



**Southwest
Region**



Rice Research Station News

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Update on Control of Resistant Rhizoctonia with Sercadis

For at least 15 years, application of respiratory inhibitor fungicides azoxystrobin and trifloxystrobin has been the major control method for sheath blight, the most important disease of rice in the southern United States. The disease is caused by the fungus *Rhizoctonia solani*. In 2010 and 2011, in an area near Mowata in Acadia Parish, sheath blight control with these fungicides was very poor, even after multiple applications. Several factors were examined, including sources of fungicides, application timing and methods, additives, water quality and unusual weather patterns. None of this information could explain the consistently poor fungicide performance.

Representatives from Syngenta isolated *R. solani* from samples of blighted rice and soybeans, a rotational crop, with aerial blight (same pathogen as sheath blight) collected from these fields. They tested the samples at their Vero Beach, FL, facility for sensitivity to azoxystrobin, the active ingredient in Quadris and one of two active ingredients in Quilt fungicides. Both fungicides are used extensively on rice and soybeans in Louisiana.

The tests showed that these isolates were at least 10 times more tolerant of azoxystrobin than isolates collected both before strobilurin fungicides were commercially available and concurrently from nearby fields in which the fungicides remained effective.

Azoxystrobin-resistant isolates were also resistant to trifloxystrobin, the active ingredient of Gem and one of two active ingredients of Stratego fungicides. Although several other fungicides – including propiconazole, flutolanil and iprodione – are labeled for sheath blight control, they are not effective enough to help manage resistance to the fungicides.

The consensus had been that fungicide resistance in *R. solani* would not develop or would be slow to develop because traditionally only one fungicide application was made per season. Also, *R. solani* reproduces asexually, and populations may therefore be less genetically diverse than those of a sexually reproducing pathogen.

Unfortunately, because of increased fungicide use after the 2006 epidemic of narrow brown leaf spot (*Cercospora janseana*) on rice and the new threat of Asian soybean rust, *R. solani* populations were increasingly challenged by strobilurin fungicides. Resistance quickly developed and spread thereafter, causing rice farmers in this area to lose a major tool for sheath blight control. This means they must rely on partial host resistance and cultural management to control sheath blight and aerial blight in soybeans. This will include use of less susceptible varieties, lower nitrogen and seeding rates and inoculum-reducing practices such as rotation, cultivation and sanitation.

Because sclerotia of *R. solani* are long-lived in soil, these cultural practices are not very effective for sheath blight management. As a result of the poor control options, a Section 18 application for Sercadis (fluxapyroxad), which is highly effective against sheath blight, was granted for Acadia, Vermilion, Jefferson Davis, Evangeline and St. Landry parishes in 2012.

Sercadis was tested in several small plot tests in multiple areas of the state, including resistant and wild type infested fields. Sercadis had good activity against the wild type *R. solani* populations and appears to have better activity against the resistant populations. Significant sheath blight reduction and corresponding yield increases have been seen in multiple studies. Milling has not been tested yet, but improvements are expected. In these studies, two applications and higher rates (6.85 vs. 4.5 oz./A) performed better than the single 4.5 oz./A application. Reports from commercial fields treated with Sercadis have shown similar results.



Sercadis test in Mowata against resistant Rhizoctonia

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Special Dates of Interest:

2012 USA Rice Outlook Conference
December 9-11, 2012
Coronada, CA

National Conservation Systems Cotton and Rice Conference
January 31-February 1, 2013
Baton Rouge, LA



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Multi-State Rice Quality Study



Rice Quality Study at the Rice Research Station

ent planting dates for the 20 entries. This means that all 20 lines will be grown under uniform growing conditions in 12 different and unique environments.

Samples will be harvested from all grow-outs, and all of these samples will be milled uniformly. These samples will then be provided to a number of rice mills as well as other interested facilities where they will be evaluated. Once these data are summarized, this should provide information on which rice lines have the best overall quality and, perhaps more importantly, which lines have better quality stability over numerous environments.

The Rice Research Station's Breeding Project is participating in a multi-state effort to provide more information on a number of quality parameters of long-grain varieties and hybrids currently grown in the southern United States. This effort is part of the overall initiatives being pursued by the USA Rice Federation's Rice Marketability and Competitiveness Task Force, which was formed in February 2011. This task force was formed as a result of U.S. long-grain customers' complaints about the overall quality of the rice that has come out of the region over the past few years. These complaints have focused on high levels of chalk, nonuniformity of grain size, color and cooking inconsistency, among others.

One project of the task force has been to develop quantitative, as well as qualitative, ratings on the currently grown rice lines. There have been analyses conducted on rice from the 2010 and 2011 crops, which included a number of pure line varieties grown at different locations. However, the samples evaluated where not grown under uniform environmental conditions, and different production environments can dramatically change some quality characteristics. To address this, 20 pure line varieties and hybrids are being grown under uniform growing conditions at the rice research stations in Arkansas, Louisiana, Mississippi and Texas in 2012. In addition, the same lines are being grown at other locations in northeast Arkansas and Missouri. Each of these locations will also have two differ-

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Pest of the Quarter » Blast

Blast disease is caused by the fungus, *Pyricularia grisea*. Disease development is favored by warm, moist days with heavy, long dew periods. Blast can be found from the seedling stage to near maturity. The leaf blast phase occurs between the seedling and late tillering stages. Leaf spots start as small white, gray or blue-tinged. They enlarge quickly under moist conditions to either oval diamond-shaped spots or linear lesions with pointed ends with gray or white centers and narrow brown borders. Leaves and whole plants are often killed under severe conditions. Rotten neck symptoms appear at the base of the panicle, starting at the node. The tissue turns brown to chocolate brown and shrivels, causing the stem to snap and lodge. If the panicle does not fall off, it may turn white to gray, or the florets that do not fill will turn gray. Panicle branches and stems of florets also have gray-brown lesions. Occasionally, stem nodes can become infected and cause sterile heads and lodging.

Scouting for blast should begin early in the season during the vegetative phase and continue through to heading. Leaf blast will usually appear in high areas of the field where the flood has been lost or is shallow. As part of management, the flood must be maintained. Areas of heavy nitrogen fertilization and edges of the fields are also potential sites. If leaf blast is present in the field or has been reported in the same general area, and if the variety is susceptible, fungicidal applications are advisable to reduce rotten neck blast. There is only a 70 percent to 80 percent correlation between leaf blast development and damage to heads. Occasionally, leaf blast develops in a field, but panicle infection does not develop. More importantly, panicle infection can develop in the absence of leaf blast in the field from wind-borne inoculum from other fields.

Fungicide timing is critical. Normally, you do not spray for leaf blast unless rice plants start to die. It is more important to increase the flood to ensure all soil is covered in the affected field to reduce leaf blast. Typically, a single fungicide application can control panicle blast but must be applied when 50 percent to 70 percent of the heads have begun to emerge. Fungicide applications before or after this growth stage normally will not provide good control of this disease. When disease pressure is very high, i.e. a susceptible variety with a lot of leaf blast present, two applications may be necessary to effectively control the disease – one at mid boot and a second at heading as described above. The boot application reduces spore production on leaves, allowing the heading application a greater chance to protect the head from infection. Two applications may also be necessary if heading is erratic in a field to properly protect most of the heads.



Susceptible and resistant rice varieties

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Highlights of the RRS Field Day





Highlights of the RRS Field Day



Master Farmer Program Fine-tuned to Allow More to Become Certified

Over the past several years, many farmers had completed Phases 1 and 2 but could not complete the third and final phase because of a backlog of requested conservation plans. Many have become discouraged and frustrated with not having a conservation plan to identify and address resource concerns to become sustainable or certified. They have been demanding additional conservation planning assistance to be proactive in addressing EPA and consumer concerns with environmental issues with production agriculture, and they were concerned with the inability to receive the required conservation planning assistance. In addition, conservation plan development must occur year-round and especially when producers have time to devote to the conservation planning procedure for their operation.

The Master Farmer Program must meet the challenges of increased producers' requests for sustainable conservation planning to allow greater numbers to address conservation resource concerns to become certified. To provide additional conservation planning, the Louisiana Master Farmer Program has been fine-tuned with changes to Phase 3 in an effort to enable more agricultural producers to achieve certification.

The Phase 3 changes will provide a second certification route through a State Resource Conservation Planning process provided by the LSU AgCenter. The alternative process has been approved by State Agriculture Commissioner Mike Strain and will provide additional conservation planning at a level that will comply with the requirements for certification. The state alternative would be a complementary route to the excellent existing NRCS certification option that will continue to be made available to all farmers. Under state law, certification as a Master Farmer deems a producer to be in compliance with state soil and water conservation and environmental regulations.

In addition, developing the conservation plan is only a part of entire certification process. Follow-up contacts to work with producers to answer any questions, to assist with plan implementation and to encourage producers to move forward with the certification is a vital role that the AgCenter will provide.

The AgCenter Conservation Planner will develop the conservation plan using a resource inventory collected by a field visit. The plan will identify resource issues that have been addressed or need to be addressed to protect resources using AgCenter-developed best management practices. Phase 3 changes are outlined below.

Phase 3 - Development and Implementation of Farm-specific Conservation Plan

Option 1 – The producer may request a state resource conservation plan through the LSU AgCenter.

Option 2 – The producer may request a resource management system plan through the U.S. Department of Agriculture's Natural Resources Conservation Service and local Soil and Water Conservation District.

Upon completion of all three phases of the Louisiana Master Farmer Program, producers are presumed to be in compliance with Louisiana's soil and water conservation requirements.

Continuing Education – Certification is granted for five years, with six hours of continuing education credits required per year.

Enroll in the Master Farmer Program

Contact your parish LSU AgCenter Extension Service or local USDA NRCS office.

Sustainability/Kellogg Master Rice Grower Program

Consumers are becoming more interested in how and where food is produced and are embracing sustainability. Their sustainability interest is not just with the production of food but also with the sustainability of the business that buys, processes and delivers the products they purchase. Sustainability is driven by the consumer, and the business community has heard the message. Kellogg, Mars, Nestlé, Walmart and others have established company-wide sustainability efforts. Businesses that have an established sustainability effort for the raw products used along with a sustainability effort in the processing, packaging, energy utilization, waste reduction and transportation of products to consumers will have a tremendous advertising advantage to supply and sell a product that the consumer wants. Consumer sustainability concerns have created a demand for raw agricultural commodities (rice, wheat and corn) produced on certified sustainable farms participating in programs like the Master Farmer Program.

The AgCenter's State Resource Conservation Planning process will also provide the increased capacity needed to allow more producers to have a documented conservation plan to meet the Kellogg Company's sustainability requirements, particularly targeting rice growers. The Louisiana Master Farmer Program has become more significant because it is part of the Kellogg Master Rice Grower Program. Kellogg is offering to pay a premium to farmers who grow rice for the company and will provide the highest levels of incentive to farmers who complete the Master Farmer certification. The Master Rice Grower Program is part of the company-wide sustainability effort developed in response to consumer demand. The Louisiana Master Farmer Program and the Kellogg Master Rice Grower Program will assure the consumer that producers are sustainable and are following sound agricultural and environmental practices.

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The LSU AgCenter Rice Research Station is on Facebook and Twitter. You can find timely updates on research conducted at the station as well as other useful information. The accounts can be accessed through the links below.

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<http://twitter.com/slinscombe>

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Join us on Facebook !

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<http://www.facebook.com/#!/pages/LSU-AgCenter-Rice-Research-Station/212812622077680>

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<https://store.lsuagcenter.com/>



Xue Jin Enjoys Her Work

Xue Jin becomes animated and excited when she talks about her job at the LSU AgCenter Rice Research Station.

"I really like my job," she said. "You can see something growing and changing, and the people are really nice, like family."

She works in the anther culture lab to grow rice plants from tissue culture. Her work helps speed the process of developing new varieties.

The process still amazes her after working there for 11 years. "It's really interesting. After four to six weeks, you can see baby plants."

In her work, she often is involved in helping develop rice lines from the breeding work of her husband, Xueyan Sha, a rice breeder at the station. In addition, she works closely with Herry Utomo, LSU AgCenter molecular biologist, and Steve Linscombe, station director and rice breeder.

In China, Jin was a nurse. She and Sha, with their daughter Sha Sha, moved to the United States in 1995. They have all become American citizens. "We really like this country. We enjoy our life."

Now, their daughter is attending law school at Tulane University, and their son, Devin Sha, will be in the seventh grade in Lafayette.

Mona Meche, who supervises the lab operation, said Jin is a hard worker. "Jin is a wonderful person to work with. She certainly makes my job a lot easier. She takes charge of the lab during the summer when I have to be in the field."

In her spare time, Jin enjoys cooking, especially Chinese dumplings and egg rolls.



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The LSU Agricultural Center is a statewide campus of the LSU System and provides equal opportunities in programs and employment.