

Louisiana Rice Research Board

ANNUAL REPORT

2018

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Checkoff Funds Support Research for Louisiana Rice Farmers

Tropical weather events result in mixed rice harvest

Two tropical weather events and frequent rain created challenges for Louisiana rice farmers in 2017.

Dustin Harrell, LSU AgCenter rice specialist, said north Louisiana farmers had an excellent year, while reports from farmers in southwest Louisiana were mixed.

“In some cases, it was the worst they’ve seen in 20 years,” he said.

Harrell recalled that the year started out well with warm weather that allowed early planting. That was followed by rainfall that resulted in flooding in some areas, reducing the state’s acreage by about 4,000 acres.

Rains continued on rice plants that were already stressed, and the cloudy weather interfered with development and growth.

Stormy weather interfered with the crop’s development, Harrell said.

“We had several days with high winds and rain that affected pollination and grain fill,” he said.

While most of Louisiana was spared from the flooding rainfall of Hurricane Harvey, the storm complicated harvest for farmers on the west side of the Louisiana’s southwest rice-growing region.

Jeremy Hebert, AgCenter county agent in Acadia Parish, said farmers scrambled to cut rice ready to harvest before the storm.

“Farmers were helping farmers, and they got the rice out,” he said.

Harrell said it was not a surprise that yields were not exceptional because of the cloudy, stormy weather.

“All that played out to be a variable early return for yields,” he said.

Steve Linscombe, recently retired director of the H. Rouse Caffey Rice Research Station, said the yields varied widely.



A research combine harvests rice at the H. Rouse Caffey Rice Research Station. In 2017, more than 10,000 research plots were grown at the station for variety development as well as research for disease, insect and weed control.

“It’s as much variation as I’ve seen in quite a while,” Linscombe said. “This has been one of the more difficult years for me to estimate our statewide yield.”

On a positive note, milling quality was high, Harrell said. He explained that night temperatures were not high, which contributed to even grain-filling.

Added to the cloudy weather was wind from Tropical Storm Cindy that hit Louisiana in June just as many fields were flowering for pollination, he said. The winds damaged the panicles, resulting in numerous blanks and lowered yields in those fields.

James Meaux, LSU AgCenter county agent in Calcasieu Parish, said farmers in the Vinton area were unable to harvest on time, and Tropical Storm Harvey caused even more delay.

He said frequent rains interfered with fertilizer

applications for the ratoon crop because runways were too wet for airplanes.

Meaux said yields were in the high 30-barrel range to the mid-40s (108 to 144 bushels).

Adam Habetz, of Vinton, said his first-crop fields cut before the storm yielded 42 barrels (151 bushels), and fields cut post-storm dropped to 38 barrels (137 bushels). He said much of the decrease could have been because of the large amount of lodging related to the storm.

Results from the first fields cut in northeast Louisiana are more encouraging. Harrell said the harvest in north Louisiana was good with excellent yields.

“The crop has just been tremendous up there,” Harrell said.

He said some fields produced in excess of 200 bushels (56 barrels), and one farmer had 215 bushels (60 barrels).

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From the Louisiana Rice Research Board

Praying for strength in the fields, wisdom when setting the budget

Every year in the fall, the Louisiana Rice Research Board meets to plan the next year's budget. Several years ago, the only decision was determining how checkoff funds would be used. Now, for the past few years, we have another source of revenue from trade agreements with other nations. These funds from the sale of tariff-rate quotas (TRQ) have been entrusted to each rice state determined by relative rice production through the years. The board meets to decide how to use approximately \$1.2 million in checkoff funds and about \$1.5 million in TRQ funds. No small task.

The board — 14 producers and a representative from the Louisiana Department of Agriculture and Forestry — takes a full day, usually 8 a.m. until 5 p.m., to receive reports from selected scientists whose projects are supported by the funds. Then the board decides how to spend the money in the coming year. These guys take a full day off the farm to work for you. Usually they are in the middle of harvesting second crop, or, in the case of north Louisiana, still getting the first one out. These guys take it seriously.

When the board meets, there are several factors to consider. Should the research be basic or applied? Basic research is scientific research to improve scientific theories for improved understanding or prediction of natural or other phenomena. Applied research results can be used immediately in the field.

The board considers proposals for research addressed at pre-harvest and post-harvest problems. Pre-harvest research works to create the highest quality and highest yielding production possible, working to improve variety development, nutrient demand, irrigation and control of disease, weed and insects. Post-harvest research considers milling quality, marketing research, economic analysis, nutrition standards and safety and other issues.

Then the board has to consider whether to focus totally on Louisiana rice production or team with other rice states' research boards to fund national research that benefits the entire rice industry. Using pooled funds from the states enables research to benefit everyone, and the total funding can be considerable as each state participates. The USA Rice Foundation plays a significant role in facilitating national projects.

The board also determines if all the available funds should be spent, or if some should be held in reserve for years when production falls. The board has a conservative reputation for building up reserves for future consideration, and now an endowment has been established with the LSU Foundation to create an LSU AgCenter chair for rice research. The returns from that investment will provide rice research funds in perpetuity.

As you look at the report of the decisions of the board from year to year, you will find that funds are expended for all the categories. The debate and discussion around the table is intense, responsible and productive, but seldom is there a conflict or standoff on decisions. The collective decision is more valuable than the intelligence of any one board member.

Recently at a parish meeting of about 100 farmers, I was asked to return thanks and ask the blessing. It came to me to ask God for strength because our work in the fields is hard. I asked for safety because our work is dangerous, and I asked for wisdom because we producers have a lot of decisions to make. We should all ask God for wisdom for the Rice Research Board as it is entrusted with the responsibility to use your dollars in the most productive manner possible.

Jackie Loewer, Chairman
Louisiana Rice Research Board



The Louisiana Rice Research Board decides how farmers' checkoff funds will be spent on research aimed at helping rice farmers. Board members are, left to right, bottom row, Brian Wild, Chairman Jackie Loewer, Vice Chairman Clarence Berken, Secretary-Treasurer Richard Fontenot, Jason Waller, Damian Bollich, Jude Doise; top row, left to right, Phillip Lamartiniere, Benjamin Rayburn for Louisiana Agriculture Commissioner Mike Strain, Ronald Sonnier, Fred Zaunbrecher, Sammy Noel, Donald Berken, Michael Fruge and Dane Hebert.

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Flooding, hurricanes result in strong rice market

Economists at the LSU AgCenter are bullish on the rice market this year.

"It looks very optimistic for the long term," said Mike Deliberto, the rice economist with the LSU AgCenter. "It's a lot different talk than last year."

He said decreased production and a lower harvested acreage figure, both products of bad weather, have resulted in a smaller crop.

The harvested acreage this year, at 2.4 million, is the smallest since 1987-'88, he said. Last year rice was harvested on 3.1 million acres.

Production has decreased by 20 percent from 2016, he said, down to 178.6 million hundredweight.

Much of the decrease can be attributed to spring flooding and Hurricane Harvey, which affected Louisiana and the other Midsouth rice growing states, he said.

Last year, the average farm price was \$15.58 a barrel, compared to this year's average of \$20.25, or \$4.33 a bushel in 2016 and \$5.62 a bushel this year.

"Long grain ending stocks are projected to be reduced by 50 percent," he said.

The Arkansas crop decreased by 450,000 acres in 2017, which accounted for much of the stock reduction.

Deliberto said rice exports are projected to drop by 9 percent from last year, and imports have increased by 3 percent.

EPA staff visits Louisiana rice farms, mill

Staff members from the U.S. Environmental Protection Agency visited the south Louisiana rice industry in June.

Steve Linscombe, the recently retired director of the H. Rouse Caffey Rice Research Station who helped organize the tour with the USA Rice staff, said several of them had never seen a rice field.

"It's really important to get these people to see production agriculture in action," Linscombe said. "They raved about how beneficial this tour was."

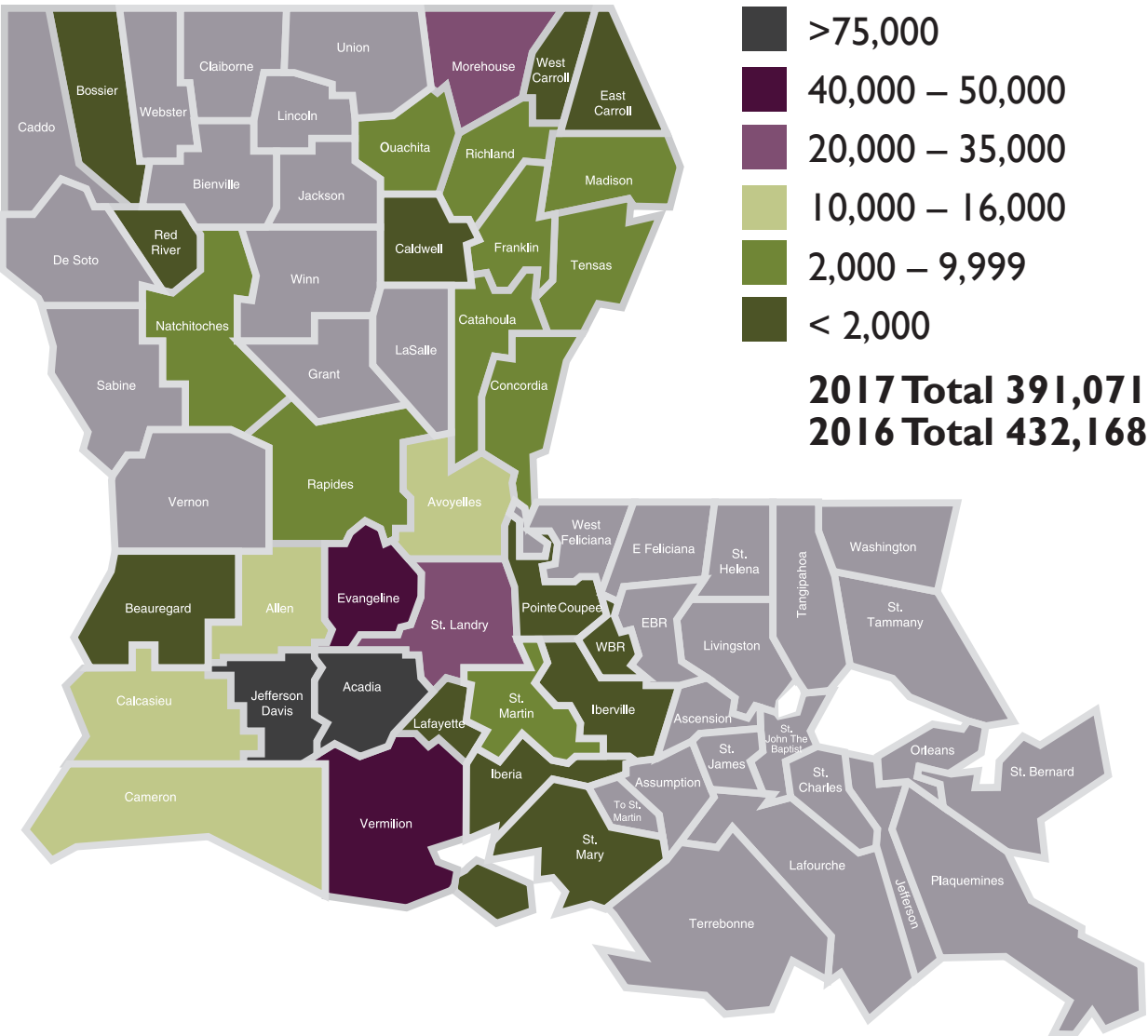
He said the work of all of the EPA staffers involved rice.

The group visited rice farms to learn about the problems faced by farmers and conservation practices conducted on farms, and they rode in a crawfish boat to learn about the interaction with rice and crawfish.

They also visited an aerial applicator business and were given a tour of the Supreme Rice Mill in Crowley to learn about the need for stored grain insecticides.

2017 Louisiana Rice Acreage

by Parish, All Types



Top 10 Rice Parishes

Parish	2016 Total Acreage	2017 Total Acreage
Acadia	83,598	80,324
Jefferson Davis	81,013	76,377
Vermilion	48,857	45,380
Evangeline	43,970	41,829
St. Landry	24,051	21,329
Morehouse	27,504	20,624
Allen	15,646	14,452
Avoyelles	13,666	12,203
Calcasieu	12,291	11,136
Cameron	11,415	10,312

Study of fungicide use on second crops leads to more questions

Don Groth, LSU AgCenter plant pathologist, has been studying the effects of fungicides on second crop yields and diseases.

“So far, there are more questions than answers,” he said.

In the second year of testing, Groth has three trials. The first trial is looking at 15 different fungicide treatments applied on the first crop.

“Results are showing an increased number of tillers on the second crop but little or no effect on the second-crop disease prevalence,” Groth said. He said the second trial is looking at the use of various fungicide treatments applied on the second crop. He said that practice has been effective if timed correctly, but it is not currently labeled and is not as effective as stubble management.



Don Groth, LSU AgCenter plant pathologist, examines test plots being grown for a second crop. The plots on the left had been sprayed with a fungicide at the boot stage in the first crop, while the plots on the right received no fungicides.

The third trial involves spraying propiconazole from one to eight weeks after harvest to determine the best timing for second-crop fungicide application. He said the best disease control and yield results have been found in rice sprayed about five weeks after harvest.

If sprayed too soon, the recovering plants lack adequate tissue to absorb the fungicide, he said, and spraying later has no effect because treatment occurs after disease has started and the fungicide has little or no curative activity.

Groth said he is pleased that the new fungicide Amistar Top has been granted federal and state labels for 2018.

“This fungicide is going to be an excellent new tool for rice disease control,” Groth said.

He said the fungicide has activity against both of the fungicide-resistant strains of the sheath blight pathogen. It also has activity against blast and Cercospora, allowing control of multiple rice diseases with well-timed applications.

New herbicides evaluated for 2018 growing season



Eric Webster, LSU AgCenter weed scientist, sprays Provisia herbicide on plots at the South Farm of the H. Rouse Caffey Rice Research Station.

Much of the LSU AgCenter’s recent weed-control research has focused on Provisia with the expectation that the technology would be released for the 2018 growing season.

Eric Webster, AgCenter weed scientist, said a study of tank-mixing Provisia with other herbicides continues to show the practice is risky because of the antagonism potential that results in loss of effectiveness for Provisia.

“My suggestion would be for this first year, try not to push it. It’s hard to predict when it’s going to happen,” Webster said. “It doesn’t happen every time, but everything has the potential to tie up Provisia.”

He said the worst chemicals to use with Provisia are 2,4-D, Grasp, Grasp Extra, Regiment and propanil.

He said rice sprayed with Provisia in research plots and seed production fields showed injury to the herbicide, probably because of persistent cloudy weather.

Webster said research was conducted on eight experimental herbicides in 2017 in addition to Provisia.

Ben McKnight, LSU AgCenter research associate, said benzobicyclon is not expected to be released until 2019; however, Loyant has already obtained state and federal approval, so it will be available in 2018 for broadleaf weeds and grasses.

McKnight said rice treated with benzobicyclon was injured when planted in a water-seeded system, and severe injury was observed on young water-seeded rice under continuous flooded conditions. To avoid injury, rice plants should be in the three-leaf stage before benzobicyclon is applied, he said. McKnight also said that fields treated with benzobicyclon should remain flooded for two weeks for maximum effectiveness.

Loyant has also caused some injury on treated rice when the rice is being grown on freshly cut ground. Webster said he received more calls in 2017 about waterprimrose, Texasweed and gooseweed. Also, rice flatsedge resistance to Permit is becoming more widespread across the state, he said.

Elite hybrid developed by AgCenter researcher

Hybrid development by LSU AgCenter researcher James Oard has resulted in an elite hybrid, CLH161, that was tested in 2017 in a commercial advanced trial in five locations across Louisiana.

The hybrid excelled in every category against CL111, Provisia and commercial hybrids, Oard said.

Its yield potential is 90 percent of commercially available hybrids, and it has considerably less chalk, he said. It has a 35 percent yield advantage over CL111 and the new Provisia variety.

He said two new hybrid lines with the Clearfield

trait and two with the Provisia trait show promise. They have a 15-30 percent yield advantage over their conventional counterparts with less chalk than commercially available hybrids.

Crosses are being made in the greenhouse to provide more seed for further testing in 2018, he said.

Oard also is working on development of conventional lines with sheath blight resistance.

Oard said the lines showed high resistance levels.

“We continue to cross these back to elite Louisiana

varieties, and we will test them again next year,” he said.

He said the lines will be grown in 2018 by breeder Adam Famoso in observational trials.

“If these lines pass the test, they will be moved along in the varietal development pipeline,” he said.

The goal is to produce commercially available varieties with high levels of sheath blight resistance to avoid the need for fungicides.

“The results from this year’s trials look very promising,” Oard said.



Don Groth, resident coordinator of the H. Rouse Caffey Rice Research Station



Kurt Guidry, Southwest Region director



Dustin Harrell, research coordinator for the Rice Research Station

LSU AgCenter names new rice research administrators

The LSU AgCenter has named Don Groth as the new resident coordinator of the H. Rouse Caffey Rice Research Station.

Kurt Guidry, the new director of the LSU AgCenter Southwest Region, made the announcement Oct. 31 at a meeting of the Louisiana Rice Research Board.

Guidry also announced that Dustin Harrell is the station's research coordinator, a position Groth previously held.

"We're excited about having both of these outstanding scientists in their new roles," Guidry told the board.

Groth has worked at the rice station for 34 years. He replaces Steve Linscombe, who retired Oct. 1.

Groth earned his bachelor's degree in botany from Eastern Illinois University and his master's and doctorate degrees from Iowa State University.

"I'm eager to work with the rice industry and continue the success of the station," Groth said.

Harrell, the extension rice specialist and research agronomist, obtained his bachelor's degree from Texas A&M University in agriculture science, his master's degree from Stephen F. Austin State University in soil fertility and his doctorate from LSU in soil fertility and chemistry.

He has worked at the rice station since 2006. Previously, he was a high school science teacher and a soil scientist for the U.S. Department of Agriculture.

"I look forward to the opportunity to help provide leadership for the rice station going forward," Harrell said.

Rogers Leonard, LSU AgCenter associate vice president for plants, soils and water, said Groth and Harrell will continue the tradition of excellence at the station.

Groth will have administrative oversight for all fiscal and physical resources at the station. "His institutional history with the faculty and staff of the station will make the transition from Linscombe's leadership much easier," Leonard said.

Harrell will be the station's research coordinator in support of all research efforts for faculty with projects at the station.

Both scientists will maintain most of their current responsibilities for research and extension activities, Leonard said.

Guidry grew up in the Acadia Parish town of Morse. He attended the University of Louisiana at Lafayette and graduated in 1991 with a degree in agribusiness.

He earned a master's degree in agricultural economics from LSU and then took a job as a 4-H agent in St. Landry Parish for 10 months. After earning his doctorate in agricultural economics from Oklahoma State University in 1997, he was hired by the LSU AgCenter as an agricultural economist working with a variety of commodities, including rice, cattle and soybeans.

His responsibilities have included the compilation of data for the annual Ag Summary that tracks the annual statistics for every commodity in the state. Guidry said he will continue putting the Ag Summary together at least for the first couple of years in his new job.

He said he realizes he has big shoes to fill in the position previously held by Linscombe.

"I'm happy to fill a portion of those shoes," he said.

Guidry said he wants to increase awareness of the quality of research coming from the station and improve efficiency in the region while maintaining the level of service and commitment.

"We can't lose sight of what built this station," he said.

He said research is what will help keep rice producers in business.

AgCenter uses DNA testing to ensure rice seed purity

LSU AgCenter rice breeder Adam Famoso and the AgCenter's Foundation Seed Program are working together to incorporate DNA testing as an additional tool to help ensure the purity of foundation seed.

These activities utilize the genetic SNP marker system that was established in 2016 through Louisiana Rice Research Board funds.

"We have identified and developed a set of DNA markers that allows us to differentiate and identify any variety," Famoso said. "Using this marker set we have developed genetic profiles of all our varieties."

Famoso said rice leaf samples are collected from Foundation Seed Program manager Rick

Zaunbrecher's foundation seed headrows at the H. Rouse Caffey Rice Research Station and analyzed to make sure that families of seed stock fit an established genetic profile of the variety, including key traits, such as height, maturity, disease resistance and cooking characteristics.

Any samples that do not match the known genetic profile of that variety are discarded before planting the foundation seed headrows the subsequent year. After screening genetically, the plants that are grown in headrows are still evaluated for visual screening, he said.

"Sometimes the markers identify things we can't see in the field and sometimes the markers do not

detect any difference, but then we can see things are clearly different in the field, so the markers and field evaluations complement each other," Famoso said.

Once a family is identified with an unwanted trait, either by genetic analysis or observation, it is discarded. Only rice that passes the genetic and visual screenings will be threshed and bulked for seed.

In 2017, 7,000 leaf samples were tested in the program at a cost of only \$5,000 for materials, Famoso said.

"That is a relatively small investment to help ensure the purity and uniformity of the varieties, considering the cost of roguing a field," he said.

Research plots in farmers' fields crucial to studying rice pests, disease



Manoch Kongchum, LSU AgCenter agronomist, takes a soil sample from research plots at the Charlie Fontenot Farm in St. Landry Parish. The samples were extracted in a study to compare the amount of nitrogen in the soil before and after the rice growing season.

Off-station research plots planted in farmers' fields across the state are essential to scientists at the LSU AgCenter H. Rouse Caffey Rice Research Station.

"When it comes to fertility and agronomy, we have to go where the problems are," said Dustin Harrell, AgCenter rice extension specialist. "Different varieties perform better at different locations."

Steve Linscombe, recently retired rice breeder and station director, said growing experimental plots on farms was essential to his work to develop new varieties. "Off-station work is critical to everything done at the Rice Research Station. You can't have too many research locations," Linscombe said. "The more data, the better."

Kent Lounsberry's farm near Lake Arthur has been used for off-station research for 33 consecutive years, first with Kent's father, Errol, and then with Kent.

Last year was the 23rd year that the Jimmy Hoppe farm near Iowa made land available for research plots there.

Other farms include the R&Z in Acadia Parish, the Bieber farm in Evangeline Parish, the Woodlands Plantation in Richland Parish, the John Owen farm in Franklin Parish, the LaHaye farm in Evangeline Parish, the Fontenot farm in St. Landry Parish and the Vic Jordan farm in Morehouse Parish.

Land at the Northeast Research Station near St. Joseph also was used in 2017.

Each location has different characteristics that provide a good variety of conditions. For example, the Hoppe farm has a significant sheath blight problem, while the soil at the Lounsberry farm has a low nitrogen requirement.

Also, each farm has a different soil type that helps

provide a better idea of how potential varieties perform in different soils.

Setting aside land for research plots means each field will be out of commercial cultivation from mid-spring to the fall if a ratoon crop is grown.

"That's a long-term commitment from the grower," Harrell said.

Don Groth, LSU AgCenter plant pathologist, said he can create disease scenarios for blast and sheath blight at the station but it doesn't compare to a real-world setting.

Groth said he cannot artificially induce *Cercospora*.

"If we go to certain locations, I know I can test for that there," he said.

Tests conducted on farms give researchers confidence that the solutions they find will work in a wider range of conditions, he said.

Rain interferes with alternative wetting and drying research

Unusually wet weather interfered with a project to test alternative wetting and drying (AWD) of a rice crop.

The research by Manoch Kongchum, an LSU AgCenter agronomist, was intended to compare conventional flooded or normal delayed flooded plots with AWD plots that maintained minimum water during mid-season.

This year, rainfall kept soil wet for most of the growing season, Kongchum said. "We can't make any conclusions because we received a lot of rain," he said. "We pumped water only three times for conventional flooded and one time for AWD."

The H. Rouse Caffey Rice Research Station near Crowley received 32 inches of rain while the test plots of CL153 and XCL729 were growing. A total of 8.4 inches was pumped onto the conventional flooded plots and 5.8 inches onto the AWD plots.

The AWD plots yielded 4 percent less than the conventionally flooded plots, Kongchum said, and used 30 percent less water.

In another project, Kongchum is using a gas chromatograph to test Jazzman rice populations for the desired aroma.

He said leaf tissue was tested at tillering, panicle initiation, boot, heading and maturity, and the panicle initiation gave the best results for assessing levels of 2-AP, the dominant chemical compound associated with the aromatic quality.

Testing early in the growth stage prevents having to wait until a plant has matured to determine if it has the desired aroma.

Kongchum said soil differences can affect aroma, and poor soil appears to result in enhanced aroma.



James Villegas, LSU AgCenter graduate student, examines a rice stalk to find stem borers, such as the Mexican rice borer. Villegas is conducting a study of yield losses from stem borers.

Advances made in studies of weevils', borers' locations in rice fields

Blake Wilson, LSU AgCenter entomologist, said a project studying the locations of rice water weevils and stem borers in rice fields could result in a savings for farmers.

He said the study found that weevil populations on the edges of a field were three times the level of weevils in the center of the field. That could allow farmers to concentrate insecticide-treated seed in the areas with higher populations and avoid using treated seed where low populations of weevils are found.

Stem borer populations were randomly located throughout the field, he said.

He said the study produced encouraging data.

“We’re going to repeat this test next year with more extensive sampling,” Wilson said. “It may develop into recommendations for growers later down the road.”

Graduate student James Villegas conducted a study of yield losses from stem borers from whiteheads, which are also known as blank panicles.

Wilson said stem borer populations, including those of the invasive Mexican rice borer, have increased considerably at the H. Rouse Caffey Rice Research Station near Crowley. The number of whiteheads from stem borers is directly related to yield loss. However, the relationship is not as well understood as the relationship between weevil densities and yields.

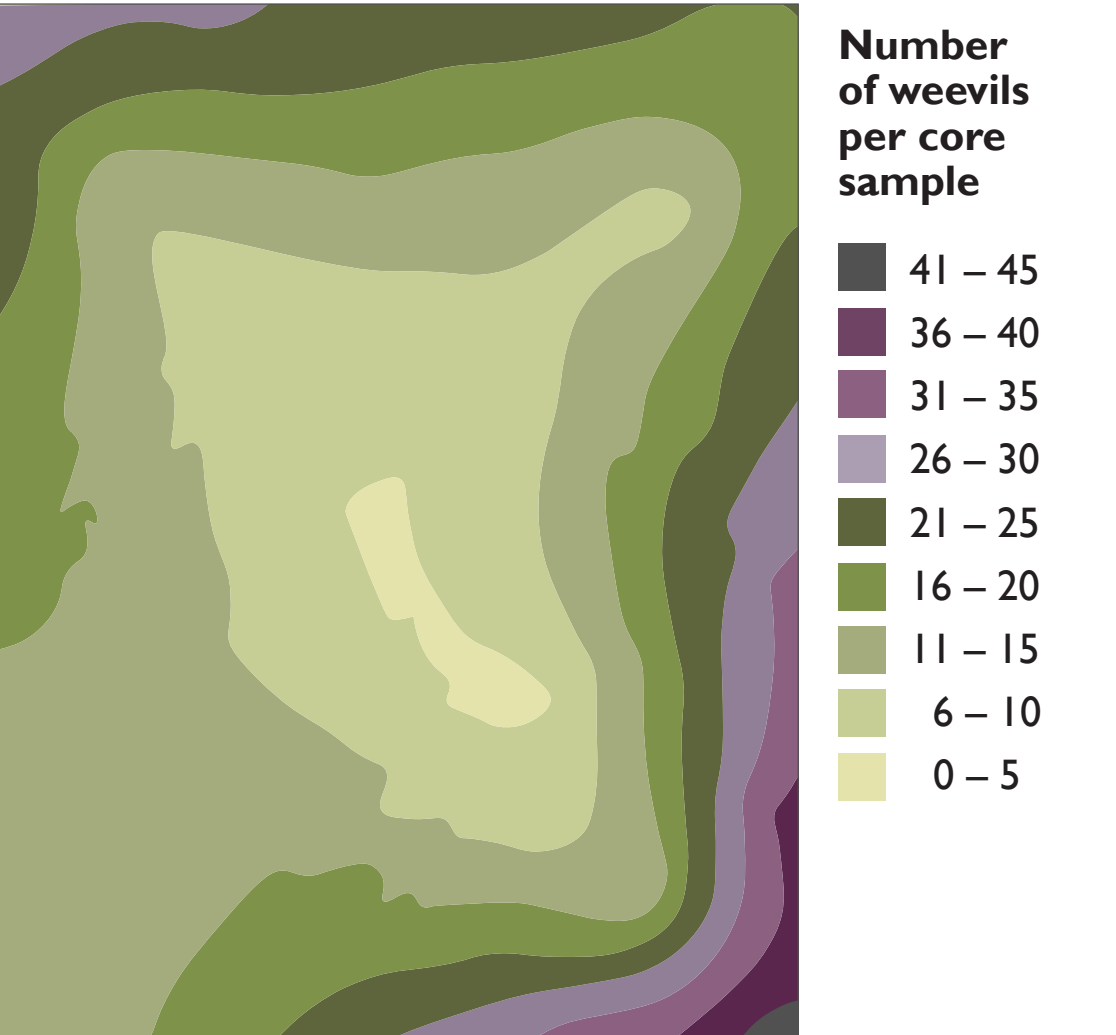
Villegas also conducted a study to determine which varieties show fewer yield losses from insect damage.

“It looks like hybrids are more tolerant than conventional varieties,” Wilson said.

Graduate student Emily Kraus conducted a study to determine if early insect feeding on a plant induces insect resistance later in the season. Wilson said the study will be continued in 2018.

Wilson said several insecticides yet to receive federal approval were tested that had good results against weevils and stem borers.

Spacial distribution of rice water weevil larvae



Average weevil density is threefold greater near field edges.

Funding from Colombian trade agreement benefits AgCenter research station

Several improvements in the works at the LSU AgCenter H. Rouse Caffey Rice Research Station near Crowley are being funded with money from a trade deal with Colombia. The money has been earmarked for research in each rice-producing state.

The expenditures, funded by the Colombian trade agreement and approved by the Louisiana Rice Research Board, include:

- A deep-water well.
- Two tractors.
- An experimental plot planter.
- An experimental plot combine.
- A row planter.
- A larger mechanical shop.
- An equipment storage area.
- Refurbishing four labs.
- Satellite offices for research associates and graduate students.

Also, an addition to the existing station administrative office and a state-of-the-art milling system will be partially funded with the Colombian trade agreement money.

The board also has approved using some of the funds to establish a research chair. The principal will be used to generate funds for the chair for research at the station.



A new irrigation well was drilled on the H. Rouse Caffey Rice Research Station in 2017, one of several capital improvements at the station. The project was one of several funded through the Colombian Free Trade Agreement for rice research.

Drones may be useful for detecting disease, fertility needs in crops



A drone flown by Brady Williams, LSU AgCenter research specialist, is used to pollinate hybrid rice at the H. Rouse Caffey Rice Research Station. The technique has been used on hybrid rice in China and is being tested at the station for its effectiveness.

The use of unmanned aerial vehicles for agriculture is being explored at the LSU AgCenter H. Rouse Caffey Rice Research Station.

Jimmy Flanagan, LSU AgCenter extension agent, has been assigned to work with drones in southwest Louisiana.

Flanagan said drones will become valuable for early disease detection in crops. "Other uses will develop with time," Flanagan said. "It's going to take a lot of flying and a lot of hard work."

Flanagan said he is using the devices to help entomologist Blake Wilson conduct research on rice water weevil treatments.

Wilson said the drones were used to detect high levels of weevil injury on rice plants. "We're still investigating that," he said.

Flanagan also is working with agronomist Dustin Harrell on a study of nitrogen applications in rice.

"UAVs are a very powerful tool, and we think they will have an impact in rice production," Harrell said. "We want to be proactive in the way UAVs are used."

He said UAVs were used to estimate plant populations in newly planted rice this year.

"It was more difficult than expected because of the small size of the seedlings, but we do have some theories about how we could improve this application for next year," he said.

He said the main use in his fertility program is to determine the mid-season nitrogen needs of rice using sensors on the aircraft. Previously, handheld Greenseeker sensors have proven effective and they have their own light source, but those devices cannot cover large areas. Harrell said UAVs require sunlight, which can vary considerably, especially on cloudy days.

"The outlook using this technology in the near future has a high probability of success," Harrell said. "We are trying to use algorithms for the Greenseeker to make it work with drones."

A drone is also being used experimentally to see if it can be used to pollinate flowering rice plants.

"We tested the drone because they are used in China already for hybrid seed production and because it may be more efficient than standard methods we use for small plots at the Rice Research Station," said Jim Oard, LSU AgCenter hybrid breeder. "It also may be useful as we increase the number of hybrids during a crop season."

Oard said the 2016 drone tests were inconclusive, but testing will be conducted again next year.



Rice Research Projects for 2018

CONTINUING PROJECTS		
Agricultural Economics & Agribusiness		
		\$40,000
	Economic Analysis of Rice Production and Farm Management in Louisiana <i>Deliberto, Michael (Salassi)</i>	
Dean Lee Research Station		
		\$45,650
	Development of UAV and Drone Technologies for Rice Production Field Use <i>Price, Randy</i>	
Entomology		
		\$109,000
	Integrated Management Strategies for Insect Pests of Rice in Louisiana <i>Wilson, Blake (Stout)</i>	
Bob R. Jones Idlewild Research Station		
		\$30,000
	Development of an Encapsulation Protocol for Sodium Nitrite for Control of Feral Swine in Rice <i>Gentry, Glen</i>	
LSU Department of Biological Sciences		
		\$21,197
	Identifying Low-Arsenic Rice Varieties <i>Smith, Aaron</i>	
Northeast Research Station		
		\$15,000
	Yield Evaluation of Commercial-Advanced (CA) Testing Program in Northeast Louisiana <i>Miller, Donnie</i>	
Plant Pathology & Crop Physiology		
		\$84,926
	Characterization and Utilization of Genetic Traits for Resistance to Multiple Diseases of Rice <i>Ham, Jong Hyun</i>	
	Development of Seed Treatment Methods to Enhance Rice Health <i>Ham, Jong Hyun</i>	
H. Rouse Caffey Rice Research Station		
		\$1,818,331
	Integrating Molecular Breeding Approaches into Rice Variety Development Program <i>Famoso, Adam</i>	
	Enhancement of Rice Research and Extension Communications <i>Gould, Frankie (Linscombe)</i>	
	Development of Disease-Control Practices in Rice <i>Groth, Don</i>	
	H. Rouse Caffey Rice Research Station Overall Support <i>Groth, Don</i>	
	Rice Management Strategies for Efficient Utilization of Agronomic Inputs and Natural Resources <i>Harrell, Dustin and Fontenot, Keith</i>	
	Louisiana Rice Research Verification Program <i>Harrell, Dustin</i>	
	Effect of Water Management Practices on Nitrogen-Use Efficiency and Yield of Drill-Seeded, Delayed Flood Rice Production <i>Kongchum, Manoch</i>	
	Development of Hybrid Rice and Sheath Blight-Resistant Germplasm for Louisiana <i>Oard, James</i>	
Marker-Assisted Breeding and Development of Molecular Makers for Important Traits in Louisiana Rice Production		
	<i>Utomo, Herry</i>	
Rice Grain Quality Enhancement: Characterization of Elite High-Protein Lines and Development of Herbicide-Resistant Rice		
	<i>Wenefrida, Ida</i>	
Rice Research Station Infrastructure, Facilities Upgrade and Support		
	<i>Don Groth</i>	
School of Plant, Environmental and Soil Sciences		
		\$253,020
	Breeding Salt-Tolerant Rice Varieties <i>Subudhi, Prasanta</i>	
	Weed Management in Herbicide-Resistant/Tolerant and Conventional Rice <i>Webster, Eric</i>	
NEW PROJECTS		
Northeast Research Station		
		\$35,000
	Development of Best Management Practices for Row Rice Production Systems in Northeast Louisiana <i>Miller, Donnie and Collins, Keith</i>	
TOTALS		
Total Funding from Rice Producers for Continuing Projects:		\$2,417,124
Total Funding from Rice Producers for New Projects:		\$35,000
Total Funding for 2018:		\$2,452,124

Additional yield test planned to study dozens of lines



Lab technician Jessica Thornton extracts tissue samples from a rice plant for genetic analysis of rice lines grown in the greenhouse. With the genetic marker screening, lines that lack desired traits or that have undesired traits can be eliminated before they are planted in the field.

Adam Famoso, LSU AgCenter rice breeder, said he will continually try to increase the efficiency and size of the breeding program at the H. Rouse Caffey Rice Research Station.

“The foundation of what we’re doing is staying the same, but we’re just building on that.”

He said the two primary traits, yield and quality, will continue to be stressed. Other traits, such as maturity, disease resistance and agronomic qualities, also affect profitability and they will also be important factors. He said approximately 80 percent of variety development will be focused on long-grain varieties, with the remainder for medium-grain.

He is looking at ways to speed up the process.

“Everything we’re trying to do with these approaches is focused on increasing the number of lines evaluated or increasing the speed at which the breeding pipeline moves,” he said.

Using tissue samples from rice plants grown in the greenhouse and genetic marker technology will help Famoso make a quicker determination of which lines will be candidates for further testing. The use of the DNA markers and the greenhouse complement the activities conducted in Puerto Rico.

“The utilization of the winter nursery in Puerto Rico is a critical resource for speeding up the breeding process, but we are limited in the selections we can make there. The DNA marker lab and greenhouse advancement allow us to make selections year-round. We’re making breeding selections today.”

By accelerating the selection process, Famoso plans to have more suitable candidates for yield testing.

Famoso will be adding an additional multi-location regional yield test in 2018, which will consist of 150 experimental lines to be tested at four locations.

This new test will serve as an intermediate test between the preliminary yield test, which is tested on the station, and the commercial advanced yield test, conducted at seven to 10 locations across the state.

The regional yield test will enable testing of 150 lines advanced from the preliminary yield test, whereas only about 40 lines can be tested in the commercial advanced test. This will be done at the Rice Research Station, the Lounsberry farm near Lake Arthur, the Fontenot farm near Palmetto and the Northeast Research Station near St. Joseph.

“This is an additional phase of testing to increase the number of lines we will be reviewing for potential variety development,” Famoso said. “The established methods and procedures will be continued, but this is an additional step in the process.”

Puerto Rican farm used for AgCenter rice variety development survives hurricane

A Puerto Rico farm facility used for rice variety development by several universities, including the LSU AgCenter, survived Hurricane Maria with minimal damage.

Adam Famoso, LSU AgCenter rice breeder, said he managed to reach farm manager Anthony Rivera in Puerto Rico by telephone. He learned that Rivera and his family made it through the storm, but they must cope with difficult conditions.

“We were relieved to learn Anthony and his family are OK, but now they face the difficulties of living with limited communications and getting their electricity from generators,” Famoso said.

He said Rivera reported that the rice in the fields had minimal damage.

“All things considered, it’s not as bad as we were worried it could have been,” he said.

Famoso said some of the rice plants show signs of tip burn from high winds, and some plots were flooded a couple of days from rainfall.

Famoso said a shipment of Provisia rice seed had arrived in Puerto Rico for planting when the storm hit.

“It’s raining there now so as soon as it dries up, that seed will be planted,” Famoso said.

Famoso said seed for 6,000 rows of experimental lines is being sent this month for planting. Planting that material also will be delayed.

“It’s nothing catastrophic,” Famoso said. “We’re not going to lose anything.”

LSU AgCenter breeders travel to Puerto Rico several times a year for planting, maintaining and harvesting the rice lines. Jim Oard, LSU AgCenter hybrid breeder, said an upcoming trip is scheduled.

“We will probably go down there to harvest around Thanksgiving or in early December,” Oard said. “We have to give credit to Anthony for coming back there and putting things back together again.”

The winter nursery is located near Lajas on the southwest side of the island, on the opposite side of Puerto Rico where the Category 4 storm made landfall.

The tropical island, an American territory, offers U.S.-based breeding programs the opportunity to grow their material year-round with the ability to ship seed to and from Puerto Rico without undergoing a lengthy quarantine required of foreign-grown seed.

Oard said parcel service has been restored to Puerto Rico, making it easier to ship and receive seed to and from the island.

continued from page 1

Harrell said the difference was the result of weather’s influence on the two areas of the state. He said north Louisiana had rain, but not when rice plants were flowering, and sheath blight in north Louisiana rice has not been bad because of drier conditions.

Early yields in southwest Louisiana varied considerably, he said. Farmer Donald Berken of Welsh said the yield on his first crop was off 5-10 barrels (18-36 bushels) from his average.

“Another off year, two years in a row, and I’m hearing that from several folks,” Berken said. With the boost from north Louisiana’s harvest, Harrell said, the overall crop from Louisiana’s 395,000 acres was about average.

Keith Collins, AgCenter county agent in Richland Parish, said growing conditions were ideal in northeast Louisiana. He said adequate rainfall has reduced pumping costs.

Farmer Damian Bollich of Jones was pleased with his 2017 crop. Bollich said he is likely to increase his rice acreage in 2018, depending on how other crops look after the first of the year.

Jim Lingo of Oak Grove said his crop was about average, roughly 180 bushels (50 barrels). He expects his rice acreage will decrease in 2018.

Todd Fontenot, AgCenter county agent in Evangeline Parish, said rain was a problem, delaying the harvest.

Fontenot also said disease affected the 2017 crop.

“There’s a lot of disease pressure, a lot of sheath blight, and that has hurt some yields,” Fontenot said.

Fontenot said the parish average was in the mid-40 barrel range for conventional varieties and Clearfield. Hybrids have varied considerably, with some yields exceeding 60 barrels (216 bushels), he said.

He said more farmers are starting or increasing crawfish operations, and that has reduced the amount of fields for second-crop rice.

Andrew Granger, AgCenter county agent in Vermilion, said yields were fair to good early in the harvest at 40-50 barrels (144-180 bushels) an acre but that dropped off by 10 barrels (36 bushels) as the harvest progressed.

He said farmers had to deal with heavy disease pressure.

“It’s as bad as I’ve seen it,” he said.

Sheath blight was the worst culprit, he said. Some fields had *Cercospora* early in the season but they were treated and “some of that yielded as well as anything,” Granger said.

Granger said he doesn’t expect Vermilion Parish rice acreage to decrease much in 2018.

“Looking at the field work that’s being done, I don’t see a huge decrease,” he said.

Hebert said he expects a slight acreage decrease in Acadia Parish, where rice totaled 82,000 acres in 2017.

Hebert said the 2017 crop in Acadia was respectable but not one of the best years.

“All in all, it was just an average year,” he said. “Nothing great, nothing horrible.”

He said a slight price increase probably encouraged more farmers to grow a second crop.

“People were excited to see a little jump,” he said.

But he said many farmers were not able to manipulate stubble for a second crop because fields were too muddy.

Hebert said farmers didn’t have to use much insecticide, but disease resulted in a larger amount of fungicides.

“There was a lot of sheath blight and some blast,” Hebert said.

Frances Guidry, LSU AgCenter county agent in Jefferson Davis Parish, said sheath blight has been a problem because of excessive rain, and yields are not outstanding.

“Everything has been average to low,” Guidry said.

Reports from the initial second-crop harvests were poor, but they improved considerably.

Granger said the Vermilion Parish reports for second crop were encouraging.

“The ones I’ve heard were pretty good, in the 20-barrel range,” Granger said.

Harrell said the initial second-crop reports were from Calcasieu and Cameron parishes, and the results were poor to mediocre with yields per barrel in the low teens.

Paul Johnson, who farms in the Bell City area, said his first crop was disappointing, with yields roughly 12 percent less than usual. He said cloudy weather at flowering probably held back his yields.

But he said the second crop had been encouraging with yields in the high teens to 20 barrels (72 bushels).

Higher prices this year helped with the lower first-crop yield, he said, and he expects to have about the same acreage in 2018.

“We’re a little more optimistic than we were last year at this time,” he said.

Louisiana Rice Research-January 2018

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The 2017 Louisiana rice season was affected by tropical weather events and frequent rain, but overall, the year allowed for an average crop.