



2009

Louisiana Rice Research Board ANNUAL REPORT

Checkoff Funds Support Research for Louisiana Rice Farmers

Much of the research funded by the Rice Research Board is through contracts with the LSU AgCenter

Hurricanes slash excellent crop

but many farmers still have good year

Many Louisiana rice farmers may look back on 2008 as the year when everything could have converged into an excellent crop, maybe even a record-setting harvest.

But hurricane wind and water changed that, first with Gustav on Sept. 1 and then Ike on Sept. 13. Despite the storms, for many farmers the year still resulted in a good crop.

Keith Fontenot, LSU AgCenter county agent in Evangeline Parish, said farmers in his area did surprisingly well, probably setting a parishwide yield record exceeding 40 barrels (64.8 hundredweight) per acre.

Farmers who didn't have their rice cut before the hurricanes had dismal harvests. 'The 10 percent or less left in the field was affected brutally.'
— Keith Fontenot

Some producers even topped 60 barrels (97.2 hundredweight), he said.

But farmers who didn't have their rice cut before the hurricanes had dismal harvests. "The 10 percent or less still in the field was affected brutally," Fontenot said.

Much of the rice was submerged or shattered.

At the same time, the crop was the most expensive ever, as urea fertilizer topped \$900 per ton and diesel exceeded \$4 per gallon.

Fontenot said declining fuel and fertilizer prices in the fall could mean farmers might plant more in 2009, but he expects Evangeline Parish acreage to remain the same next year. The Farm Services Administration reported 44,217 rice acres in Evangeline Parish in 2008.

Barrett Courville, LSU AgCenter county agent in Acadia Parish, said he expects Acadia Parish rice acreage to drop in 2009. According to the FSA, Acadia Parish led the state with 83,737 acres in 2008.

Courville said high input costs could persuade farmers to reduce rice acreage and opt for soybeans.

"It's wait-and-see how much the costs will be," he said.

Most Acadia Parish farmers had their rice harvested by the time the storms hit, he said, resulting in an average harvest in the low 40 barrels (65 hundredweight) per acre.

The effect on the second crop varied, Courville said.

"It probably depended on the stage of the crop when the storm came."

When the second-crop harvest started, Courville said, he was hearing reports of yields ranging from seven barrels (11.3 hundredweight)



Bryce Zaunbrecher of Lake Arthur harvests his 2008 crop. (Photo by Bruce Schultz)

to 23 barrels (37.2 hundredweight); however, most yields were on the lower end of that range.

Eddie Eskew, LSU AgCenter county agent in Jefferson Davis Parish, said a cold, wet spring delayed the crop's progress. Although the rice seemed to be doing well as summer wore on, farmers were reminded once again that a crop is not made until it's in the bins.

"The high expectations we had throughout the season didn't materialize," he said.

Yields were not off terribly, Eskew said, but they didn't come close to the record yields of 2007. Most farmers had yields ranging from 38

to 45 barrels (61.5 hundredweight to 72.9 hundredweight), he said.

The second crop was disappointing, and Eskew blamed that on the storms. Most ratoon yields were in the 5- to 6-barrel (8.0-to-9.7 hundredweight) range, with some in double digits.

Eskew said he is optimistic farmers are getting ready to plant next year. He said by the fall he had heard of farmers arranging crop loans.

Stuart Gauthier, LSU AgCenter county agent in Vermilion Parish, said some farmers in his area were dealing with the saltwater flooding from Hurricane Ike.

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Herbicide drift can occur

when wind seems calm



Aerial application of chemicals could lead to drift problems even on a windless morning, according to LSU AgCenter weed scientist Dr. Eric Webster. (Photo by Steve Linscombe)

Herbicide drift often occurs when it seems the morning air is still and calm, according to Dr. Eric Webster, LSU AgCenter weed specialist.

Webster said just because it seems like no wind is present at ground level, however, doesn't mean the same conditions exist a few feet above ground.

"The worst times are when the wind is 0 to 2 miles an hour," Webster said. "That's when you get those inversion layers built up."

A field surrounded by tall vegetation increases the variation of wind direction, he said.

Using a ground rig is a good way to avoid drift problems, he said, although it still is not a guarantee.

Farmers can contaminate their own fields with unintended applications of herbicides if tanks are not properly cleaned, Webster said. "It's always a good idea to triple rinse after spraying."

Using research plots, Webster and his associates are studying the effects of drift at different concentrations of herbicides.

Webster said Roundup and Newpath are the most likely materials to result in an inadvertent application.

Newpath drift often results in rice heads failing to emerge from the plant sheath, where they rot inside the plant, he said. The heads of a rice plant contaminated with Roundup often emerge but are sterile.

Webster is compiling material for a Web site to show symptoms of drift from different herbicides, and he is developing a pamphlet to help diagnose problems. He said both resources will be ready for the 2009 growing season. —Bruce Schultz

Checkoff funds for
this project: \$107,000

From the Louisiana Rice Research Board

We just completed another usual unusual year. It seems each crop year is unique in its own way. We look to this next one in 2009 and we see uncertainty even more than ever. As Donald Rumsfeld once said, "We have a list of known unknowns."

It seems extremely difficult to get a handle on costs as we attempt to anticipate decisions on crop inputs.

Marketing, while always difficult, seems to be more so now as rice prices are swinging in wider and wider ranges.

We are operating in 2009 under a new farm bill that will implement tighter eligibility rules and require operating structures that are not understood completely even by those who administer them.

Our whole national financial structure is at risk.

We have a shift in leadership in Washington, D.C., that is untested, with indications it will lead in directions where we have never been as a nation.

With all this uncertainty, it is equally important to recognize those issues we know are certain. It is gratifying to know – as a known, not an unknown – that our research dollars are and will be spent wisely. It also is satisfying to know that research will continue, that problems will be dealt with, that answers will be found and that we will not concede to the unknown.

This report is one way we have of communicating with you that our dollars are not only spent wisely but to flesh out exactly what ways they are being spent in all the many areas where we need solutions. We can worry about the unknown, but we can plant this crop knowing that we are using our own dollars to seek solutions that will pay off this year and into the future.

Jackie Loewer, Chairman

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Rice Research Board members, left to right, are Brian Wild, Donald Berken, Bobby Miller, Sammy Noel, Richard Fontenot, Wayne Wild, Jackie Loewer, Linda Zaunbrecher, Clarence Berken, Dane Hebert, Johnny Hensgens and Fred Zaunbrecher. (Photo by Bruce Schultz)

Aromatic rice likely to be released for 2009 season

After 12 years of development by the LSU AgCenter, an experimental line of an aromatic Jasmine-type rice is a likely candidate for release for the 2009 growing season.

Dr. Xueyan Sha, an LSU AgCenter rice breeder, said the rice line known as LA2125 started with crosses in 1996 by former LSU AgCenter rice breeder Farman Jodari. Sha took over the project when he started at the LSU AgCenter's Rice Research Station in 2000.

Sha said the line was developed by using the germplasm of an unreleased Chinese line with Jasmine's cooking quality and crossing it with American germplasm. It is in its 13th generation.

Thai Jasmine is impractical to grow in Louisiana because it will not tolerate long day lengths of summer here. If planted in March, Sha explained, Thai Jasmine will not reach the heading stage in Louisiana until the shorter days of October, when cool weather inhibits growth of rice plants.

The yield of LA2125 is comparable to many popular U.S. varieties, including Cypress, and it has good disease resistance and excellent seedling vigor, based on LSU AgCenter tests. Sha also said the milling yield is excellent, with results comparable to Cypress.

More than half of the imported rice consumed in the United States is Thai Jasmine, and it is the fastest growing category of imported rice, according to statistics from the USA Rice Federation.

A total of 360 hundredweight of potential foundation seed is available from the 2008 growing season, Sha said. That seed would be available for propagation in 2009 if the line is released by the LSU AgCenter.

Dr. Steve Linscombe, director of the Rice Research Station, said demand exists for the aromatic rice.

"I think this is something that

will be highly desired in the specialty markets," he said.

Linscombe said aromatic rice grown domestically has an advantage over Thai Jasmine, because imports would not be in the United States until October or November. "Our fresh rice



Rice industry representatives sample LA2125, which is being considered for release. Left to right are Michael Hensgens of G&H Seed and farmers Charles Reiners of Branch and Fred Zaunbrecher of Rayne. (Photo by Bruce Schultz)

Checkoff funds for this project: \$89,000

can be on the market in August or September," he said.

Sha said he already is working on further improvements to Jasmine-type rice. "We need to improve the specialty attributes," he said, adding it will be a few years before a new line with an aroma even stronger than LA2125 could be ready for release.

Linscombe, also an LSU AgCenter rice breeder, said he also is working on new medium grain and long grain Clearfield lines.

A line designated as XC011 has good yield potential, similar to CL151, with better grain quality, less straighthead susceptibility and more blast resistance, he said. It will undergo a seed increase in 2009 with release possible in 2010.

Linscombe said a medium grain Clearfield line will be grown out in Puerto Rico this winter and will have a seed increase in 2009. Indications are that it has good disease resistance, high yields and good grain quality, he said. —**Bruce Schultz**

Molecular biologist on mission to find genes of interest

LSU AgCenter molecular biologist Dr. Herry Utomo is on a mission to find genes of interest to improve rice varieties.

Rice breeders rely on Utomo's work to find desired traits in the genetic makeup of rice that can be incorporated into experimental lines.

Utomo said he now has a new tool that helps in his investigations. It's called the LI-COR and is a gene sequencer that increases the efficiency of his work, as well as resulting in lower costs than previous methods.

Utomo is working to assemble the genes in rice that result in more durable resistance to blast. He also will be testing advanced experimental lines from his program in 2009 to identify the genes responsible for increased yields.

Utomo said his research will include foreign rice varieties to identify the yield and blast components. He said American rice germplasm is limited, but rice from overseas could contain characteristics that might improve domestic varieties.

Once such genes are found, breeders will be able to use that information to incorporate the desired traits into new lines.

But Utomo said getting the new characteristics, yet retaining the desired ones in existing varieties, requires several backcrosses. Otherwise, good traits such as high milling quality could be lost to gain another trait.

The LSU AgCenter scientist said he also is working to find the genetic marker that would indicate increased production of lysine, an essential amino acid that results in increased protein levels.

"If we can identify it, we can move that trait to another line of rice with conventional breeding," Utomo said.

His work allows breeders to shorten the time needed to develop a new variety. Using Utomo's work, breeders don't have to wait until a rice plant is mature to find out if it has the desired qualities, and that means varieties can get to farmers sooner, perhaps reducing the time by one third. —**Bruce Schultz**

Checkoff funds for this project: \$25,000

CERCOSPORA *remains slight threat for 2009*

The threat of Cercospora will remain a slight possibility for the 2009 crop, even though it hasn't been a widespread problem since 2006, according to Dr. Don Groth, LSU AgCenter pathologist at the Rice Research Station.

Groth said he received only two reports of severe pressure from this disease in commercial fields in 2008, and he had no success at getting the disease to emerge on his research plots at the station.

"Even on the most susceptible variety (Cheniere) I grew here on the station, it didn't develop," he said.

The 2006 growing season was prime for Cercospora because of the preceding warm, wet winter, which allowed the fungus to overwinter, and the following wet summer weather. Even more, the proper fungicide choices were not established then, Groth said.

That hurdle has been overcome, however, and the LSU AgCenter researcher says using Stratego and Quilt is a good strategy to treat rice for sheath blight – with the added benefit of protection against Cercospora. Both materials have propiconazole to fight Cercospora and strobilurin for sheath blight.

Timing for application is best at a 4- to 6-inch panicle in the boot stage, he said, when it provides good treatment for Cercospora and sheath blight. "It's a good time to control both diseases," he said.

Groth said he is concerned that he has seen more blast in 2008, adding, "That has us worried."

Some farmers choose to delay the flood until tillering to control water costs, Groth said, but that could open the door for blast if soil conditions

are dry. "Flooding the field is the best control method for leaf blast," Groth cautioned.

Groth said blast is adapting to some varieties, particularly Cocodrie and CL161, and could be more of a problem with CL151.

Sandy soil, fields surrounded by trees and late planting can promote blast development, he said.

Strobilurin fungicides have activity against blast when applied at 50-70 percent heading, he said, but the late

timing could diminish effectiveness against Cercospora and sheath blight.

"However, you treat for your worst problem and that would be blast in these situations," Groth stressed.

The LSU AgCenter scientist said he is testing new versions of Stratego and Quilt that are tailored for rice. "The new formulations have the proper ratio of propiconazole and strobilins for rice, and they are more effective than the current formulations we have," he said. **—Bruce Schultz**



LSU AgCenter pathologist Dr. Don Groth advises farmers at the Southwest Louisiana Field Day on strategies for treating and preventing diseases in their rice crops. (Photo by Bruce Schultz)

Checkoff funds for this project: \$60,000

New farm bill increases level of complexity; economist working on 'decision tools'

The new federal farm bill passed recently by Congress has increased the level of complexity faced by farmers.

Known as the Food, Conservation and Energy Act of 2008, this new farm bill is a five-year measure that covers 2008 through 2012. The 2008 measure makes some changes in existing farm program provisions and gives farmers new options in receiving price and income support.

Dr. Mike Salassi, an LSU AgCenter agricultural economist, is conducting research and developing farm decision tools to help farmers decipher the implications of this new farm program on the financial aspects of their farming operations.

Included under this research project is development of spreadsheet-based decision tools that farmers can use to evaluate the impact of farm program options on their farming operations.

Salassi said the tools will allow a farmer to gather information related to the farming operation and compare farm returns under the two basic farm program options.

One option is the continuation of the income support program from the 2002 farm bill, including direct, counter-cyclical and loan deficiency payments. But the 2008 farm bill has included an alternative option, referred to as the Average Crop Revenue Election (ACRE) program.

Under the new option, price support payments are based on a comparison of current-year crop revenue per acre with the historical average. Selection of this option, as an alternative to counter-cyclical payments, requires a 20 percent reduction in direct payments and a 30 percent reduction in marketing assistance loan rates. State-level and farm-level income triggers must be met before any payments under this new program option can be issued.

Choosing which farm program option is best for a particular farming operation is not very straightforward, and Salassi's research is trying to identify the resulting farm financial differences under various economic and production situations.

Others areas of research under way in this project include:

Evaluation of alternative rice rental arrangements and how the recent increases in prices of production inputs influence both grower and landlord returns under various arrangements.

Estimation of irrigation costs from both well and surface water sources powered by diesel and electric power units, as well as identifying potential cost savings from switching to electric power sources.

Farm-level analysis of farm program, crop insurance and production options on overall farm financial performance. **—Bruce Schultz**

Checkoff funds for this project: \$40,000



The new federal farm bill could affect how rice producers run their operations. The bill greatly increases the level of complexity faced by farmers. (Photo by Bruce Schultz)

Studies seek most effective FERTILIZER use

LSU AgCenter agronomist Dr. Dustin Harrell of the AgCenter's Rice Research Station conducts a wide range of research to figure out how farmers can get the most effective benefits from fertilizer applications.

Each year Harrell conducts nitrogen studies on specific varieties of rice to learn the optimum amount. He said the 2008 work with nine varieties included Catahoula and Neptune in addition to the potential variety LA2125.

The testing is conducted in research plots in North and South Louisiana.

Harrell said the most cost-effective amount of fertilizer can vary widely from variety to variety – anywhere from 90 to 180 pounds per acre.

Water management is a key issue that can affect nitrogen use efficiency in rice. Research shows nitrogen is best applied when the soil is dry and then followed immediately with a flood.

Harrell said his research includes the use of the GreenSeeker, an optical sensor that measures the midseason nitrogen status of the rice, and once calibrated with several years of research will potentially be able to provide real-time recommendations for midseason fertilization. Working with Harrell on the project are Dr. Brenda Tubana, LSU AgCenter assistant professor of soil fertility, and Dr. Tim Walker, an agronomist from Mississippi State University.

“Hopefully within three years we will have some good information as to its utility for use in rice production,” Harrell said.

Harrell said with the increasing costs of fertilizers, an \$8 soil test is still one of the best ways to make sure farmers are spending the correct amount of money on nutrients. “It could save a considerable amount of money,” he stressed.

His work also examines nutrient applications on the ratoon crop.

Checkoff funds for this project: \$120,000



LSU AgCenter agronomist Dr. Dustin Harrell, at far left, shows farmers his research plots at the Elliot Colvin farm near Rayville during a 2008 field day. Harrell's work focuses on the most effective use of fertilizer. (Photo by Bruce Schultz)



Varying amounts of nitrogen were applied to research plots of different varieties as part of LSU AgCenter agronomist Dr. Dustin Harrell's studies. (Photo by Dustin Harrell)

Harrell said it's best to apply nitrogen immediately after harvest, but many farmers wait to see if the stubble appears to show potential before fertilizing.

Harrell said he also conducts work to find out which stubble-management techniques will improve second-crop yields.

In most years, he said, leaving a short stubble when harvesting the first crop results in a higher-yielding ratoon crop. Flail mowing also will improve yields, he said, but it requires a farmer to spend more money on diesel fuel because flail mowing requires a second trip across the field.

Next year he also plans to evaluate different stubble-management practices, with and without fungicide application, in an effort to evalu-

ate if some of the yield advantage to stubble management may be related to reduced disease pressure.

Harrell said his work in 2008 included trials that evaluated zinc fertilization sources, application rates and timing of application on a field with a historic localized decline problem. From the first year of data he found that using zinc sulfate at a rate of 5 pounds of zinc per acre increased yields and reduced leaf bronzing symptoms. The farmer involved in the study reported his highest yield ever on that field, Harrell said.

“Adding zinc many not always be the solution, but at that field it was. There's still a lot of work to do on this problem,” Harrell said. —**Bruce Schultz**

LSU AgCenter Communications supports Louisiana Rice

Checkoff funds for this project: \$25,000

LSU AgCenter Communications has been actively supporting the efforts of the Louisiana Rice Research Board, rice growers across the state and AgCenter faculty members involved in rice research for more than eight years.

Production of the annual editions of the Louisiana Rice Research Report, which you are reading now, began in 2002. Since 2003, however, funding for production of the tabloid and a portion of the salaries of those involved in this and other promotional efforts have been provided by a \$25,000 annual grant from the Rice Research Board.

“We are glad to have been involved with the Rice Research Board on these projects, and we think it's been a win-win situation for everyone,” said Frankie Gould, director of communications and public relations for the LSU AgCenter.

When the grant first was awarded in 2003, the funding allowed LSU AgCenter Communications to add another area communicator to its staff. That person is housed in Crowley and works across the state covering issues related to rice production.



Documenting rice production with photos is just one of the many tasks performed by LSU AgCenter Communications with funding from the Louisiana Rice Research Board. (Photo by Bruce Schultz)

Bruce Schultz has held that position since early in 2004 and is a familiar face to Louisiana rice producers because of his extensive work in helping researchers and extension scientists educate rice farmers about new technologies.

“Bruce has an inherent talent that allows him to take rather complex research results and explain them in a way that rice producers can easily understand and incorporate into their production programs,” said Dr. Steve Linscombe, an LSU AgCenter regional director and rice breeder. “He is an integral part of our overall effort in technology transfer to rice farmers.”

Schultz says informing the public about what it take for farmers to get food to the table and how the LSU AgCenter helps in that process also are some of the major thrusts of his job.

“Farmers face all the difficulties other small business owners must contend with, but they don't have the option of increasing the price for their products,” Schultz said, explaining his work has impressed him with how resourceful farmers can be in developing all the skills they need.

“I enjoy working with the farmers, and I am amazed at how many challenges and problems they encounter throughout a growing season,” he said, adding, “Rice must be one of the most complicated crops to grow with so many variables.”

In addition to his work on the Rice Research Report, Schultz has written press releases for the state's media on topics ranging from the development of new rice lines to the economics of each year's rice crop.

Schultz also helped to document the damage Hurricane Rita inflicted on Louisiana rice and crawfish farmers, and his photos and stories became an integral part of news releases, reports and other items after the storms. And he repeated that pattern with similar material this summer after hurricanes Gustav and Ike.

Of course, Schultz's work is just a part of the target for the funding. In addition to paying the printing costs of producing the Louisiana Rice Research Report, the grant funds also provide access to other experts in LSU AgCenter Communications – editors, graphic designers and other writers – who cooperate on various projects.

“We appreciate the funding from the Rice Research Board, and we know it's allowed us to give much more attention to issues affecting rice farmers, as well as helping us to provide more detailed coverage of other issues across Southwest Louisiana,” Gould said. “We look forward to continuing our mutually beneficial relationship.” —**Tom Merrill**

RiceCAP project likely to improve varieties

Improvements in rice varieties are likely from the RiceCAP project, a collaboration involving the LSU AgCenter, eight other universities and the U.S. Department of Agriculture.



Dr. Jim Oard, LSU AgCenter plant pathologist. (Photo by Bruce Schultz)

Dr. Jim Oard, LSU AgCenter plant pathologist, said genetic markers to improve sheath blight resistance and improve milling yields have been found through the research. And he said conventional breeding techniques can use the markers to select for those traits.

“We’re wrappings things up,” Oard said, adding the project has been under way for four years and that the work has been extended for one year for the finishing touches.

Other LSU AgCenter scientists who worked on the project include plant breeders Dr. Steve Linscombe and Dr. Xueyan Sha, plant pathologist Dr. Don Groth, molecular geneticist Dr. Herry Utomo and plant pathologist Dr. Chuck Rush.

Oard pointed out, however, that the work of

RiceCAP – the Rice Coordinated Agricultural Project – does not mean sheath blight will become a thing of the past.

“It is not a magic bullet,” Oard said. “The goal is to keep sheath blight to a minimum level where the farmer won’t have to spray for the disease.”

He also said environmental factors will play an important role in milling yields for any rice variety. The potential value of the genetic markers identified during the RiceCAP project is to help develop new varieties with high, stable milling yields across different environmental conditions.

Oard said projects funded by the Louisiana Rice Research Board directly and indirectly contributed to the program’s success.

“Without the collaboration with other universities and the USDA, this would not have been possible,” he said.

–Bruce Schultz

Checkoff funds for this project: \$36,000



Dr. Johnny Saichuk and research associate Kim Landry examine a weed found during their weekly visit to a rice verification field. (Photo by Bruce Schultz)

Rice specialist relaying his ‘Field Notes’ to producers

Dr. Johnny Saichuk, LSU AgCenter Extension rice specialist, has become a traveling correspondent, relaying observations and thoughts in his weekly “Field Notes.”

Since 2005, he has sent out his Field Notes in an e-mail newsletter to producers, crop consultants and others in the industry.

Saichuk said writing the column and taking photographs for it has resulted in a compilation of information and images since 2005.

“Any problem I have encountered in the past four years, I have a picture of it,” he said.

Saichuk regularly travels to North Louisiana to check on fields in the LSU AgCenter Rice Verification Program – and that also allows him to include updates and trends in the northern rice-growing area.

“I get to see things that farmers won’t because I’m in so many different fields,” Saichuk said.

He estimates completing the column – including taking the pictures, writing and composing the layout – requires four to six hours of work per installment. And he says the newsletter allows him to cover topics in more detail.

“There are things you don’t have time to talk about at production meetings,” Saichuk said. “It’s taking advantage of anything that presents itself. I let the season dictate what I write and photograph, because every year is different.”

The LSU AgCenter Extension specialist said he especially enjoys taking photographs, and he said feedback from readers tells him the pictures are especially well-received.

The photographs show current problems and situations that were in the field, often just a few hours before Field Notes was sent out.

He also writes about unusual sightings during his North Louisiana sojourns, like watching a huge deer on the roadside, high water at the Old River Control Structure or a rice field scorched by a lightning strike.

Saichuk said he had been sending out information to county agents, but Dr. Steve Linscombe, director of the Rice Research Station, urged him to start a regular column on a widespread basis.

Saichuk admits some reluctance to start the column, but adds, “Now I really like doing it. When you’ve got something producers like, and you like to do, it meshes well.”

Saichuk said in 2009 he plans to take more pictures of weed and grass seedlings and more of the ordinary aspects of rice farming.

–Bruce Schultz

Checkoff funds for this project: \$46,000



LSU AgCenter rice specialist Dr. Johnny Saichuk, at left, walks the field of Ronnie “Blue” Zaunbrecher, at right, near Lake Charles. Saichuk gathers information and photographs from his weekly visits to rice verification fields to use in his weekly “Field Notes” e-mail newsletter. (Photo by Bruce Schultz)

Variety development



LSU AgCenter rice breeder Dr. Xueyan Sha makes a cross by using a flowering rice plant from the greenhouse. See page 2 for more details on his work in developing new rice varieties. (Photo by Bruce Schultz)

Rush looks back over 39-year career of fighting rice diseases

When he came to Louisiana in 1970, Dr. Chuck Rush started his LSU AgCenter career conducting rice research, and 39 years later he's still searching for answers.

Rush began his career carrying out rice disease surveys and developing a research program to study and control seedling diseases, rice sheath blight, blast, stem rot, brown spot and *Cercospora* leaf spot diseases. He's still moving in the direction of finding ways to help rice producers control diseases.

"Disease is still the most uncontrolled constraint on rice," Rush said.

An Arizona native, Rush grew up on a dairy and cotton farm. Then it was off to college where he received his bachelor's and master's degrees from the University of Arizona and his doctoral degree from North Carolina State University.

But his next stop brought him to LSU, where he's been ever since.

"When I started, rice plots at the station were hand-planted," Rush said. "In those days, the seed was in an envelope and planted with a hand-pushed drop planter. I had 4 acres of plots – most planted by hand, although yield plots were planted with a drill."

Rice seed was treated with seed-protected fungicides. Then stands in the plots – hundreds of them – were counted by hand.

"Most of our work was done on grant funds from fungicide companies," Rush said. "Nothing was labeled then for diseases except seed protectants. We worked with DuPont to get Benlate labeled for rice and made progress on getting other chemicals labeled."

By 1984 he had spent 12 years running the fungicide testing program that he turned over to Dr. Don Groth. During his time on the program, Rush was the first to test all the seed-treatment fungicides labeled for rice.

After Groth's arrival, Rush began working on breeding for disease resistance, especially for resistance to sheath blight.

In another first, Rush was the original researcher to report eight diseases in Louisiana rice – sheath rot, leaf scald, bacterial sheath rot and panicle blight, white leaf streak, crown sheath rot, sheath blotch, feeder-root necrosis and false smut. He and his graduate students elucidated the importance of leaf surface interactions between host and pathogen regarding *Rhizoctonia solani*, the cause of sheath blight.

"We were breeding for sheath blight resistance," he said. "We inoculated F2 generations, then sorted for resistance and agronomic characteristics in next generations."



LSU AgCenter researcher Dr. Chuck Rush received the Rice Technical Working Group's Distinguished Service Award during its 2008 conference in San Diego. (Photo by Bruce Schultz)

**Checkoff funds for
Dr. Chuck Rush's
2007 research: \$48,649**

In the heyday, Rush had 600 crosses and thousands of panicle tests every year. Many trials were with double plots – one inoculated and one control for comparison with commercial varieties.

Rush also pioneered the development in the South for rating scales for rice diseases. He studied the effect of cultural practices on controlling rice diseases and developed disease nurseries, information on fungicidal control of rice foliar diseases and new sources of disease resistance in rice technology to begin looking for natural mutations, particularly clonal variation for sheath blight resistance in rice varieties.

Now, over his career, Rush has identified more than 300 lines showing sheath blight resistance and high yield potential, and he's turned them over to the breeding program at the Rice Research Station.

After a severe epidemic of panicle blight hit Louisiana in 1995, Rush began looking at microorganisms that live on rice leaves and began screening for the disease organism. He found two bacterial strains that cause panicle blight – one in grower fields the following year.

"Environmental conditions led to the development of epidemics in '95, '98 and 2000," he said. "The bacterial pathogen is seedborne and grows up with the foliage, particularly during periods of extremely high temperatures. We've had favorable weather since 2003, so we've had no epidemic since then. However, the disease occurs to some degree every year."

The main bacteria aren't found in the soil. "If we can control it on the seed, we can control it," Rush said.

He's been treating rice seed with antimicrobial chemicals, looking for rates that will control the disease and not damage the seed.

"In 2007, I had my last breeding test and turned over the program to Dr. Groth and Dr. Sha at the Rice Research Station," Rush said.

He's finishing his career focusing on chemical control of bacteria on seed.

"We've named I don't know how many new diseases in rice," Rush said of his career. "Seven or eight in the United States. And we've generated a bunch of lines with high levels of partial resistance."

Rush pointed out that total resistance isn't necessary – just high levels of partial resistance.

"I'm hoping we'll have a resistant sheath blight variety soon," he said. "I'm also hoping this will also give resistance to panicle blight. And it won't be long before transgenic rice lines will have disease resistance."

Rush's work in the LSU AgCenter includes publishing 294 articles, serving as major professor for 13 master's degree and 14 doctoral degree students, being recognized with a variety of awards and capturing more than \$1.6 million in grant funds.

"Chuck Rush has been a huge asset to the Louisiana rice industry during his tenure in the LSU AgCenter," said Dr. Steve Linscombe, AgCenter rice breeder and regional director. "He has developed a national and international reputation and is generally regarded as one of the premier rice pathologists in the world." –Rick Bogren

2009 Louisiana Rice Research Board Funded Projects

Continuing Projects

Agricultural Economics

Economic Analysis of Rice Production and Farm Management in Louisiana
Michael Salassi \$40,000

Entomology

The Panicle Rice Mite: Statewide Survey and Evaluating Crop Rotation as a Management Approach
Natalie Hummel \$11,000

Integrated Management Strategies for Insect Pests of Rice in Louisiana
Michael Stout \$82,000

Communications

Enhancement of Rice Research and Extension Communications
Frankie Gould, Steve Linscombe \$25,000

Plant, Environment & Soil Sciences

Development of Rice Germplasm for Sheath Blight Resistance, High Milling and Aroma
James Oard \$36,000

Weed Management in Herbicide-Resistant/Tolerant and Conventional Rice
Eric Webster \$107,000

Northeast Research Station

Rice Weed Research in Northeast Louisiana
Bill Williams \$43,000

Rice Research Station

Rice Research Station Overall Support
Steve Linscombe \$12,000

Development of Improved Medium Grain Rice Varieties for Louisiana
S. Brooks Blanche TRQ \$25,000

Development of Disease Control Practices in Rice
Don Groth \$60,000

Rice Management Strategies for Efficient Utilization of Agronomic Inputs and Natural Resources
Dustin Harrell \$120,000

Multiple Generation Rice Breeding Nursery
Steve Linscombe \$70,000

Development of Superior Rice Varieties for Louisiana
Steve Linscombe \$418,000

Development of Improved Long Grain and Special Purpose Rice Varieties for Louisiana
Xueyan Sha \$89,000

Marker-Assisted Breeding and Development of Molecular Markers for Important Traits in Louisiana Rice Production
Herry S. Utomo TRQ \$25,000

Southwest Region

Louisiana Rice Research Verification Project
John Saichuk \$46,000

TRQ Project Funding \$50,000
Checkoff Project Funding \$1,159,000
Total Continuing Project Funding \$1,209,000

New Projects

Plant, Environment & Soil Sciences

Characterization and Utilization of Genetic Traits for Resistance to Multiple Diseases of Rice
Jong Hyun Ham \$21,000

Rice Research Station

Rice Grain Quality Enhancement: Characterization of Grain Quality Among Elite High
Ida Wenefrida \$20,000

Total New Project Funding \$41,000

Total Funding \$1,250,000



LSU AgCenter entomologists Dr. Mike Stout and Dr. Natalie Hummell pick rice water weevils for testing new compounds that could be used to treat for the pest. (Photo by Bruce Schultz)

CHEMICALS OFFER PROMISE in battling water weevils, other insects

Checkoff funds for
this project: \$82,000



Rice water weevils are the No. 1 insect pest faced by rice farmers. (Photo by Bruce Schultz)

LSU AgCenter entomologist Dr. Mike Stout is continuing his work to help farmers with their No. 1 insect pest, the rice water weevil.

Stout said the new chemical seed treatment, Dermacor, has been effective on drill-seeded fields, but it is not yet approved for water-seeded rice. "I think there's a chance that will change," he said.

Stout also said he is testing three insecticides to fight weevils. One is a granular that is applied pre-flood or post-flood to kill larvae, and two are seed treatments.

"All three of them work well," Stout said. "We're still trying to figure out how they work best."

Stout said he also is testing neonicotinoid pesticides that would be used on stinkbugs. The chemicals are good alternatives to pyrethroids and have longer residual activity, Stout said.

In addition, Stout continues to study how agricultural practices could affect insect pressure. For example, studies with early-planted rice show the practice can result in lower weevil numbers.

Stout said he is studying different varieties and lines to find out if any of them have resistance to weevil infestations. Included in the study are the varieties developed at the LSU AgCenter's Rice Research Station since it opened almost 100 years ago.

"It looks like the older lines may be more resistant," he said.

Some newer varieties, such as CL 161, appear to be highly susceptible, Stout said.

The LSU AgCenter entomologist said it's possible traits from varieties and experimental lines that appear to be resistant to weevils could be incorporated into newer varieties without diminishing other desired traits. —Bruce Schultz

Broadleaf weeds, sedges present more problems in North Louisiana

Checkoff funds for
this project: \$43,000

Broadleaf weeds and sedges have become more problematic in recent years in North Louisiana rice fields, probably because of the increased use of Command and other herbicides with limited broadleaf and sedge activity, according to Dr. Bill Williams, an LSU AgCenter weed management specialist at its Scott Research, Extension and Education Center.

"We need to get back to a propanil-based weed program for early season weed control," Williams said.

Rice yields are declining in fields where broadleaf weeds get out of control, he said.

Before Command, farmers sprayed propanil at the 1- to 2-leaf stage and then followed up with another application.

Delaying broadleaf weed control leads to larger and more difficult weeds to manage. Larger plants are not eliminated, and weed populations increase, Williams explained.

By waiting until weeds are bigger, traditional broadleaf weed-control programs like propanil plus Londax are less effective, he said.

The LSU AgCenter scientist is testing an experimental herbicide from Valent that has excellent residual activity on broadleaf weeds.

"We're pretty excited about it, but it's a couple of years away," Williams said.

Texas weed also is getting a lot of attention as a major weed problem in North Louisiana, according to Williams.

The chemical Grandstand is effective against it, but it has drawbacks. "Our producers don't like to use it because of its potential for injury to rice," he explained.

Williams said resistant weeds have the possibility of becoming a major problem. Barnyard grass is a headache, and water hemp is now a problem in cotton and could become one in rice. —Bruce Schultz



Louisiana rice farmers grew rice on 468,000 acres in 2008, according to the U.S. Department of Agriculture – an increase from the 2007 crop of more than 100,000 acres. (Photo by Bruce Schultz)

Hurricanes slash excellent crop but many farmers still have good year

(Continued from page 1)

“A lot of this water that stayed in the fields has evaporated and left the salt behind,” Gauthier said.

Soil samples in the southern end of the parish showed salt levels as high as 8,000 to 12,000 parts per million, Gauthier said, and rain is needed to flush out the contamination.

He said the year started with optimism, but a cold April and late-season diseases hurt the crop. Heavy rains during pollination also did damage, he said.

Some who rushed to get their first crop out of the field ahead of the storms rutted their fields badly, and that probably affected the second crop, he said.

Gauthier said the first crop was probably an average of less than 40 barrels (64.8 hundredweight) per acre parishwide, slightly less than last year.

“The second crop is pretty poor, probably 10 barrels (1.6 hundredweight) or less,” he said. “The storms beat up the rice more than they expected.”

He expects the Vermilion Parish rice acreage, at 61,788 acres in 2008, to drop in 2009 because of the salty fields that may not support a crop. A similar decline occurred after Hurricane Rita in 2005.

Gauthier said Hurricane Rita also ruined a considerable amount of equipment, but that didn’t happen this time.

Dr. Steve Linscombe, LSU AgCenter rice breeder and director of the Rice Research Station, said the second-crop damage could have been worse if the panicles had been full when the hurricanes hit.

Second-crop yields ranged from terrible to fair. ‘For most people, it’s not too good.’ – Dr. Steve Linscombe

“It seems like the second crop took forever to ripen,” he said.

He said the second-crop yields ranged from terrible to fair. “For most people, it’s not too good,” Linscombe stressed.

Linscombe said the overall hurricane damage to the first crop wasn’t as bad as originally feared. While some farmers had extensive damage, others were able to make more of a crop than they had expected.

Linscombe also said he was surprised by the total acreage, set at 468,000 by the FSA, about 10 percent more than he expected.

Dr. Johnny Saichuk, LSU AgCenter rice specialist, said he thought earlier in the year that the 2008 crop would set a yield record. “I thought this year we would have broken it by a couple of hundred pounds,” he said.

Saichuk said the verification field in Vermilion Parish yielded 60 barrels (97.2 hundredweight) dry. That field was farmed by Durel Romaine.

Romaine said he was cutting 55 barrels per acre (89.1 hundredweight) on another field before Hurricane Ike, but by the time he was able to return to the field after the storm, that figure dropped to 38 barrels (61.5 hundredweight).

He said his second-crop yield was probably affected by the storms, but he wasn’t sure of the extent of the loss. He decided against even trying to harvest a second crop on a 125-acre field.

Saichuk said he doesn’t expect overall rice acreage to decrease in 2009. “Most farmers said rice took the beating of the storms better than any other crop,” he said.

Farmer Blue Zaunbrecher of Lake Arthur said he expects to plant the same amount of rice next year, and he said his neighbors expect to maintain their current acreage.

Zaunbrecher said he expected his 2008 crop to yield better. “I didn’t expect the price to drop as much as it did,” he said. “At least the price of fuel has come down.”

North Louisiana rice fields also were hurt by hurricane damage, mostly from Hurricane Gustav after it came ashore Sept. 1.

Keith Collins, LSU AgCenter county agent in Richland Parish, said North Louisiana rice losses were significant but not as bad as it seemed the first days after Gustav.

“It looks like when it’s all said and done we’ll have a 30 percent loss,” he said.

Collins said one farmer had 300 of 750 acres at a total loss, and the yield was half of the farmer’s average. “He was probably as hard hit as anybody,” Collins said.

Collins said farmers haven’t had a chance to catch their breath yet to figure out next year’s plan.

“It’s all about price,” he said.

Farmer John Owen of Richland Parish said he is managing to har-

Louisiana Rice Research

Louisiana Rice Research is a publication of the Louisiana Rice Research Board prepared by LSU AgCenter Communications, Frankie Gould, Director
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For more information on Louisiana rice production and Rice Research Board activities, visit this Web site: www.lsuagcenter.com/rice

Rice research made possible through a partnership among the Louisiana Rice Research Board, LSU AgCenter and other sources.

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P.O. Box 25100
Baton Rouge, LA 70894

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Baton Rouge, LA

North Louisiana rice losses were significant but not as bad as it seemed in the first days after Gustav. – Keith Collins

vest 90 percent of his rice, far better than the days after Hurricane Gustav passed through the area. Just a few more inches of floodwater would have ruined a crop that was his most expensive to grow, he said. “It was the most precarious situation I’ve ever been in,” he stressed.

Some farmers lost their entire crop, he said, while losses of 20-30 percent are not uncommon. “I just got

lucky,” Owen said. “There are some real horror stories out there.”

He said his yields ranged widely, from 5,000 pounds per acre to 8,000 pounds, and he was unable to pick up all the rice that got knocked down.

Jeffrey Sylvester of Whiteville was surprised he was able to harvest anything on some of his fields that were submerged by Hurricane Gustav.

“There was a bunch of rice we didn’t think we’d be able to pass a combine through,” he said.

The flooded rice averaged 20 barrels (32.4 hundredweight) or less, he said, and he ended up with 32 barrels dry (51.8 hundredweight) overall per acre. –**Bruce Schultz**



Concordia Parish farmer Noble Guedon, like many North Louisiana farmers, had a muddy harvest because of heavy rains from hurricanes Gustav and Ike. In this photo, a tractor is pulling Guedon’s combine out of the mud. (Photo by Johnny Saichuk)