to choose from when making planting decisions. Diversifying the sugarcane varieties should help steer the industry away from dependence on

a single variety and its negative consequences.

When sugarcane growers first choose a new variety, yield is of utmost importance (Table 1). L 97-128 is characterized as having high sugar yields, with exceptionally high sugar content early in the growing season. Because sugarcane is a perennial crop (the ability to produce successive crops over multiple years), its yields in subsequent stubble, or ratoon, crops is important as well. With Louisiana's temperate climate, sugarcane varieties must overwinter, re-grow and produce high yields for three to five years. L 97-128 also produces high yields in stubble crops.

Another important feature of sugarcane varieties is harvesting characteristics. For maximum yield potential, a variety that stands erect and is not brittle maximizes harvesting efficiency. L 97-128 is an excellent-harvesting sugarcane variety.

Maximum yield potential can be jeopardized by harmful diseases and insects. L 97-128 is resistant to sugarcane mosaic virus and sorghum mosaic

virus. The new variety is moderately susceptible to smut, moderately resistant to brown rust and moderately resistant to leaf scald under natural field infection. The effect of yellow leaf syndrome on the yield of L 97-128 is unknown. Similar to all other varieties grown in Louisiana, L 97-128 may sustain significant yield loss in stubble crops from ratoon stunting disease. To realize the maximum yield potential of this variety, healthy seed cane free of this disease must be planted. L 97-128 is susceptible to the sugarcane borer and should be scouted to ensure timely insecticide applications. The new variety should not be planted where insecticides cannot be applied.

The road for L 97-128 began in 1992 and culminated in its release in 2004. Its impact should help sustain a sugar industry that had its meager beginnings in 1751 in New Orleans when Jesuit priests first planted sugarcane stalks in Louisiana's fertile alluvial soils. The release of L 97-128 was a team effort and should help sustain Louisiana's \$2 billion dollar sugar industry. ■

## Black raspberry may be a new cancer fighter

In their quest for finding new therapies for treating cancers, researchers in the LSU AgCenter and the LSU Health Sciences Center have found several natural compounds that can reduce tumor development by inhibiting angiogenesis.

The AgCenter's Zhijun Liu and colleagues in the LSU AgCenter and the LSU Health Sciences Center have recently added the extract of black raspberries to the list to study.

Long known for its antioxidant properties, black raspberries, not grown in Louisiana, were ordered frozen from Oregon to make an extract. Liu said an extract from black raspberries inhibited angiogenic initiation in a human-tissue model and reduced tumor growth by about half in preliminary laboratory animal studies. Angiogenesis is the process by which new blood vessels grow. All adult angiogenic processes are caused by disease with the exception of a few physiological processes like menses and placental formation.

Tumors cannot grow beyond the size of 0.08 inch without first inducing new blood vessel formation, Liu said. Inhibiting angiogenesis can thus prevent cancer from developing beyond the simple limits of diffusion for oxygen and nutrients.

"Inhibition of angiogenesis contributes to the inhibition of cancer. If you can inhibit angiogenesis, you can inhibit tumor growth. Therefore, the tumor will remain the same size because it can't grow new blood vessels or obtain nutrients through other new blood vessels," Liu said.

One of the apparent advantages of black raspberries is that the antioxidant compounds are available merely by eating the fruit. The scientists also know, however, that their hypothesis hasn't been proved in clinical studies, probably because of enormous variations in the concentration of active compounds in the berries.

Liu said to produce a consistent biomedical effect, the berry compounds must be standardized before they can be effective in a person's diet. Liu and his laboratory team used a chemical process to develop a standardized black raspberry extract that retains all the angiogenic inhibitors – likely three – in a concentrate that's less than 7 percent of the volume of the initial extract.

"In its concentrated form, the extract completely inhibited angiogenic initiation and angiogenic growth at the same dose," Liu said of the laboratory experiments.

The investigators took the product to the next step to discover whether blocking new blood vessel growth works in live tumors and if oral delivery of the extract is effective. Using rats implanted with human pancreatic tumors, the scientists divided them into two groups – one receiving black raspberry extract and the other not. Liu said black raspberry extract orally administered to tumor-bearing rats was effective in retarding tumor growth.

"The fact that oral administration was effective supports black raspberry extract's use as a dietary supplement in the prevention and treatment of cancer," Liu said.

Liu is encouraged that the research team has proof of concept. The next stage, he said, is to identify the specific compound or combination of compounds that produce the effect.

"We need to reach a therapeutic, effective dose if we can concentrate the compound enough," Liu said.

Knowing that blackberry works could lead to repeating the study to confirm the bioassay and protocol through animal models. A patent for raspberry extract as a cancer treatment is pending.

■ Rick Bogren

# Fungicide timing critical for maximum return

Donald E. Groth and Rick Cartwright

Rice diseases pose a major threat to rice production. The two major diseases, sheath blight and blast, cause significant yield and quality reductions that cost farmers millions of dollars each year. Grain smuts have also become significant problems in rice production, causing significant quality reductions. Planting rice varieties with disease resistance is the best control method, but resistant rice often is not available or the resistance breaks down over time after a variety is released.

Most long-grain varieties are susceptible to sheath blight, and several major varieties are also susceptible to blast. How a crop is managed in the field can reduce disease development, but reducing inputs can limit yield, too. As a result, rice farmers often rely on fungicides to control diseases. Fungicide timing is critical for maximum return.

Deciding to use a fungicide and when to apply it are the two most critical decisions a producer must make. The correct decision will make money, and the wrong one will lose money. Each disease has its own cycle, and control practices are effective only at certain stages when the pathogen is susceptible to the chemical control and before irrevocable damage occurs in the crop. Typical sheath blight fungicide timing is at the boot growth stage; however, several fungicides also control blast when applied at heading. Consequently, a general trend has been to apply rice fungicides later in the season to control both blast and sheath blight with a single application. Several fungicides most effective against smuts cannot be applied after heading, making them ineffective against blast.

## Timing and rate trials

Fungicide timing and rate trials have been conducted at the LSU AgCenter's Rice Research Station, the University of Arkansas Rice Research Station and in grower fields in both states for a number of years. Typically, fungicides are applied to small plots using pressurized sprayers, although several aerial trials have been conducted. Fungicides were applied at either 7 days after panicle differentiation (panicle 0.125 inches in length), 2-inch boot (2-inch panicle in the sheath), 50 percent heading (at least half of the heads emerging from the sheath), or 5, 10 or 15 days after heading. Varieties selected were susceptible either to sheath blight, blast or smut and were managed to encourage disease (inoculated, fertilized with high nitrogen rates, planted late and/or located where disease pressure is high).

Timing is an important consideration in fungicide control in sheath blight, blast and smut. The booting stage appears to be the best time for smut control (Figure 1). Earlier applications may require high rates to be effective, and applications after heading can be ineffective as well as illegal because restrictions on the labels of some fungicides prevent applications after the heads emerge.

Sheath blight control in these tests during drier years has

Photo by Donald E. Groth



Sheath blight fungus survival structures (sclerotia) on symptomatic leaf.

been best at the 7 days after panicle differentiation. But often higher fungicide rates are necessary for season-long control (Figure 1). Applications at the boot growth stage have been the best timing for sheath blight control. Applications at heading have been effective; however, sheath blight can spread up the plant readily and cause more damage by this growth stage. Blast control has been best when fungicides were applied at heading (Figure 3). Applications after heading lost effectiveness on both sheath blight and blast (Figures 2 and 3).

## Time for the worst

Fungicide timing must be based on the most damaging disease present in a field. This is determined by knowing the varietal susceptibility, field disease history, what is occurring in the area and, most importantly, by scouting for disease in the field multiple times during the growing season.

■ If sheath blight and smuts are both significant in a field, a boot application would be best. Earlier applications, with higher rates, would be advisable only if sheath blight had started early in the season and was causing significant damage before the boot growth stage.

■ If blast and sheath blight are both present, applying a fungicide with both sheath blight and blast activity at heading

---

Donald E. Groth, Professor, Rice Research Station, Crowley, La., and Rick Cartwright, Extension Plant Pathologist, University of Arkansas Cooperative Extension Service, Little Rock, Ark.

would be best because blast can be more damaging than sheath blight and applications at heading were effective on sheath blight.

■ If blast and kernel smut are both significant in fields, a fungicide application at heading would be advisable because blast is more destructive, and applications at heading are somewhat effective for kernel smut.

■ If kernel smut has been a major problem in a field, applying the smut fungicide at boot stage and the blast fungicide at heading may be advisable but much more costly because two fungicide applications costing \$15 to \$30 each would have to be used.

Split applications for sheath blight and blast at boot and heading are also more effective, but economic constraints of rice production limit this practice. Most important, fungicides must be applied at or before 50 percent to 70 percent heading to maximize disease control and yields. ■

Photos by Donald E. Groth



Early sheath blight damage on rice.



Typical sheath blight symptoms on rice leaf.

Figure 1. Effect of 4 fl oz Tilt/A on False Smut Control

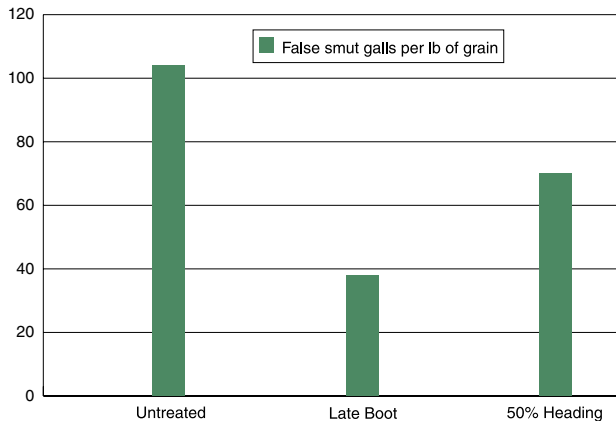


Figure 2. Effect of 9 fl oz Quadris/A on Sheath Blight Control

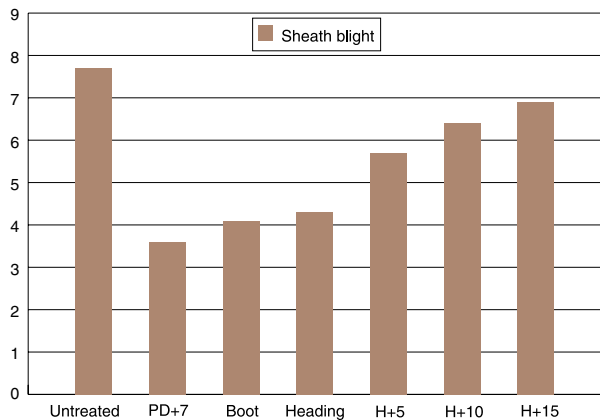
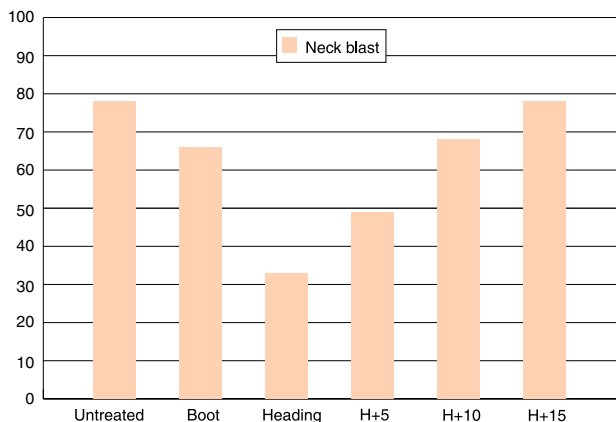


Figure 3. Effect of 9 fl oz Quadris/A on Neck Blast Control



# Doyle Chambers

(Continued from page 2)

1964, he became director of the Louisiana Agricultural Experiment Station.

"He was able to blend his background with his strong, firm leadership style into the development of an agricultural research program in Louisiana that was envied by other states and administrators of agricultural experiment stations," said H. Rouse Caffey, chancellor emeritus of the LSU AgCenter who also had worked for Chambers earlier in his career.

Chambers many times was quoted as saying that if it were not for the Louisiana Agricultural Experiment Station, there would be no agriculture in Louisiana.

Here are some other gems of wisdom from Chambers that keep his memory alive:

- On administering: The boss should never get mad.
- On dealing with politicians: You can listen to their ideas but never let them tell you what to do. They'll hound you forever.
- On leadership: What you do and what you say should be the same. ■ **Linda Foster Benedict**

# Grasp

## A new herbicide for managing weeds in rice

Bill Williams

**G**rasp (penoxsulam) is a triazolo-pyrimidine sulfonamide herbicide developed by Dow AgroSciences for use in drill- and water-seeded rice. Grasp has excellent foliar activity and some residual control of selected weeds and can be applied at 2.0 to 2.8 ounces per acre from one-leaf rice until 60 days before harvest. The 2005 launch of Grasp by Dow AgroSciences was on limited basis, and label changes are expected for the 2006 season. As always, the LSU AgCenter strongly suggests that a current label be consulted before using any herbicide, including Grasp.

LSU AgCenter weed scientists began working with Grasp in 2003, but it wasn't until 2004 that in-depth research could be conducted due to limited product availability. The primary goal of this research was to determine what role, if any, Grasp could play in managing weeds in Louisiana rice crops.

In research conducted at the Northeast Research Station, Grasp demonstrated excellent activity on barnyardgrass,

hemp sesbania, rice flatsedge, duckweed, dayflower and purple ammannia in both drill- and water-seeded rice. In off-station tests, Grasp has failed to control smallflower umbrella sedge, indicating that it may not be effective against all annual sedges.

In drill-seeded rice, 2.0 ounces per acre of Grasp controlled small weeds when applied to two- to three-leaf rice, but at least 2.3 ounces per acre were needed at the four- to five-leaf stage for consistent control of larger weeds. In 2005, 2.5 ounces per acre of Grasp controlled both barnyardgrass and sesbania post flood.

In water-seeded rice, Grasp controlled barnyardgrass best when applied from "pegging," when a tiny root emerges from the seed, through two- to three-leaf rice. Sesbania control was best when Grasp (at 2.3 ounces per acre) was applied at the two- to three-leaf stage. The best control of purple ammannia and duckweed was observed from treatments at pegging.

Grasp at 2 ounces per acre plus 1.3 pints per acre of Command applied to one- to three-leaf rice has provided excellent control of barnyardgrass, Amazon sprangletop, hemp sesbania and rice flatsedge. In some studies, additional applications were needed to control sesbania coming up after the application. Grasp plus Command must be applied and activated before sprangletop emerges.

Clincher-plus-Grasp combinations control barnyardgrass, sprangletop, flatsedge and sesbania. Overall, weed control was best when Grasp plus Clincher was applied at the two- to three-leaf stage. Tank mixing Clincher with Grasp reduced post-flood sprangletop control in 2005 compared to Clincher alone.

Newpath plus Grasp combinations in Clearfield rice were also promising.

*Bill Williams, Associate Professor, Northeast Research Station, LSU AgCenter, St. Joseph, La.*

Effectiveness of Grasp at controlling certain weeds at selected rates and timings

| Weed                         | Rate            | Timing                             | Control <sup>1</sup> | Comments                                                                                                                                                                                        |
|------------------------------|-----------------|------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Barnyardgrass <sup>2</sup>   | 2<br>2.3<br>2.6 | 1-3 leaf<br>4-5 leaf<br>post flood | 8<br>9<br>8          | Most effective before barnyardgrass reaches the 4-leaf stage. Grasp does not control any other annual grasses.                                                                                  |
| Rice flatsedge <sup>2</sup>  |                 |                                    | 9                    | May not be effective on all annual sedges. Does not control smallflower umbrella sedge.                                                                                                         |
| Duckweed <sup>2</sup>        |                 |                                    | 8                    | Most effective in water-seeded rice at pegging.                                                                                                                                                 |
| Purple ammannia <sup>2</sup> |                 |                                    | 8                    | Most effective in water-seeded rice at pegging.                                                                                                                                                 |
| Hemp sesbania <sup>2</sup>   |                 |                                    | 9                    | Most effective in pre-flood in drill-seeded rice. Most effective at the 2- to 3-leaf stage in water-seeded rice                                                                                 |
| Dayflower <sup>2</sup>       |                 |                                    | 7                    | Most effective before the 2-leaf stage.                                                                                                                                                         |
| Red rice                     | na              | na                                 | 3                    | May antagonize red rice control from Newpath when the second application is to tillering red rice. Additional research is required to confirm results.                                          |
| Amazon sprangletop           | na              | na                                 | 3                    | May antagonize Clincher. Additional research is required to confirm results.                                                                                                                    |
| Alligatorweed                | 2.5             | 8- to 10- inch                     | 9                    | On established stands, expect regrowth after 3 to 4 weeks.                                                                                                                                      |
| Texasweed                    | 2.3             | 2- to 3-leaf                       | 6                    | Grasp will not control Texasweed with more than 2 leaves. Grasp plus Londax or Newpath (in Clearfield rice) has been very effective. Additional research is needed to refine rates and timings. |

<sup>1</sup>Control is based on a scale of 1-10, with 10 being the highest level of control.

<sup>2</sup>The rate and timing for these six weeds are 2 oz at 1-3 leaf, 2.3 oz at 4-5 leaf and 2.6 oz at post flood.

This table should not be construed to be recommendations but rather is presented as a summary of research at this time. More information is available at [www.lsuagcenter.com](http://www.lsuagcenter.com). As always, the final authority for pesticide use is the label.

Texasweed control is improved, and sesbania is controlled when Newpath is tank mixed with Grasp. In 2004, a slight reduction in red rice control was observed when Grasp was tank mixed with the last Newpath application. A reduction in red rice control was not observed in 2005.

Grasp-plus-Londax combinations also were effective at managing Texasweed in conventional rice in 2005. Grasp alone does not control Texasweed.

Alligatorweed is becoming more challenging throughout Louisiana. Grasp at 2.3 ounces per acre controls alligatorweed as well as 11 ounces per acre of Grandstand for about four weeks but is less effective after that. The best alligatorweed control – 90 percent four weeks after treatment and 85 percent six weeks after treatment – was observed from 2.9 ounces of Grasp per acre or 1 pint of Grandstand per acre. Grasp plus Grandstand at lower rates has not been effective at controlling alligatorweed. It is expected that Grasp will be an effective tool for controlling new alligatorweed infestations. However, in fields where alligatorweed has been allowed to establish an extensive root system, Grasp will only provide suppression.

Overall, Grasp compares very well to standard herbicides and has the potential to control some important broadleaf weed problems in rice. At this time Grasp appears to be promising in Clearfield rice, drill-seeded rice and water-seeded rice. At the Northeast Research Station, Grasp has consistently controlled barnyardgrass, hemp sesbania, rice flatsedge, duckweed and purple ammannia. Grasp also has demonstrated excellent activity on alligatorweed, but it has limited translocation, and regrowth is expected. When tank-mixed with Londax and Newpath (in Clearfield rice), Grasp has demonstrated excellent activity on Texasweed.

A number of questions concerning Grasp need further evaluation. First, a better understanding of rice tolerance at rates higher than 2 ounces per acre when applied at the one- to three-leaf stages is needed. Second, the potential of antagonism issues with Clincher (sprangletop) and Newpath (red rice) needs further evaluation. Additional work with Texasweed and alligatorweed is also needed to confirm 2005 results.

As with any new herbicide, additional research and experiences will continue to refine recommendations for using Grasp. Current AgCenter suggestions for using Grasp in Louisiana can be found at [www.lsuagcenter.com](http://www.lsuagcenter.com). ■

# NEW OPTIONS for Managing Weeds in Clearfield Rice

Bill Williams

The development of Clearfield rice, which is tolerant to imidazolinone herbicides, is the most important advance in rice weed management in recent years. This technology allows rice producers to use certain imidazolinone herbicides to selectively control red rice in some commercial rice fields. The introduction of new

herbicides for use on Clearfield rice or in rotation with Clearfield rice is needed to secure the long-term future of Clearfield technology.

Newpath (imazethapyr) was the first imidazolinone herbicide registered for use on Clearfield rice. While effective on most annual grasses, including red rice, Newpath has several limitations. Newpath does not control several broadleaf weeds, most notably hemp sesbania and jointvetch. Growers can only apply Newpath twice in one growing season, so it cannot be used to control weeds escaping initial control measures. Newpath is most

---

*Bill Williams, Associate Professor, Northeast Research Station, St. Joseph, La.*

Photo by Bill Williams



Beyond herbicide was not used on this control plot, which is infested with red rice. All the panicles are red rice. The commercial rice is not headed out yet.

effective on grasses that have not tillered. Higher Newpath rates and additional applications do not consistently control large grasses. Several herbicides used for weed control in conventional rice can be used in Clearfield to improve control of annual grasses and, if needed, to serve as rescue treatments. However, these conventional herbicides do not control red rice.

The gene conferring tolerance to imidazolinone herbicides can be transferred from Clearfield rice to red rice. Consequently, it is critical that any red rice escapes be controlled. Unfortunately, there are often too many red rice escapes to be removed manually. Additional herbicides with red rice activity are needed to control red rice escapes. Most red rice escapes are not detected until late in the season. As a result, an ideal herbicide would possess excellent postemergence activity with limited or no residual activity. Residual control is of little benefit in flooded fields and could potentially limit future crop rotation.

Since the introduction of Clearfield rice, Clearpath (imazethapyr plus quinclorac) and Beyond (imazamox) have been added to the arsenal of products used to control weeds specifically in Clearfield rice. Of these two, Beyond is the only product that represents new chemistry capable of controlling red rice.

### **Clearpath contains Newpath, Facet**

Clearpath is a commercial package mix from BASF containing Newpath and Facet. Research has not indicated any synergistic results by mixing Newpath with Facet, which means both herbicides control the weeds they normally would. Clearpath may be more economical than purchasing Newpath and Facet separately. Facet improves postemergence and residual activity on barnyardgrass and signalgrass. More importantly, Facet controls sesbania and jointvetches and improves eclipta control.

Growers buying Clearfield rice are required to make two Newpath applications when using Clearfield rice. The first application should be made to soil before rice emergence or at the 1-2 leaf stage, which is preferable. The second Newpath application needs to be applied before permanent flood is established and before grasses reach the 4-5 leaf stage (usually 10 to 14 days after the first application). Clearpath can be substituted for Newpath in either application. The best sesbania control is usually observed when Clearpath is used in the second



A concentration of 5 ounces of Beyond per acre was applied at panicle initiation. Note the absence of red rice.

application. However, if sesbania is taller than 2 inches, then Newpath tank mixes with other herbicides may be more effective.

### **Beyond controls red rice escapes**

Beyond (imazamox) is the second imidazolinone herbicide to be registered for use on Clearfield rice. Beyond appears to have excellent postemergence activity on red rice, barnyardgrass and Amazon sprangletop and is more effective at controlling larger grasses than Newpath. There has been some interest from growers and consultants in replacing one of the Newpath applications with Beyond. At this time, Beyond can only be applied following two applications of Newpath. While the excellent postemergence activity makes earlier Beyond applications attractive, it must be remembered that reducing the potential for outcrossing by removing red rice escapes is the primary purpose of Beyond. If Beyond were used in place of Newpath, there would be no effective program for controlling red rice escapes.

The label states that Beyond can be applied after the second Newpath application through 14 days past panicle initiation. Research suggests that timing is critical. If applied too early, coverage is an issue so applications need to be

made after red rice is at least as tall as commercial rice. Even though applications can be made up to 14 days after panicle initiation in commercial rice, it is important that the application is made before the early boot stage of red rice. Beyond also controls Amazon sprangletop and barnyardgrass when applications are made before early boot stages. Research suggests that as with Newpath, increasing Beyond's rate doesn't ensure adequate control when applications are made after the optimum timing.

Until the introduction of Beyond, there was no effective way to manage red rice escapes. It is critical that every attempt be made to eliminate red rice from Clearfield rice to delay the development of red rice resistant to imidazolinone herbicides.

The best strategy for managing weeds in Clearfield rice is to make two timely Newpath applications followed by good water management. Under moderate to light red rice infestations, two timely Newpath applications followed by good water management will likely be all that is needed for red rice control. When annual grasses and red rice have escaped initial control attempts, Beyond can be used to remove these weeds from the field. ■

# Herbicide Evaluations for Use in Sweet Potatoes

Steven T. Kelly, Donnie K. Miller and Mark W. Shankle

**B**efore Command herbicide was labeled for sweet potato production, Louisiana sweet potato growers faced numerous weeds such as annual grasses, cocklebur, morningglory and prickly sida. Although Command seemed to solve many of the sweet potato weed control issues at that time, continuous reliance on this herbicide has led to a shift in the weed spectrum in sweet potato fields.

In the last few years, pigweeds and sedges have emerged as the primary weedy pests in sweet potato production in Louisiana and Mississippi. Also, smellmelon, groundcherry and copperleaf are rapidly gaining a foothold. Since Command provides little to no control of these troublesome weeds, they have essentially gone uncontrolled, contributing to yield loss from competition and perhaps harboring yield-reducing insects.

Research to evaluate potential herbicides for use in sweet potato production began in 2001 at the LSU AgCenter's Sweet Potato Research Station at Chase and Mississippi's Pontotoc Ridge-Flatwoods Branch Experiment Station near Pontotoc, Miss. The herbicides evaluated included Spartan, Valor and Sandea.

Spartan is labeled in Louisiana for broadleaf and sedge control in sugarcane while Valor is labeled in soybeans and cotton for broadleaf weed control and has been demonstrated to provide excellent pigweed, smellmelon and cop-

perleaf control in those crops. Sandea is currently labeled for control of annual and perennial sedges in several vegetable crops including tomato and cucurbits such as watermelons grown in Louisiana and Mississippi. In addition, this herbicide may control several broadleaf weeds if applied when the weeds are less than four inches tall.

Although the weed control spectrum of these herbicides is well-documented,

**Although applying Valor or Spartan before planting sweet potatoes represents an additional trip across the field to apply the herbicide, it is worth it.**

the issues surrounding application timing to sweet potato are virtually unknown.

Spartan and Valor are distinctive herbicides that can be applied to both the soil surface and weed foliage (if a surfactant is included). Spartan also can be incorporated into the soil before planting. All three application methods have been investigated at both locations. When herbicides were applied to the sweet potato cuttings after planting, excessive foliar injury and some stand loss were observed with both herbicides. However, when they were applied to the soil surface before planting the sweet potato cuttings, excellent sweet potato tolerance was observed.

Valor's manufacturer supported further investigations, and an emergency-use label was issued in 2002 and 2003 for Louisiana and Mississippi for pigweed control. A full federal label was issued in the fall of 2004, and Valor can now be used in numerous sweet potato-producing states.

The response of sweet potatoes to Spartan, which is labeled for white potatoes but not for sweet potato, has been inconsistent. While we have observed excellent tolerance when it is applied to the soil surface before planting, if it is incorporated into the soil, it tends to reduce yield during wet years, which is a cause for concern.

In 2004, the yields from plots with incorporated treatments were reduced nearly 50 percent compared to surface-applied treatments. Although there were no differences in weed control among application timings, a reduction in yield of this magnitude during wet periods, coupled with unpredictable rainfall patterns, would warrant not using Spartan in this manner.

Soil carryover to other crops is also a concern. With many producers now rotating crops, a herbicide with a short life span is essential. Although soybeans can be planted at any time following a Spartan application, the rotation restriction is 18 months for cotton and 10 months for corn, grain sorghum and rice.

Sandea, which is not labeled for sweet potatoes, is best known for sedge control. Since sweet potatoes are planted to freshly prepared beds with few if any weeds present, this herbicide is an obvious choice for applications several weeks into the sweet potato growing season. Since its effects on sweet potato production were not known, Sandea was applied to different plots in seven-day intervals from 14 days to 49 days after sweet potato transplanting. Control of sedges and pigweeds was greatest when applied from 14 to 42 days after transplanting. When Sandea was applied later, the weeds were too large for effective control and had competed with the sweet potato much longer than desirable.

However, sweet potato yield was affected much differently. A yield reduction was observed when Sandea

---

*Steven T. Kelly, Associate Professor, T.H. Scott Extension, Education and Research Center, Winnsboro, La.; Donnie K. Miller, Associate Professor, Northeast Research Station, St. Joseph, La.; and Mark W. Shankle, Associate Research Professor, Pontotoc Ridge-Flatwoods Branch Experiment Station, Mississippi State University, Pontotoc, Miss.*

was applied at 14, 21 and 49 days after transplanting. The earlier applications resulted in reduced growth during the sweet potato's critical establishment period, while the later application was during the root growth phase. Application at 28, 35 or 42 days after transplanting ensures that the herbicide is applied to smaller weeds but not to sweet potatoes during critical development stages.

Applying a herbicide to the soil surface before planting sweet potatoes does present some challenges. Sweet potatoes are unique in that a cutting is planted using a mechanical transplanter that disturbs the soil and, consequently, the herbicide barrier. Oftentimes, with a timely rainfall soon after transplanting, the herbicide barrier seems to be

unaffected. But when the herbicide is not activated by rain in a timely manner, some weeds will escape in areas where the soil had been disturbed. Some producers have reduced this problem by using a roller that firms the row ahead of the transplanter, eliminating a large amount of soil disturbance and improving weed control.

These findings represent a step forward in sweet potato weed control in Louisiana and Mississippi. Although applying Valor or Spartan before planting sweet potatoes represents an additional trip across the field to apply the herbicide, it is worth it. The benefits from increased yields by controlling broadleaf weeds more than outweigh the expense. ■

*Herbicides sold in the United States must be registered with the federal government and are reviewed and regulated by the U.S. Environmental Protection Agency. The printed and instructional material sold with a registered herbicide is known as the "label" and constitutes a legal document. The label provides information on how the material may be used on specific crops. Failure to use a herbicide in accord with label restrictions can lead to severe penalties. Researchers are allowed to use nonlabeled herbicides in studies to evaluate effectiveness on crops, and manufacturers may use this information to apply for a federal label to use a herbicide on additional crops.*

## Roberts Named 'Mr. Yam'

Gerald Roberts, an LSU AgCenter and Southern University county agent in St. Landry Parish, said being chosen as the 2005 "Mr. Yam" punctuates his 29-year career of service to Louisiana sweet potato growers.

"It's good to know I make a contribution," he said.

Mr. Yam is the honorary title given each year to someone deemed valuable to the sweet potato industry by the directors of the Opelousas, La., Yambilee Festival. Mr. Yam serves as grand marshal for the Yambilee parade and presides over the Yambilee pageant and ball.

"We pick someone who has done a lot for the sweet potato industry," said Sheryl Badeaux, executive secretary of Yambilee Inc., which hosts the festival during the last full week of October. "Gerald fit the bill perfectly."

Roberts said he was pleased and humbled.

"You realize where you started from, and you realize where you are. I realized the responsibility that's also associated with it," he said.

Roberts, who grew up on a small farm in St. Landry Parish, went to Southern University to study vocational agriculture education and later earned a master's degree in extension education from LSU.

Roberts started his career with Southern University and the LSU AgCenter in 1976 with an extension appointment in Evangeline Parish that had him working with small farmers.

"I went to work to help people from day one," he said. "I get up everyday because I want to make a difference. We are in the business to help people."

In 1985, he was assigned to help with horticulture education in addition to helping sweet potato farmers. He also serves as chair for the St. Landry Parish extension office.

Roughly 35,000 to 40,000 acres of sweet potatoes were grown in St. Landry Parish in the 1940s and 1950s, but now the number has dwindled to 1,500 acres in St. Landry, Evangeline and Acadia parishes.

The decline is a reflection of what is happening to agriculture in general.



Photo by Bruce Schultz

Gerald Roberts, extension agent in St. Landry Parish who works with sweet potato growers, was humbled to be selected as Mr. Yam 2005 by the directors of the Opelousas, La., Yambilee Festival, an annual event.

"Farmers are facing increased costs of production, erratic prices at harvest, larger and more specialized farms, unpredictable weather and, in some cases, trying to adjust to the demands of the consumer. As a result, profit margins continue to shrink, and farmers are being forced out of business," Roberts said.

For example, nowadays a producer has to have a packing plant and storage facility with a humidifier, refrigeration unit and heater to keep products on hand to sell at the right time. With those expensive facilities, a grower can harvest a crop in the fall and sell sweet potatoes all the way through Easter, he said.

Other LSU AgCenter people who have been named Mr. Yam include Abner Hammond, an entomologist who conducts research on insect problems of the sweet potato, and Jack Bagent, former vice chancellor for extension, now retired, and also an entomologist. ■ **Bruce Schultz**

# Credit Card Use by College Students

Frances C. Lawrence, Jennifer J. Burczyk-Brown, Rebecca C. Christofferson, Sheri R. Fair, E. Barry Moser and Jeanette A. Tucker

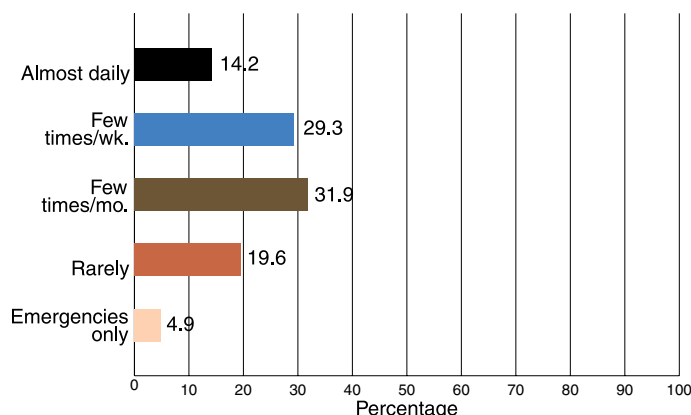
In recent years, credit card use has grown dramatically among college students. This increase in the number of students holding credit cards and incurring credit card debt has generated concern that these students are overextended and unaware of the long-term consequences associated with severe indebtedness. When other debt, such as educational loans, is added to this, the concern becomes even greater.

If used responsibly, credit cards can provide a number of advantages to college students. A credit card can be a convenient means of payment, a useful tool for learning financial responsibility, a resource in case of emergencies, a means to establishing a good credit history and a way to gain greater access to credit in the future. If credit cards are mismanaged or misused, however, the disadvantages can result in severe financial consequences. Credit cards may tempt students to live beyond their means. Furthermore, excessive debt and late payments can damage students' credit ratings and make it more difficult for them to obtain credit down the road. In addition, students who are financially inexperienced may not understand the cumulative effect interest rates can have on the amount of debt they owe. Inadequate personal financial management skills are likely to place some students at greater financial risk for having large – and perhaps unmanageable – debt burdens when they graduate.

How are Louisiana State University undergraduates using credit cards? Are they managing credit card debt wisely? What can campus and community organizations do to offer the appropriate kinds of help to enable students to be financially literate? This article provides a detailed description of credit card use and financial practices of students at LSU. It also identifies resources and services universities and other organizations can offer to help students better manage their credit card debt and other finances.

An online survey including 41 questions was designed to investigate the prevalence and use of credit cards among LSU students. It was distributed through campus email accounts to 2,400 undergraduate students. Because of the sensitive nature of some of the survey questions, extra precautions were taken

Figure 1. Frequency of credit card use.



to make sure that none of the personal information would be connected with student names or email addresses. After a total of three emails requesting students' assistance in completing the survey, 595 students responded for a 25 percent response rate.

Most of the students (70.9 percent) had at least one credit card. Slightly more than half (51.4 percent) acquired the card before college, and the likelihood that students had at least one credit card increased with each additional year in school (48.5 percent of freshmen who responded reported that they had at least one credit card; 86.1 percent of seniors had at least one). About three-fourths of the students used cards on a fairly regular basis (daily, weekly or monthly). Only a fifth rarely used their cards (see Figure 1). The most frequent expenses for which LSU students paid with their credit cards included clothes, automotive-related expenses (gas/repairs/maintenance), food and educational expenses (see Figure 2).

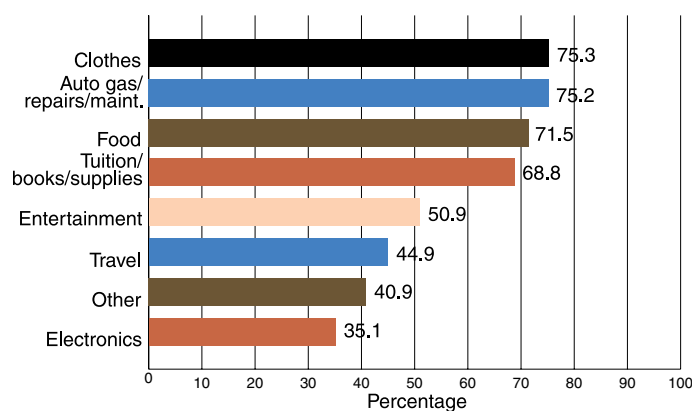
A large number of LSU students appear to use credit cards responsibly. About half of students (49 percent) reported paying their bill in full each month. Almost half of the LSU students with credit cards (48 percent) reported credit card bal-

Frances C. Lawrence, Alumni Professor, and Jennifer J. Burczyk-Brown, Former Research Associate, School of Human Ecology, LSU AgCenter, Baton Rouge, La.; Rebecca C. Christofferson, former graduate student, Department of Experimental Statistics, LSU AgCenter, Baton Rouge, La.; Sheri R. Fair, Extension Agent, LSU AgCenter, Gonzales, La.; E. Barry Moser, Professor, Department of Experimental Statistics, LSU AgCenter, Baton Rouge, La.; Jeanette A. Tucker, Associate Professor, School of Human Ecology, LSU AgCenter, Baton Rouge, La.

Table 1. Responses to Consumer Credit Counseling Services Checklist.

| Questions:                                                                                | Yes   |
|-------------------------------------------------------------------------------------------|-------|
| 1. I can only make the minimum payment on my credit cards each month.                     | 11.1% |
| 2. I am out of money several days before pay day.                                         | 14.8% |
| 3. I am not regularly saving a part of my paycheck.                                       | 73.8% |
| 4. If I lost my job, I could not live off of my savings for at least two months.          | 67.3% |
| 5. In the past three months, I have been late paying one or more of my bills.             | 20.0% |
| 6. In the past six months, my bank has had to charge me for an overdraft or NSF.          | 23.2% |
| 7. I am having to use credit cards for things that I should be able to pay for with cash. | 29.6% |
| 8. I am at my limit on at least one credit card.                                          | 14.0% |
| 9. I have borrowed money to consolidate my debts, but it didn't help.                     | 0.8%  |

Figure 2. Purchases using credit cards.



ances less than \$100. Most students (80.4 percent) reported that they were not “maxed out” on any of their credit cards.

However, some LSU students appear to be financially at risk for accumulating large amounts of debt and paying high amounts of interest. Particular concerns include:

- 51 percent of the students reported not paying their credit card balances in full, and 14 percent indicated they paid only the minimum.
- 30 percent had to use credit cards for things that they believed they should have been able to pay for with cash.
- 23 percent had more than \$1,000 in credit card debt.
- 20 percent had one or more cards “maxed out.”

Included in the online survey were questions from the checklist used by the Consumer Credit Counseling Services (CCCS; see Table 1), which recommends that if an individual answers “yes” to three or more of the questions, he or she should “call Consumer Credit Counseling Service today!” A

high percentage of those students having credit cards answered “yes” to three or more questions (30.4 percent with credit cards; 10.7 percent without credit cards). It should be noted, however, that three of the nine questions are only applicable to respondents who have credit cards.

While many students are managing their credit well, others appear to be at risk for financial hardship. Based on this research and findings from other studies, we identified the resources and services that can be offered to college students to help them better manage their finances and use credit responsibly. These recommendations are in no particular order of priority.

- Include a Web link on the university’s homepage to enable students to go to sites addressing the wise use of credit and the costs of unwise use.
- Offer an online course or program related to financial literacy.
- Require credit card vendors who come to campus to hand out materials on responsible credit card use along with credit card applications.
- Provide financial education instruction as part of freshman orientation for incoming students and their parents.
- Offer seminars/workshops on the subjects of money management and credit use to small groups of students during the year. Credit card-issuing institutions should be approached for funding support of these and other programs.
- Offer financial counseling services.

To address these issues, LSU AgCenter family resource management educators conduct financial education programs for college students during freshman orientation and student conferences and in collaboration with on-campus student organizations. Several Louisiana universities offer undergraduate courses addressing personal and family finances. ■

Photo by Mark Claesgens



LSU students walk between classes.

# Effects of Pasture Stocking Rate and Method on Cow-Calf Production

Wayne E. Wyatt, Jeffrey M. Gillespie, Brad C. Venuto and David C. Blouin

Most Louisiana beef producers use the cow-calf system of management in which they maintain breeding herds and produce calves marketed at weaning or shortly thereafter. The systems are forage-based, so pasture management is extremely important. To determine the effectiveness of short-duration, rotational grazing systems, a three-year study (Phase 1 of a six-year project), designed to evaluate pasture stocking methods and rates, was initiated in the spring of 1999 at the Iberia Research Station near Jeanerette.

Sets of four 16-acre and four 10-acre pasture groups were used. Within each set of four pastures, the cows were either grazed continuously on the same pasture at low (.5 cow per acre), medium (.8 cow per acre) or high (1.1 cows per acre) stocking rates or they were rotated among eight paddocks at the high stocking rate. This design helps determine the effects of stocking rate in continuously stocked pastures and to compare continuous and rotational stocked pastures, when both are stocked at a high rate.

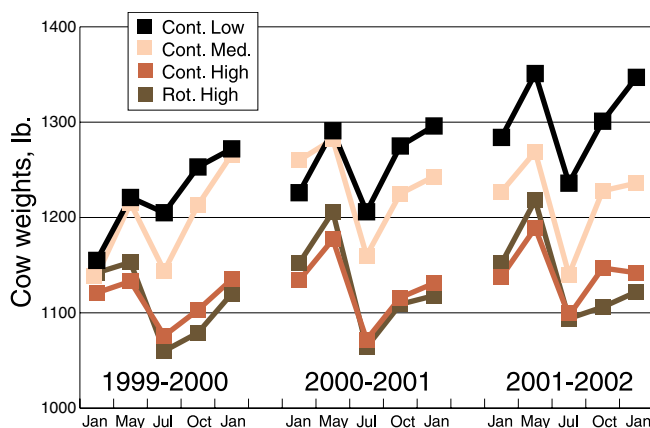
Warm season grass pastures were seeded with annual ryegrass (40 pounds/acre) in the fall of 1998, 1999 and 2000. Pastures annually received 155 pounds/acre of nitrogen in three applications. Potassium and phosphorus soil amendments were applied (each 60 pounds/acre) in June of each year. Pastures were not clipped or hayed during the three-year period. One-eighth of each pasture was fenced to provide a confined drylot area for feeding hay and a protein supplement during periods in which forage availability was insufficient.

Mature, spring-calving, straightbred, Brangus cows (either pregnant or with calf at side) were stocked onto treatment pastures in February 1999. Cows were weighed and scored for body condition in January (pre-calving), April (pre-breeding), July (post-breeding) and October (weaning). The body condition score (BCS) ranges from 1 to 9, with 1 being extremely thin and 9, extremely obese.

Cows were checked for pregnancy each November. Cows were also weighed and scored for body condition the subsequent January. Calves were weighed at birth (January-April 15), in late April or early May, in early July, and in early October (weaning) of each year.

Wayne E. Wyatt, Professor, Iberia Research Station, Jeanerette, La.; Jeffrey M. Gillespie, Associate Professor, Department of Agricultural Economics & Agribusiness, LSU AgCenter, Baton Rouge, La.; Brad C. Venuto, formerly Assistant Professor, Southeast Research Station, Franklinton, La.; and David C. Blouin, Professor, Department of Experimental Statistics, and Associate Dean, LSU College of Agriculture, Baton Rouge, La.

Figure 1. Interim cow weights in response to stocking (grazing) treatments over a three-year period (1999-2001).



Louisiana cow-calf systems are forage-based. These cattle are brahmas.



Cow weights and body conditions scores were significantly affected by grazing treatment and generally decreased in response to increased stocking rate. However, they did not differ between continuous and rotational stocking methods at the high stocking rate. See Figures 1 and 2. Mean cow weight tended to be greater for cows grazed at the low rate than for cows grazed at the medium and high rates. While mean body condition score was similar for cows grazed at the low rate and the medium rate, it was lowest for cows grazed at the high rate.

Neither pregnancy rate nor calving rate differed significantly among the grazing treatments. The mean body condition score for each treatment was approximately 5 or greater, and several studies have demonstrated acceptable reproductive performance for cows having a BCS of 5 or higher.

Calf preweaning gain and weaning weight differed among the grazing treatments. Calves suckling cows on the pastures with low stocking rates tended to gain at a faster rate and were heavier at weaning than calves suckling cows on the pastures with a medium stocking rate, and these calves in turn gained faster and were heavier at weaning than calves in the high stocking rate treatments. However, preweaning gains and weaning weights were similar for the continuous and rotational treatments at the high stocking rate.

While individual calf performance is important to producers, a measure of pasture productivity (pounds of calf weaned per acre) may hint at differences in cow-calf production efficiency. Within the continuous stocked treatments, pounds of calf weaned per acre (267, 423 and 506 pounds/acre) increased as stocking rate increased. However, pounds of calf weaned per acre were similar for both the continuous and rotational stocking methods when compared at the high stocking rate.

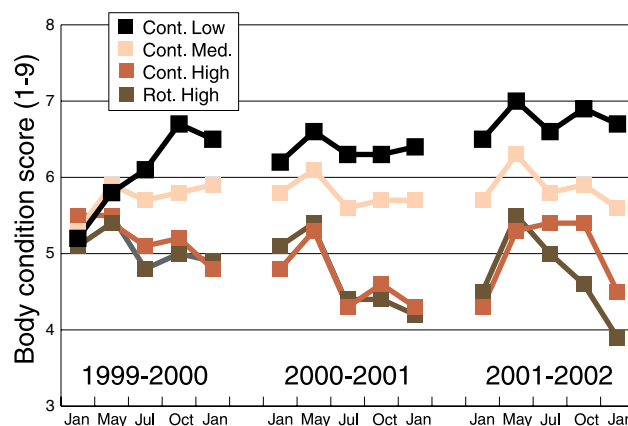


Most Louisiana beef producers use the cow-calf system of management in which they maintain breeding herds and produce calves marketed at weaning. The LSU AgCenter is conducting a long-term research project on stocking rates.

Stocking rate had more impact on cow weight and body condition score, calf preweaning gain and weaning weight, and pasture productivity (pounds calf weaned per acre) than did stocking method (continuous versus rotational). The additional inputs associated with rotational grazing (fencing materials, labor) do not appear to be warranted in terms of improved production efficiency. The economic analysis of this study is still being conducted and will be available in 2006.

The contrast between continuous and rotational grazing was at the high stocking rate, and it is presumed that the 1.1 cows/acre rate would not be sustainable over an extended period (the drylot period was approximately 120 days each year for both treatments). The effect of stocking rate within the context of rotational stocking and the contrast between continuous and rotational grazing treatments at the more moderate stocking rate is also being evaluated in the second phase of this research. ■

Figure 2. Interim cow body condition scores (BCS; 1-9 scale) in response to stocking (grazing) treatments over a three-year period (1999-2001).





Darla Lanie washes one of the family's bulls. She and her oldest son, Foster, have gone through the LSU AgCenter's Master Cattle Producer program to learn the intricacies of developing a successful herd.

## Master Cattle Producers Put Quality Beef on the Table

In its first year, the Master Cattle Producer program has attracted a wide spectrum of participants, from the seasoned to the greenhorn.

Somewhere in the middle of the spectrum are Darla Lanie of Erath and her high school son, Foster. They both enrolled in the program, and they enthusiastically recall what they learned.

Darla Lanie admits she was out of her element when she first began working with cattle, and she said Master Cattle helped her fill many gaps in her knowledge of raising Brangus cattle with her husband, sugarcane farmer, Al Lanie.

"I married into this. I didn't grow up in it. When the boys first started showing animals in 4-H I didn't touch the cows, I didn't brush them or anything."

She said the coursework is applicable for even the most experienced cattle owner.

"Anybody with cattle should go through this program," she said.

Foster Lanie, a student at Erath High School, shows Brangus cattle. So do his brothers, Colin and Andre. During the school year, they are up at 5 a.m. every day to feed and care for their animals.

Foster is driven to raise quality animals. He tends to his animals the way some young-

sters check their favorite TV show.

"He's always checking on the cows," Darla Lanie said. "He just loves it."

Foster has enthusiastically followed the Master Cattle Producer program's recommendations to maintain computer records to track his cattle's progress. He has a full slate of Excel spreadsheet records.

"I keep track of all their vaccines I give them, their weights, the dates worming was administered and feed supplements," Foster said.

He also keeps track of how much is spent on feed, vet bills and other costs related to the cattle.

Foster said he learned a lot about pasture management.

"I'm trying to get these cattle on a rotational grazing system," he said.

And the session on genetics gave him a few ideas. He figures one bull, Hank, can help produce an even better show animal. "He'll downsize the frames and he's real meaty."

The 11 weekly three-hour classes provide a well-rounded offering useful to anyone who raises cattle. Classes cover pasture management, breeding, reproduction, animal health, animal handling, nutrition, end product and financial management. Jason Rowntree, LSU AgCenter director of the

program, admits the program is so comprehensive that he has trouble keeping up with all of it.

"I have a Ph.D., and I still pick up new material," Rowntree said. "No matter if you're a seasoned cattle producer or somebody with a few cattle on the side, there's information to help anyone."

Lewis Dooley, a retired mechanical engineer from the Church Point area, is a Master Cattle Producer graduate. He has 25 Brahmas but doesn't expect to make a lot of money from them.

"I just enjoy working with them, studying the genetics and converting grass to meat."

Dooley is convinced that gentle animals produce tender meat.

"What I'm trying to do is breed animals that are gentle and tender," he said.

He's certainly achieved the gentleness quality. His 3-year-old bull, Mac, is like a big dog who loves to be petted, and even Dooley's cows with calves are approachable.

"It's not worth it if I can't come out here and scratch 'em and play with them," he said. "You've got to spend time with them."

Dooley exports embryos overseas to such countries as Colombia and Brazil. He also sells bulls to be used for commercial cow herds.

Even with his knowledge and experience, Dooley said the Master Cattle Producer program helped him.

"I got a lot of good ideas, especially on foraging," he said. "You've got to have cattle that can make it on grass, so you've got to have good grass. That's one of the reasons I enrolled in the program."

At the same time, he said, consumers are demanding better quality beef, and the Master Cattle program emphasizes meeting that demand with the Beef Quality Assurance program.

Rowntree said the program stresses that cattle producers should think beyond the sale barn.

"The program is aimed at making cattle producers aware that they are not a cattle producer but a beef producer. Our job does not end when that calf is sold," Rowntree said.

It's difficult for cattle producers to know how well the end product is received beyond the point of sale, Rowntree said, so it's essential that the best practices be used.

Joe Hidalgo of Opelousas has decades of experience in animal husbandry from his career as a veterinary supply salesman and from his years of owning Brangus cattle. Hidalgo, a district vice president for the Louisiana Cattlemen's Association, said he completed the Master Cattle program to set an example for the rest of the LCA membership.

"This sets Louisiana way ahead of other states," Hidalgo said. "We're ahead of the game and we've become more knowledgeable. The LCA is very pleased with the Master Cattle program."

Hidalgo, who has a herd of 40 Brangus cows, said he got more out of the program than just learning new information about the cattle industry.

"I got to meet a lot of good people I didn't know, and there was a lot of camaraderie," he said. "I was impressed with the people who attended it. Many of them brought their wives, and they became an integral part of a cattle operation after the program."

Ronnie Link and his two sons, Dwane and Kyle, attended the Master Cattle Producer program, even though it meant an hour's drive to Lafayette after working cattle all day on their cattle operation, the Eagle's Nest ranch in rural Avoyelles Parish.

"It was the most informative training I've ever been to," Ronnie Link said. "They gave out a lot of information that we refer to in our day-to-day operation."

He moves and herds animals at his ranch the old-fashioned way — on horseback. But unlike the traditional cowboy way, you won't hear a lot of whooping and hollering, and use cattle prods is kept to a minimum.

"It puts stress on the animals and it stresses me," said Dwane Link. "I chose this lifestyle for the peace and quiet, and it's going to stay that way. That's one of the things they teach in the program, and we've been doing it for years."

Link worked out West on a dude ranch. He looks and acts the part of a cowboy, wearing chaps, well-worn knee-high boots. He said riding horses and raising cattle area natural fit.

"I wouldn't want to do one without the other," he said.



Jason Rowntree, director of the Master Cattle Producer program, awards Phillip Simmons of Raceland with a display sign to show successful completion of the program.

Ronnie Link bought the ranch 12 years ago. He's expanded it to 2,600 acres for 1,200 head of cattle, mostly Brangus.

Kyle Link said the Beef Quality Assurance program and environmental stewardship were the most informative for him.

"I'd have to say the environmental stewardship was the biggest eye opener because I didn't know all the problems we're having with runoff and our waterways," Kyle Link said. "Everybody is going to have to start playing a role to straighten that out."

Rowntree said 380 people have graduated from the program so far. Demand has been so high that some people have had to put their names on a waiting list.

"The program is pertinent to the needs of the clientele," he said. "We're improving the means for them (cattle producers) to sustain their herds in slim years."

The coursework is presented by the LSU AgCenter, the Louisiana Cattlemen's Association and the U.S. Department of Agriculture Natural Resources Conservation Service.

Stan Dutile, LSU AgCenter county agent in Lafayette Parish, said he has received favorable comments on the program.

"This was the most outstanding program I've been involved with in terms of adult education," Dutile said.

Paul Coreil, LSU AgCenter vice chancellor for extension, said the program will enhance the quality of beef produced in Louisiana as well as voluntarily improve environmental quality on ranch operations and adjacent property.

"The success of the Master Cattle Producer program has been phenomenal with high enrollment statewide and excellent participant evaluations," Coreil said. "There is no doubt that Louisiana is well on its way to leading the nation in producing quality beef for the consumer using production practices that help conserve our natural resources."

■ **Bruce Schultz**



Master Cattle Producer students hear a lecture on Quality Beef Assurance.

# Using Sire EPDs in Cow-Calf Production



Sid DeRouen, professor at the LSU AgCenter Hill Farm Research Station in Homer, feeds three bulls at the station.

Photo by John Chaney

## Sidney M. DeRouen

A large segment of the beef cattle industry is adopting expected progeny differences (EPDs) as a valuable selection tool in improving calf productivity. EPD is the difference in performance (measured in pounds, percent, inches, etc.) expected in progeny, or offspring, of individual sires. Calf weaning weight is greatly influenced by genetic potential for growth; therefore, verification of how reliable weaning weight EPDs are on commercial cow herds needs to be studied.

Calves with above-average weaning growth may stress their dams, or mothers, to the point where subsequent reproduction and pregnancy rates could be negatively affected. Therefore, information needs to be developed on the possible influence high-growth calves sired by high weaning weight EPD bulls have on the reproductive performance of beef cows, particularly in the stressful environments of Louisiana.

Maternal and reproductive performances of crossbred cows were evaluated over five years. Breed types of the cows used in this study were representative of the breeds that exist in

commercial cow herds in Louisiana and the Southeast. Cows ranging in age from 4 to 10 years were impregnated by artificial insemination (AI) to Simmental sires that varied by 20.4 pounds in weaning weight EPDs. Sires included four moderate (MOD) bulls with an average weaning weight EPD of 21.4 pounds and three high (HIGH) bulls with an average weaning weight EPD of 41.8 pounds. All bulls used in this study had high accuracies (greater than 85 percent) for weaning weight EPDs, indicating that EPD values would be expected to be fairly reliable. Once randomly assigned, considering cow breed type, cow age, calving date and calf sex, cows were synchronized for estrus and inseminated.

Of the 307 cows that were synchronized and inseminated, a total of 120 AI-sired calves were born and survived to weaning. Average calf age at weaning was 229 days. Cows were weighed and body conditions were scored (on a 1 to 9 scale) and pregnancy status was determined at weaning. Cows were also weighed and body condition scored at the beginning of the breeding season. Pregnancy rates of cows were evaluated during the breeding season while nursing MOD- or HIGH-growth calves and also the subsequent breeding season after weaning MOD- or HIGH-growth calves.

---

*Sidney M. DeRouen, Professor, Hill Farm Research Station, Homer, La.*

Table 1. Birth and weaning traits of calves by sire EPD type.

| Trait                               | Sire EPD type    |                  |
|-------------------------------------|------------------|------------------|
|                                     | Moderate         | High             |
| Birth date, average                 | Feb 17           | Feb. 19          |
| Birth weight, lb                    | 91.9             | 98.5             |
| Actual weaning weight, lb           | 597 <sup>a</sup> | 625 <sup>b</sup> |
| Adjusted 205-day weaning weight, lb | 547 <sup>a</sup> | 575 <sup>b</sup> |
| Weaning hip height, in.             | 46.3             | 46.9             |

<sup>a,b</sup> Differences are statistically significant

Table 2. Cow body weight (BW) and body condition score (BCS) at weaning and breeding by sire EPD type.

| Trait              | Sire EPD type |       |
|--------------------|---------------|-------|
|                    | Moderate      | High  |
| BW at weaning, lb  | 1,314         | 1,279 |
| BCS at weaning     | 5.47          | 5.39  |
| BW at breeding, lb | 1,323         | 1,276 |
| BCS at breeding    | 5.52          | 5.35  |

Table 3. Pregnancy rates (PR) of cows by sire EPD type.

| Trait                                        | Sire EPD type |      |
|----------------------------------------------|---------------|------|
|                                              | Moderate      | High |
| PR while nursing calves, %                   | 96.0          | 96.5 |
| Subsequent PR after weaning <sup>a</sup> , % | 91.7          | 93.6 |

<sup>a</sup>Pregnancy resulting the following breeding season after weaning moderate- or high-growth calves.

There was no occurrence of calving difficulty for all 120 calvings. Calf birth date, birth weight and weaning hip height were numerically larger for the HIGH-growth calves but were not statistically different (Table 1). Calves sired by HIGH-growth bulls were statistically heavier than calves sired by MOD-growth bulls for actual weaning weight and adjusted 205-day weaning weight (Table 1). The expected difference in weaning weights between calves from MOD and HIGH sires averaged 20.4 pounds based on weaning weight EPD information. The realized weaning weight difference between calves sired by MOD- and HIGH-growth bulls averaged 28 pounds, indicating that EPDs are fairly reliable.

Cow body weight and body condition scores at weaning and at subsequent breeding were similar after nursing MOD- or HIGH-growth calves (Table 2). Cow body weights and body condition scores were numerically lower for the cows raising HIGH-growth calves but were not statistically different. It is important to note that average or adequate body condition for a mature cow is 5, and body condition scores were above this threshold regardless of type of calf raised.

Pregnancy rates were similar for cows raising MOD- or HIGH-growth calves, both while nursing calves and after weaning during the subsequent breeding season (Table 3). Numerous studies have demonstrated that for acceptable pregnancy rates to be achieved, it is important that cows have at least a moderate degree of body condition (body condition score 5 or 6) at initiation of the breeding. Thus, even though differences in weaning productivity were created through sire selection, adequate body condition was maintained. As a result, cows raising either MOD- or HIGH-growth calves had similar and highly acceptable pregnancy rates.

The mating by artificial insemination of cows to bulls with weaning weight EPDs that differed by 20 pounds resulted in actual calf weaning weight differences of 28 pounds. This indicates that EPDs are fairly reliable. The use of sires with high weaning weight EPDs did not result in increased calving difficulty, did not lower cow body condition and lastly, did not adversely affect subsequent reproductive performance of the cow herd. ■

Photo by Bobby Soileau



Justin Nix of Iota, La., ahead on bridge, and other members of the Agricultural Leadership Development Program tour the Humble Administrator's Garden in Suzhou, China, which was one of four cities in China visited by the group.

## Ag Leaders experience China's potential

Seventeen graduates of the LSU AgCenter's Agricultural Leadership Development Program participated in an 11-day agricultural study tour of China. The international trip, which began Jan. 13, serves as the final seminar for the two-year program.

The group first visited Beijing where they were briefed on agricultural and trade issues by Embassy, U.S. Department of Agriculture and Department of Commerce officials. The Ag Leaders also met with representatives of the Chinese Ministry of Agriculture. Other stops in Beijing included a textile company, a forestry nursery, an agricultural university and a wholesale produce and vegetable market. Everyone also took in some of the great tourist sites like The Great Wall, The Forbidden City and Tiananmen Square.

A trip farther south to Wuxi gave the group an opportunity to visit the Fresh Water Fisheries Institute and a farmers' market. A one-hour bus ride from Wuxi brought the Ag Leaders to Suzhou, a garden city. The group toured the famed Humble Administrator's Garden and

looked at a greenhouse vegetable and flower operation. One of the greenhouses was filled with orchids as they prepared for the Chinese New Year.

The final stop of the trip was in Shanghai. Besides visiting an industrial park for agricultural production, the group toured this impressive city of 17 million people.

According to Mike Futrell, director of the Ag Leadership Program, everyone was impressed with the modern Shanghai. "Everything I have read," said Futrell, "suggests that China is on the brink of becoming an economic powerhouse. From what I see here, that may well be an understatement."

Travel for the program is underwritten by private funds in the LSU Foundation, specifically the Chalkley Family Endowed Chair, the H. Rouse Caffey Endowment and the Ag Leaders of Louisiana Endowment. ■ **Bobby Soileau**



Henry Harrison, LSU AgCenter county agent in Washington Parish, Jess Barr of Monroe, Mark Marionneaux of Zachary, and Willie Danos of Iowa look at some of the fresh fruits and vegetables at an open-air wholesale market in Beijing. They are members of the Agricultural Leadership Development Program directed by Mike Futrell.



Hank Schumacher, Husser, second from left, and Marty Wooldridge, Oil City, next to him, watch action at a farmers' market in Wuxi, China. Both Wooldridge and Schumacher are cattle producers.

## Inside:

■ The LSU AgCenter makes progress with the termite program in the New Orleans French Quarter. Page 6

■ LSU AgCenter experts have written how-to publications and fact sheets on disaster recovery. Page 10

■ A new sugarcane variety will help growers prevent disease and extend longevity of the popular LCP 85-384 variety. Page 11

■ An LSU AgCenter researcher has found cancer-treating traits in black raspberries. Page 12

■ Rice farmers must time fungicide use precisely. Page 13

## LOUISIANA AGRICULTURE

*Ensuring Our Future Through Scientific Research and Education*

LSU AgCenter  
P.O. Box 25100  
Baton Rouge, LA 70894-5100

Non-profit Org.  
U.S. Postage  
PAID  
Permit No. 733  
Baton Rouge, LA