

LSU AgCenter

H. Rouse Caffey Rice Research Station

# NEWSLETTER

Volume 21 Issue 1 | February 1, 2024

## Upcoming Events

- **International Temperate Rice Conference** – New Orleans Marriott – June 5 - 8
- **Acadia Parish/South Farm Field Day** – June 12
- **H. Rouse Caffey Rice Research Station Field Day** – June 25

## Upcoming Station Visitors

- **LA Sea Grant Marine Extension Program Meeting** – March 18-19
- **USA Rice Leadership Class Tour** – March 21
- **Southern Region 4-H Biennial Tour** – April 10
- **First Baptist Field Trip Tour** – April 16
- **Mrytle Place Elementary Tour** – April 19
- **Oklahoma Farm Bureau Tour** – May 7

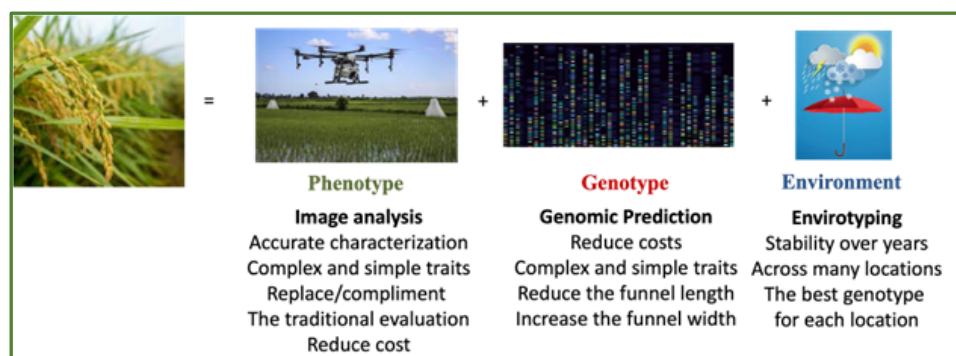
## New Station Personnel (within last year)

- **Caden Benoit** (Research Farm Specialist – Crawfish & Weed Science)
- **Karina Lima Reis Borges** (Post Doc – Quantitative Genetics)
- **Andy Mullins** (Administrative Coordinator – Front Office)
- **Dylan Trahan** (Research Associate – Pathology)
- **Andrew Thibodeaux** (Research Farm Specialist – Breeding)

## Quantitative Genetics: Improving the LSU Rice Breeding Program Efficiency Using Modern Tools and Statistical Approaches

In order to meet the current and future challenges of Louisiana rice production, there is a need to use new technologies to accelerate the progress of our breeding program. In this context, a growing set of modern technologies has been developed in the last decades, such as molecular markers, drone images, and large weather and soil characteristics datasets. These new tools and data can be incorporated into traditional breeding schemes or help redesign the breeding pipelines to gradually shift toward a more data-driven perspective.

Potentially, these tools improve the breeding schemes by reducing the cycle length and costs, optimizing resource allocation and increasing genetic gains. In other words, they help us to develop superior varieties (performing better for grain yield, milling, chalk, and resistance to sheath blight, etc.) faster than ever and with reasonable budgets.



The Quantitative Genetics Lab at The Rice Research Station has worked on all these components. Using images from drones, we can evaluate more plants annually at lower costs. Molecular markers (DNA fingerprints) allow us to identify promising varieties earlier in the selection process based on their genetic composition (the genes they carry). Finally, with weather and soil data, we can tie environmental conditions and growing locations to variety performance.

While the process is challenging as it demands significant investments in computing, human resources, and equipment (drones, cameras, etc.), the benefits can be significant. Since its inception just over a year ago, the Quantitative Genetics program has been able to help increase the efficiency of the Rice Breeding Program by defining the best strategies to evaluate, analyze, and select new rice varieties that offer great promise to Louisiana farmers.

Article By Dr. Roberto Fritsche-Neto (Quantitative Geneticist)

## 2023 Rice Summary: Experiences from Rice Research Verification Program

Rice remains an extremely important crop in Louisiana agriculture, ranking among the top four in acreage and value. Approximately 461,000 acres were planted in 2023. Louisiana per acre rice yields continue to show steady increases due at least in part to research activities funded by the Louisiana Rice Research Board. Implementation of new technology developed through research efforts continues in wide scale use in Louisiana rice production. This is critical in maintaining yield and quality increases, as well as increasing the economic viability of Louisiana rice production. With the increasing emphasis on sustainability in rice production, the implementation of environmentally sound production practices takes research results through the verification program directly to the farm and puts them into practice. The verification program is also used to evaluate the economics of production and foster increased profitability in production practices. Parishes participating in the 2023 Rice Verification Program included Acadia, Allen, Evangeline, Calcasieu, Vermilion and St. Landry.

After the first wave of planting, two heavy freezes stopped planting. Slow emergence and reduced seedling vigor in cold conditions lead to seedling disease and stand reductions. Rice herbicide injury also affected many acres due to rice not growing because of cold weather during the early season. North Louisiana stayed cold and didn't start planting until later than normal. The dry weather that followed planting reduced most diseases in rice, although we did have some kernel smut in some varieties. Very few problems with insects were reported throughout the state but we continue to see some damage from stem borer feeding in some areas.



2023 Rice Research Verification Program in St. Landry Parish. Pictured from left to right are Keith Fontenot (Extension Associate), Vincent Deshotel (ANR Agent), Dennis Fontenot (Ag Industry Representative), and Alex Sylvester (Program Participant)

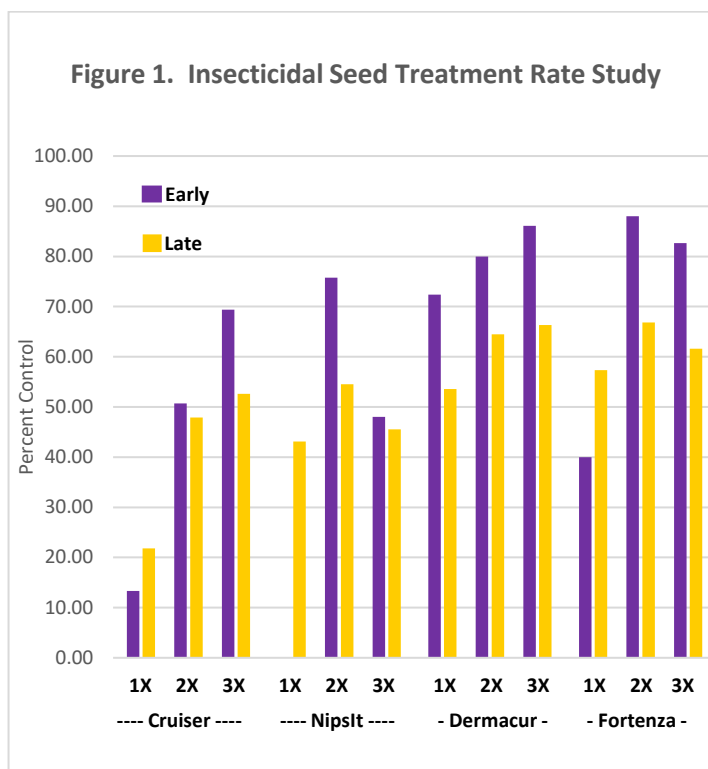
Despite different planting dates, the extreme hot and dry conditions resulted in most of the rice maturing at about the same time. This caused much of the rice in Southwest Louisiana to be ready for harvest within a three-week period. Unfortunately, not all the rice could be harvested within optimal grain moisture levels. Lower-than-optimal harvest moisture caused milling quality to fall significantly. In addition, daytime temperatures near or above 100° F coupled with high nighttime temperatures during critical flowering and grain filling stages caused reduced grain fill and lower overall yields. Despite the challenges with the rice crop in 2023, generally favorable conditions existed for the ratoon crop and resulted in higher-than-normal yields, with many reports of ratoon yields in the high 20's and low 30's per barrel per acre. The strong ratoon crop in 2023 helped to support the overall state average yield which USDA estimated at 42 barrels per acre (6,800 pounds). This was a slight increase (roughly 2 percent) over the previous year and was essentially the same as the 5-year average. The better-than-expected yields were a pleasant surprise for many producers as high irrigation demand and high input prices caused production costs to increase. An increase in rice prices in 2023, fortunately, helped to partially offset the higher production costs.

Article by Dr. Ron Levy (Rice Production Specialist)

## Entomology Project: Insecticidal Seed Treatment Efficacy

Rice growers are consistently battling yield-limiting pests at every stage of crop development. Whether it be weed pressure, disease, or insect infestations, growers frequently manage these pests with chemical pesticide products. For insect control, insecticidal seed treatments are a vital component of insect management in rice production in the U.S. For growers in the Mid-South, the rice water weevil is the most important insect pest that threatens rice. Adult females will lay eggs on leaf sheaths and larvae will make their way to the roots. If left unmanaged, this pest can have devastating effects on yield by destroying the plant's root system. Fortunately, multiple products are available for rice water weevil control that also provide protection against more sporadic pests like chinch bugs, colaspis beetles, thrips, and aphids.

Currently, there are four products labelled for rice which include two insecticide classes. Dermacor X-100 (chlorantraniliprole) and Fortenza (cyantraniliprole) are classified as diamide insecticides, whereas NipsIt Inside (clothianidin) and Cruiser 5FS (thiamethoxam) are classified as neonicotinoid insecticides. Figure 1 shows the percent control offered by the four available products at one, two, and three times the labeled rate versus a non-treated control at two core sampling dates (early and late). Dermacor X-100 provides the best control of rice water weevil while also being the only one with activity against lepidopteran stem borers. Although the neonicotinoid products NipsIt Inside and Cruiser 5FS can be used against rice water weevil, additional protection from a diamide is needed, especially in regions that experience higher weevil populations like Southwest Louisiana. On their own, the neonicotinoids are effective against the previously mentioned suite of sporadic pests. In general, combining a diamide with a neonicotinoid seed treatment is often justified to control the broadest range of insect pests, especially in fields with historically heavy rice water weevil pressure.



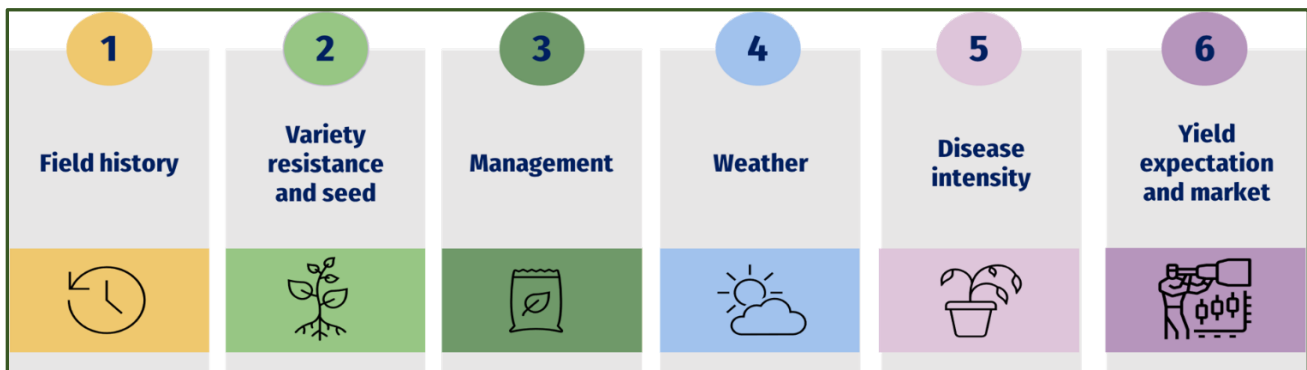
In recent years, issues with reduced seed treatment efficacy have been reported in commercial fields and observed in university research trials. Although insecticide resistance may play a role in these observations, other factors can contribute to reduced efficacy that are often tied to late planting. Unfortunately, little can be done to alleviate weevil pressure in late planted fields once permanent flood is applied. However, if planting late is unavoidable, rice should still be scouted for adult weevils by checking for feeding scars on leaves. If scars are present, a single pyrethroid application just prior to permanent flood establishment can help compensate for reduced seed treatment efficacy through knocking back the adult population.

It is always important to check for damaged roots during the first month after permanent flood is applied to monitor weevil infestations. Even if control is not occurring, monitoring weevil infestations helps to inform management decisions for the following season.



## Project Highlight – Rice Pathology Project

The Rice Pathology Project conducts research related to identification and management of economically important diseases to the rice industry. The project takes a holistic approach to addressing rice diseases, conducting research ranging from identifying and characterizing variety resistance to examining various management strategies for the prevention and control of the disease. Annually, the project screens new and promising varieties for disease resistance, conducts fungicide efficacy and timing research trials, and collects data and information to better understand and characterize disease development. As shown in the figure below, ultimately, the efforts of the pathology project are to make use of all available information and data associated with various factors ranging from field history to weather to disease presence and intensity to provide producers with the tools to make more informed and economical decisions related to disease management.



The Pathology Project is headed by Dr. Felipe Dalla Lana, Rice Pathologist. As project leader, Dr. Felipe identifies research areas and designs and coordinates research projects to address relevant and critical issues facing the rice industry. Other members of the pathology project are Dylan Trahan (Research Associate), Laura Monte (Farm Specialist II), Dulakshi Mohottige (Graduate Student), and Anderson Cerruti (Visiting Researcher). Dylan and Laura work collaboratively to implement the research design from planting and managing research plots to collecting and summarizing data. Dulakshi is developing studies on sheath blight epidemiology and Anderson is working on methods to improve disease quantification.



*Members of the Rice Pathology Project. From left to right are Dylan Trahan, Laura Monte, and Dr. Felipe Dalla Lana*



*Additional members of the Rice Pathology Project. From left to right are Anderson Cerutti, Dulakshi Mohottige, and Dr. Felipe Dalla Lana*

## Faculty, Staff, and Student News

The faculty, staff, and students of the H. Rouse Caffey Rice Research Station are actively involved in outreach, professional and industry events. The following is a list of the activities and events people from the Rice Station participated in over the last 6 months:

- Dr. Adam Famoso (Rice Breeder), Dr. Ron Levy (Rice Production Specialist), and Dr. Manoch Kongchum (Rice Agronomist) participated in the USA Rice Federation Rice Outlook Conference in Palm Springs, California in December 2023. They also showcased some of the LSU rice varieties in the Rice Quality Symposium.
- Dr. Robert Fritsche-Neto's (Quantitative Geneticist) PhD student, Kajal Gupta, placed 2<sup>nd</sup> in a graduate student poster competition as part of the "Beyond the Bayou: Advancing Plant Science in a Diverse and Changing Agricultural Region" Symposium held in the School of Plant, Environmental, and Soil Sciences in partnership with Corteva Agriscience in December 2023.
- Dr. Adam Famoso (Rice Breeder) served on a review panel that reviewed the University of Arkansas Rice Breeding Program in January 2024.
- Dr. Adam Famoso (Rice Breeder), Dr. Ron Levy (Rice Extension Specialist), Dr. Felipe Dalla Lana (Rice Pathologist), Dr. Connor Webster (Rice Weed Scientist), and Dr. Blake Wilson (Rice Entomologist) all presented at parish and regional level rice production meetings held during January 2024.
- Mr. Todd Fontenot (Crawfish Specialist) presented at the Acadia parish and the Southwest Louisiana Rice Production Meetings in January 2024.
- Dr. Kurt Guidry (Assistant Resident Coordinator) presented at the LSU AgCenter Agricultural Outlook Forum in January 2024.
- Dr. Connor Webster's (Rice Weed Scientist) PhD student placed 2<sup>nd</sup> in the oral presentation competition at the joint Weed Science Society of America and Southern Weed Science Society meeting held in San Antonio, Texas in January 2024.
- Dr. Robert Fritsche-Neto (Quantitative Geneticist) presented two papers at the Plant and Animal Genome Conference held in San Diego, California in January 2024.

## Station Events

The Rice Station hosts a variety of events each year. These events range from agricultural education for youth to training for LSU AgCenter personnel. During the last 6 months, the following is a list of the events hosted by the Rice Station:

- October 2023 - Hosted the Louisiana Rice Research Board's Project Review and Columbia Rice sub-committees.
- October 2023 - Hosted the Louisiana Rice Research Board's Annual Meeting.
- October 2023 – Dr. Kurt Guidry (Assistant Resident Coordinator) and Dr. Ron Levy (Rice Production Specialist) hosted a group of students from St. Michael School in Crowley and discussed rice production and rice research.
- November 2023 - Hosted the LSU AgCenter's Southwest Region Parish Chair Training Meeting.
- November 2023 – Mr. Todd Fontenot (Crawfish Production Specialist) hosted a group with the Idaho Agricultural Leadership Development Program at the Research Station's South Farm discussing crawfish production and providing a tour of the station's crawfish facility.

- December 2023 – Ms. Lanette Hebert (Regional 4-H Coordinator) coordinated the Southwest Region’s Ag Career Day at the Rice Station, which brings in high school students from throughout the region to learn about the different careers available in agriculture.
- January 2024 – Mr. Todd Fontenot (Crawfish Production Specialist) hosted a group with the LSU AgCenter’s Agricultural Leadership Develop Program at the Research Station’s South Farm discussing crawfish production and providing a tour of the station’s crawfish facility.

## New Employee Highlight

Dr. Kathryn “Kiki” Fontenot assumed the role of Southwest Regional Director of the LSU AgCenter on January 2, 2024. In this role, Dr. Fontenot provides administrative supervision for 14 parish extension offices and 3 research stations, including the H. Rouse Caffey Rice Research Station. Kiki, a native of Fort Worth, Texas, was influenced in her career goals by her time working in a local garden center along with a high school psychology class. Her love for gardening and being outside along with her newfound interest in psychology spurred a desire to become a horticultural therapist, a career that would provide an opportunity to combine therapy techniques with gardening. To that end, Kiki enrolled at LSU and received her BS degree in Psychology in 2003. Because of her interests, Kiki took horticultural courses for all of her electives. While her original intentions were to enroll in a MS degree program specifically for horticultural therapy, she was enticed to remain at LSU to work on a MS degree in horticulture. While working on her MS degree, she worked with the Coastal Roots program. As part of that work, she designed and implemented educational curriculum targeted to middle school aged students on topics ranging from photosynthesis to propagation to general plant growth. While this was not exactly the path she initially set out on, she was still able to combine working with plants and people.

During her time at LSU, she met Dexter Fontenot, whom she would eventually marry. After being married, she took a position teaching 7<sup>th</sup> grade life science at Ville Platte High School while Dexter continued to farm rice with his family in Evangeline parish. After a challenging year farming, the couple decided to return to Baton Rouge in 2006 to pursue additional degrees. Kiki began a PhD program in Horticulture while Dexter also enrolled in a PhD program while working at the LSU AgCenter Sugar Research Station. Upon completing her PhD, Kiki was hired as an Extension Specialist focusing on home vegetable and school gardens. Later, with the retirement of a faculty member, she was asked to take on the role of State Extension Vegetable Specialist, a role she served in for roughly 14 years before transitioning to the Regional Director position. Kiki and Dexter (who works as a representative of Kleentek, a company that develops and markets disease free sugarcane seed) have two children, Jacob and Charlotte and reside in St. Gabriel, Louisiana.



*Dr. Kathryn "Kiki" Fontenot, Regional Director, SW Region*

As Regional Director, Dr. Fontenot’s hope is to continue to expand the number of programs offered to our stakeholders, including 4-H, Nutrition and Community Health (NCH) and Agricultural and Natural Resource (ANR) programs. To that end, Dr. Fontenot is committed to ensure that SW Region employees are continued to be offered professional development opportunities to expand their knowledge base and allow them to continue to effectively meet the ever-changing needs of our stakeholders. As it is related to the Rice Station, Dr. Fontenot is exploring opportunities to expand horticultural

programming in the region by establishing a demonstration garden at the station and possibly adding a home garden component to the annual Rice Field Day.

Given her family's involvement in the rice industry, Dr. Fontenot understands the importance of the Rice Station and its ability to provide solutions to industry issues. She fully supports the mission of the station and would like to develop a strong relationship with the rice industry to work with them to ensure that the research activities and focus of the station and its faculty are closely aligned with the goals of the industry. She encourages rice producers and industry personnel to not hesitate in reaching out to her to discuss issues or opportunities. She is always happy to listen and will do everything in her power to ensure the needs of the industry are being addressed.



**For more information, contact us at the H. Rouse Caffey Rice Research Station**  
1373 Caffey Road | Rayne, Louisiana 70578 | Phone: 337-788-7531 | Fax: 337-788-7553  
Office Hours: Monday – Friday 8:00 a.m. – 4:30 p.m.

The LSU AgCenter and LSU provides equal opportunities in employment and programs.

**For more information, visit our website at:**

**[H. Rouse Caffey Rice Research Station \(lsuagcenter.com\)](http://lsuagcenter.com)**

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