LSU AgCenter Research & Extension
Southwest Region

Rice Research Station News

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Experimental plot of CL111 at the Rice Research Station

Experimental plot of CL261 at the Rice Research Station

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RTWG - Biloxi, MS
February 22-25, 2010
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Rice Research Station
Rice Field Day - July 1, 2010

TWO NEW CLEARFIELD VARIETIES FOR 2010

The LSU AgCenter has released two new Clearfield rice varieties for 2010. The lines will be named CL111 and CL261. Because both varieties contain the LSU AgCenter-developed gene for resistance to imidazolinone herbicides, they can both be used in the Clearfield production system for the control of red rice and other rice weeds. They both will be grown primarily for seed production in 2010; however, a limited amount of seed of both should be available for commercial production.

CL111 is a very early maturing, short-stature, long-grain variety. It will be the earliest Clearfield long-grain variety available for commercial production in Louisiana. It has averaged 79 days from emergence to 50 percent heading compared with 83 for both CL151 and CL131. The earliness will help spread out the harvest when a large acreage is planted over a short time, which is a common situation in southwest Louisiana. This characteristic will also facilitate ratooning (second crop production) for those southern Louisiana producers who make this a common part of their production program.

CL111 was originally selected from the cross 9502008-A/'Drew'///CFX-29//AR 1142/LA 2031 made at the Rice Research Station in 2003. The line originated as an F_3 bulk of a single progeny row (0614133) in the Clearfield breeding nursery in Crowley in 2006. It was evaluated in the Clearfield Preliminary Yield trial (experimental designation 07XC011) in 2007 and was entered into the Clearfield Multi-Location test in 2008 and the Multi-Location Commercial/Advanced trials and Multi-State Uniform Regional Nursery trials in 2009. CL111 has a short-stature plant type and is moderately resistant to lodging. It has averaged 37 inches in plant height in three years of testing compared with 37 and 33 inches for CL151 and CL131, respectively. The leaves, lemma and palea of CL111 are glabrous (smooth). The spikelet is straw-colored. The apiculus is light purple at heading and the color fades as the grains approach maturity. The grain is nonaromatic. CL111 is susceptible to sheath blight and blast and moderately susceptible to straighthead disorder.

Cereal chemistry characteristics for the new variety are consistent with those for other southern U.S. long-grain varieties. The new variety has excellent yield potential and grain quality. It has averaged slightly below CL151 in per acre yield in multi-location, multi-year testing. It has, however, shown consistently high whole-grain milling yields and a lower percentage of chalky grains in milled rice samples. CL111 has also displayed excellent second crop yield potential in limited testing over the previous few years.

CL261 is an early maturing, semidwarf, medium-grain Clearfield rice variety. It will be the first commercially available medium-grain variety in the Clearfield production system. Because of market dynamics, the number of acres seeded to medium grains was up substantially in Louisiana in 2009. CL261 was originally selected from the cross 'Bengal'/'CL161' made at the Rice Research Station in 2002. The line originated as an F_5 bulk of a single progeny row (0610333) in the Clearfield breeding nursery in Crowley in 2006. It was evaluated in the Clearfield Preliminary Yield trial in 2007 (experimental designation 07XC065) and was entered into the Clearfield Multi-Location test in 2008.

CL261 has a short-stature plant type and has averaged 39 inches in plant height in two years of testing compared with 39 and 33 inches for CL151 and CL131, respectively. However, CL261 has shown good resistance to lodging. CL261 is earlier in maturity than most other medium-grain varieties, averaging 79 days from emergence to 50 percent heading. The leaves, lemma and palea of CL261 are glabrous (smooth). The spikelet is straw-colored. The apiculus is light purple at heading, and the color fades as the grains approach maturity. The grain is nonaromatic. Cereal chemistry characteristics for the new variety are consistent with those for other southern U.S. medium-grain varieties. CL261 is susceptible to sheath blight and blast and moderately susceptible to straighthead disorder. The new medium-grain variety has shown good and consistent yield performance in limited testing. The milling quality (whole-grain milling yields) has been exceptional, and milled grain appearance is very good.

Seed of these two new varieties should be readily available in 2011, and we expect rapid adoption by Louisiana producers.

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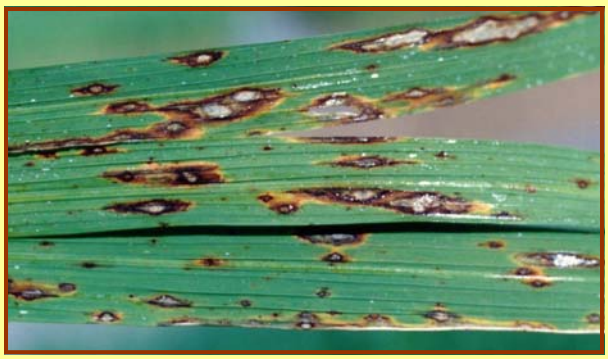
SCOUT FOR BLAST EARLY IN THE SEASON

Blast disease is caused by the fungus *Pyricularia grisea* and is one of the most important diseases of rice in the world and the Midsouth. Yield losses as high as 90 percent have been observed in Louisiana because of this disease. Blast can infect rice 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 or diamond-shaped spots or linear lesions with pointed ends with gray or white centers and narrow brown borders. Leaves and whole plants can be killed under severe conditions. The most important aspect of leaf blast is that it provides inoculum for infecting the panicles. Fungicides are not used at this stage unless you are losing the stand. The best control is to restore or deepen the flood so all of the soil in the field is covered with water.



Rice Blast leaf lesions

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. This stage causes the most damage and fungicides should be used to protect the panicles.

Blast is more commonly found in fields where (a) the field has a history of disease, (b) the variety is susceptible, (c) high nitrogen rates are used, (d) the field has sandy soils, (e) the rice was planted late (late-planted rice is more likely to encounter foliar disease problems than early-planted rice), (f) along the edges of tree lined fields, and **most importantly (g) the rice is growing under upland (no flood) conditions**. Draining for straighthead and water weevil control may increase the incidence and severity of blast. These conditions should be avoided whenever possible. Also, as the percentage acreage of blast-susceptible varieties increases, the probability of an epidemic increases because more wind-borne spores pass between fields.

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. Areas of heavy nitrogen fertilization and edges of the fields are also potential sites. If leaf blast is 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.

Fungicide timing is critical for all rice diseases. Sheath blight is normally treated between early boot and heading but not beyond 50 to 70 percent heading. The best timing against all stages of Cercospora also appears to be between the boot and heading growth stages. Fungicide timing is more critical for blast control. Apply a blast fungicide at early heading (50 to 70 percent heads emerging) when leaf blast symptoms are present if a single application is being used. Leaf blast does not always precede rotten neck blast, and preventive applications of a fungicide may be warranted if a blast-susceptible variety is grown. Single applications before or after this growth stage will not provide good control of this disease. If blast is severe, two applications (one at 2 to 4 inch panicle in the boot and one at heading) may be needed to obtain satisfactory control. Yield and grain quality increases as a result of disease control quickly decreases if fungicide is applied after 70 percent heading. Higher fungicide rates are more effective against blast and should be used if leaf blast is severe or more susceptible varieties are grown.

Rotten neck blast damage

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Don't forget to check the 2010 RTWG (in Biloxi, MS) web site for updates on the upcoming meeting

http://www.rtwg2010.com/

LSU AgCenter Hybrid Rice Research

The potential for hybrid rice has generated considerable interest in the U.S. rice industry. Yield advantages of 10 to15 percent for hybrids versus inbreds have been realized in plot research by private and university researchers and farmers in Arkansas and Louisiana. Rice acreage planted with hybrid varieties in the southern United States was 20 percent in 2009 and is expected to increase over the next five years. RiceTec is the major commercial entity that creates and markets U.S. hybrid rice varieties. Bayer CropScience is establishing a research station near El Campo, Texas, with emphasis on the U.S. hybrid rice market. However, there are certain disadvantages to current hybrids that include lodging, shattering, milling quality and yield stability.

Close-up of hybrid rice panicles planted at the Rice Research Station

Hybrid rice planted at the Rice Research Station

In 2007, LSU AgCenter researchers began evaluation and development of various lines to assist in creation of new hybrids that addressed shortcomings of commercial varieties. Louisiana sources with required attributes to develop hybrids were not available, so 40 male sterile (cms), maintainer, and restorer lines from the International Rice Research Institute (IRRI) were first grown in the greenhouse and used in crosses to Louisiana inbred varieties and lines. More than 200 F_1's and backcrosses from the initial hybridizations were evaluated and advanced in Crowley field plots in 2008 and 2009. Substantial improvements in height, maturity and pollen sterility/fertility over the original Asian material were identified in selected lines that will be evaluated in 2010 field plots.

Dr. Jim Oard from the AgCenter visited Dr. Weiki Li in September 2008 at the Guangxi Academy of Agricultural Sciences to consider cooperative hybrid research activities. Dr. Steve Linscombe and Dr. Xueyan Sha went to China in October 2008 to establish a formal cooperative research agreement between the Rice Station and the Guangxi Academy. Li and Sha have since developed several hybrid lines at the Rice Research Station in Crowley that show considerable promise. In addition to the lines developed from IRRI sources, Oard will evaluate DNA marker technology to facilitate rapid development of hybrid varieties in cooperation with Li and Sha.

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Pest of the Quarter

White Tip Nematode

White tip is caused by the nematode *Aphelenchoides besseyi*. Characteristic symptoms appear after tillering and include the yellowing of leaf tips, white areas in portions of the leaf blade, stunting of affected plants, twisting or distortion of the flag leaf, and distortion and discoloration of panicles and florets. Leaf tips change from green to yellow and eventually white. The tip withers above the white area, becoming brown or tan and tattered or twisted. Resistant varieties may show few symptoms and still have yield loss. The nematode infects the developing grain and is seed-borne. This disease is present in Louisiana but only occurs erratically and is considered a minor rice disease. Fumigation of seeds in storage will reduce the nematode population. No other specific control measures are recommended. Because the pathogen is seed-borne, its presence or absence can be important in export markets.

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White Tip Nematode

Comparison of CRUISER and DERMACOR Seed Treatments for Insect Control in Louisiana Rice

Rice farmers in Louisiana who use seed treatments to manage insect pests in their fields may have a choice of seed treatments in 2010. Dermacor™ X-100 (DuPont Crop Protection), which has been available to farmers in Louisiana on a provisional basis ("Section 18" emergency exemption) the past two years, is expected to be available again in 2010, and Cruiser® (Syngenta), another insecticidal seed treatment, was recently approved for use in Louisiana under a full ("Section 3") label. Although these two insecticidal seed treatments are similar in many respects, they also differ in key ways. Understanding the similarities and differences between the two seed treatments is crucial to making the right choice of insecticides for each rice field.

The key pest targeted by both Dermacor and Cruiser is the rice water weevil, the most important early-season insect pest of rice in Louisiana. Dermacor has been evaluated against the rice water weevil in multiple small-plot tests over several years at the LSU AgCenter Rice Research Station in Crowley. In addition, it has been used commercially in Louisiana the past two growing seasons. Dermacor provides excellent control of rice water weevil larvae. In commercial fields, weevil populations were reduced by 90-95% compared to fields not treated for weevils. Cruiser has also been evaluated in multiple small-plot trials over many years at the Rice Station, and it too provides good control of rice water weevil larvae (although, in a side-by-side comparison of Dermacor and Cruiser conducted in 2009 at the Rice Research Station, control of weevil larvae given by Cruiser was not as good as control given by Dermacor). Cruiser has not been evaluated on a commercial scale in Louisiana. In Arkansas, however, where Cruiser was available under a Section 18 exemption last year, Cruiser provided good control of weevils in commercial fields. Thus, there is every reason to believe that Cruiser will provide satisfactory control of weevils under most conditions in Louisiana.

Probably the most important difference between the two seed treatments is their activity against secondary pests. Because these two chemicals belong to different chemical classes (the active ingredient in Dermacor is a type of anthranilic diamide, whereas Cruiser is a neonicotinoid), they are effective against different pests. Cruiser will probably provide better control of grape colaspis (present in a few fields in southwest Louisiana last year) than will Dermacor. Cruiser also will provide good control of sucking insects such as aphids and chinch bugs. Dermacor, on the other hand, should provide excellent control of early-season Lepidopteran pests such as fall armyworms. Recent evidence from both Louisiana and Texas indicate that Dermacor may stay in the rice plant long enough to provide some protection against stem-boring insects. Evidence from Texas also indicates that Dermacor may help control the South American rice miner in rice. The spectrum of pests controlled by each of these seed treatments is probably the most important consideration in choosing between the two. As a related consideration, Cruiser will be marketed in 2010 as part of a seed treatment package (CruiserMaxx® Rice), which includes fungicides that help control seedling diseases.

The agronomic practices used with each of these seed treatments have similarities and differences. A similarity is that neither product can be used in water-seeded rice. They are for use in drill-seeded rice only. A difference is that the application rate of Cruiser will not change with rice seeding rate, whereas with Dermacor, the application rate is adjusted for seeding rate. This may make Cruiser easier to use, but it should be noted that the use of Cruiser at very low seeding rates (for example, seeding rates typically used for hybrid rice varieties) has not been tested by the LSU AgCenter.

Pricing of these two products has not been formally announced. Because the rate of Cruiser applied to seeds is not adjusted for seeding rate, this product will probably be cheaper to use when low seeding rates are used.

The expected availability of two seed treatments for insect control in rice, along with other available products for insect control (Karate, Mustang Max, and the other pyrethroids), gives Louisiana farmers a wide range of options for managing their insect pests in drill-seeded rice. Unfortunately, there are not as many choices in water-seeded rice, and expanding the range of options for insect management in water-seeded rice is a continuing focus of entomology research.

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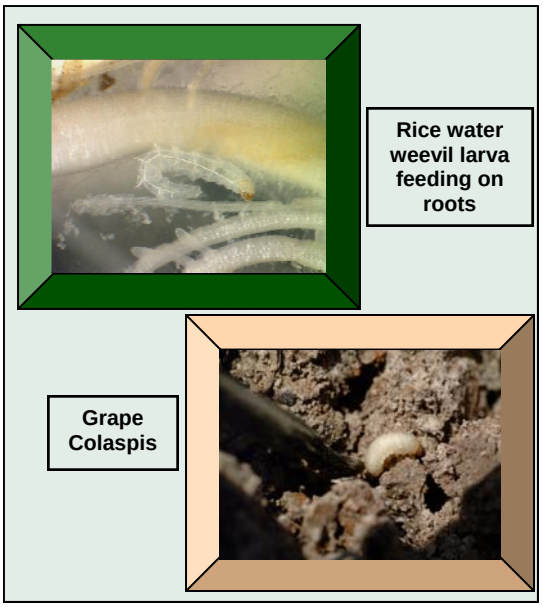

Scouting Videos

Rice Water Weevil

http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Insects/How+to+Scout+for+Rice+Water+Weevils++video.htm

Colaspis

http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Insects/How+to+Scout+for+colaspis+in+rice++video.htm

The Louisiana Rice Insects Blog can be found at:

http://louisianariceinsects.wordpress.com/

Blackbird Baiting Program of Great Benefit to the Rice Industry and Others

Several species of blackbirds, particularly red-winged blackbirds, common grackles and brown-headed cowbirds, can cause extensive damage to newly planted and ripening rice. Annual losses to rice growers can be as much as at $12 million. Damage is not uniformly distributed but is localized and proportional to the size of the nearby bird roost. In Louisiana, blackbird damage to newly planted rice can be locally severe. Some growers report 100 percent loss, and replanting is required. The problem in seeded rice is typically more severe in water-seeded than dry-seeded rice because in water-seeding, a higher percentage of the seeds are exposed on the soil surface. Blackbirds may consume seed before it sprouts or pull sprouts as they emerge from the soil. In recent years, the percentage of dry-seeded rice has increased significantly with the adoption of Clearfield technology. In spite of this, blackbird damage can still be quite severe in localized areas.

Although they are migratory birds, blackbirds are provided no protection under provisions of the Migratory Bird Act because they cause significant damage to crops. Additionally, the state of Louisiana considers blackbirds to be crop pests that may be taken any time by any legal means.

For a number of years, there has been an annual program to reduce blackbird numbers through the use of an avicide in areas where large numbers of birds are roosting near rice production fields. This program was initiated in 1994 when Congress directed the U.S. Department of Agriculture's Animal Plant Health Inspection Service (APHIS) to implement a pilot blackbird baiting program in Vermilion and Evangeline parishes. The program has since expanded and includes Acadia, Allen, Calcasieu, Cameron, Jeff Davis and St. Landry parishes. The avicide used is DRC-1339 and is applied to brown rice baits and broadcast on staging areas, which are areas where blackbirds congregate before entering a roost in the evening or following exit from the roost in the morning. The baiting is conducted only by trained and approved personnel under the direction of Mr. Allen Wilson, regional coordinator for APHIS Wildlife Services who has worked with this program since its inception.

The program is a cooperative effort between APHIS Wildlife Services, the LSU AgCenter, the Louisiana Department of Agriculture and Forestry, the Louisiana Rice Growers Association and rice farmers and landowners who allow the baiting on their property. Program personnel search for blackbird roosts and associated staging areas before rice planting season (early February to mid-March). Before DRC-1339-treated rice is applied, untreated rice is broadcast on staging areas to maximize blackbird numbers and to ensure that nontarget birds are not using these sites. Treated baits are reapplied following 75 percent or greater consumption of a bait application, and baiting continues until blackbird populations are depleted.

Although not all rice farmers benefit equally from the program, cost savings for individual growers may be substantial. Based on questionnaires conducted by the LSU AgCenter, losses to some growers because of blackbird damage are reduced by as much as 85 percent. According to the Government Performance and Results Act, savings to rice growers across the eight-parish project area average around $3 million annually. Additionally, the program allows many farmers to plant earlier, which typically leads to higher yields as well as a greater potential for a successful second crop.

Not only does this program benefit rice growers, it is also heralded by ornithologists and other birdwatchers. This is because the brown-headed cowbirds, which make up a large percentage of the blackbird population, are responsible for destroying tremendous numbers of songbirds by laying their eggs in the songbird nest. According to "The Birds of North America" (Number 47, 1993), with adequate nutrition, female cowbirds lay almost daily during the breeding season and may lay 40 eggs each spring, all in the nests of other species. Not only will the cowbird lay eggs in the songbird nest, but she will usually remove the songbird egg in the process. Even if she doesn't, the cowbird egg has a shorter incubation period, so it will hatch first. Young songbirds cannot compete with the bigger cowbird chick, which the mother songbird feeds to maturity. Therefore, this program is also beneficial to songbird populations across southwest Louisiana.

The research that led to the registration of DRC-1339 was conducted by USDA personnel in close cooperation with Rice Research Station scientists. Much of the funding for this work was provided by the Louisiana Rice Research Board.

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www.lsuagcenter.com/en/our_offices/research_stations/Rice/

RICE RESEARCH STATION 1909-2009

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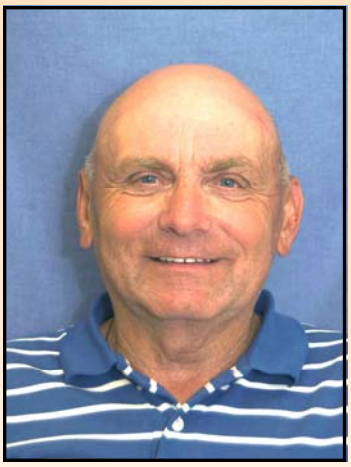
Focus



Herman Hoffpauir has been working at the LSU AgCenter Rice Research Station since 1982. He had worked at the station for six months in 1969, but then went to work as a welder in shipyards and chemical plants.

Hoffpauir was laid off from his welding job and was passing by the station when he decided to stop by to see if any work was available. He worked for a geneticist, Dr. Elaine Nowick, for four years until she left the station. Then he started working in the breeding program for a new scientist, Dr. Steve Linscombe, who would eventually become station director. Hoffpauir has been working for Linscombe ever since.

"I've enjoyed working for Steve through the years," Hoffpauir said. "He's treated me with respect."

His job involves all aspects of the breeding program – from planting, managing water, harvesting by machine and hand, to milling.

Because of technology, Hoffpauir has seen many changes since he started at the station, and the workload is easier. Modern combines do much of the work that had been done by hand, he said, including weighing and obtaining moisture content of rice grains. But picking panicles by hand is still done the old-fashioned way, standing in the hot sun and selecting one at a time.

Hoffpauir's father, Belgium Hoffpauir, was part-owner of a rice mill in Estherwood, and it was there that he got his experience working with rice. "When I was old enough to handle a sack, my dad put me working at the mill on weekends."

Hoffpauir said he enjoys his job, largely because of the people he works alongside. "We've got a good group working together now. It makes it easier."

In September, Hoffpauir will finish his DROP time in the state retirement program, but he said he may continue working until his wife, Juanita, retires in about three years. They have two daughters, Jada and Jodie, and four grandchildren.

When he's not working, he enjoys yard work and growing roses.

Linscombe said Hoffpauir is an integral part of his team. "When he does retire, it will be well-deserved, but his experience will be irreplaceable. Herman sets an example for all the associates to follow for working hard and making sure things are done correctly, consistently."

Research partially funded by the Louisiana Rice Research Board