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Rice Research Station News

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Fall, Winter and Spring Vegetation Management for Rice

It is that time of year to start thinking about burndown herbicides in rice production. With the move to more true no-till and stale seedbed production, the need for burndown herbicides is more important.

Fall applications are important if they are truly needed. A producer may have a field that was fallowed in 2013, and it may be overgrown with vegetation. In another scenario, a producer may have a field that had a late-season flush of troublesome weeds after harvest because of warm wet conditions in the early fall. In most cases when a fall application is made, a producer will need another burndown application closer to planting. Fall applications tend to expose bare ground, which can promote erosion. The presence of vegetation through the winter months is not necessarily a bad thing. The vegetation provides protection from runoff or wind erosion, and removing vegetation on highly erodible land should be avoided. Fall applications should be considered on a case-by-case basis and should not be done as a blanket treatment on every acre.

From a vegetation management standpoint, it is more important to apply a burndown herbicide in a timely manner and within the guidelines of the label. The LSU AgCenter recommends burndown herbicides should be applied at least four to six weeks prior to planting. This removes any vegetation that can compete with emerging rice seedlings, and it can also reduce the insects that may feed on emerging rice. In many cases, a burndown application at planting may be required even when an earlier treatment is applied. It is very important to plant rice in a seedbed that is

Roundup at 1 qt/A | **Roundup at 1 qt/A plus 1.5 oz/A Leadoff** | **Roundup at 1 qt/A plus 2 oz/A Valor** | **Roundup at 1 qt/A plus 2 oz/A Sharpen**

clear of existing vegetation. Our research indicates competition from weeds is more severe within two to three weeks after rice emergence than from weeds that emerge after a three-week weed-free period. If a producer waits to apply an initial burndown application at planting, the producer risks early season competition from those weeds, even though they may be slowed or dying because of the herbicide application.

It is also important to have a clean seedbed absent a heavy or thick layer of dead vegetation. This layer of dead vegetation can intercept a soil-applied herbicide, like Command, and reduce soil contact of the herbicide and cause a loss in activity. A heavy layer can also affect rice by causing a reduction in stand or delayed emergence. Applying the initial burndown applications at least four to six weeks prior to planting will help alleviate a thick layer of dead or dying mulch by allowing decomposition to occur prior to planting.

Several herbicides are labeled as burndown or fallow treatments. Valor is an excellent addition in a burndown program and provides residual activity on many broadleaf weeds; however, it provides little to no activity on grasses, so it should be mixed with a glyphosate-containing herbicide. FirstShot provides excellent activity on many broadleaf weeds and on many aquatic weeds. FirstShot contains the same herbicide combination found in Harmony Extra but in a different ratio and rate. The herbicide ratio in FirstShot allows the plant-back interval to decrease from 45 days to no plant-back restriction. This provides an excellent tool for a burndown program. Even though FirstShot has no plant-back restriction, it should be applied four to six weeks prior to planting to obtain the benefit of the herbicide. LeadOff is a new herbicide from DuPont that can be used as a burndown herbicide in rice. LeadOff contains two herbicides, rimsulfuron plus thifensulfuron-methyl, and it can provide long

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2013 USA Rice Outlook Conference
December 4-6, 2013
St. Louis, MO

Rice Technical Working Group
February 18-21, 2014
New Orleans, LA

Fall, Winter and Spring Vegetation Management for Rice

Cont.

residual activity on many broadleaf, grass and sedge weeds. However, LeadOff has some stringent replanting restrictions for rice and other crops, and these restrictions should be followed exactly as the label states.

Even though herbicides can be applied closer to planting, this practice should be avoided to allow the rice to emerge in a weed-free situation. Listed below are several common herbicides used in burndown vegetation management programs along with plant-back restrictions.

Table 1. Herbicides used for burndown or stale seedbed applications in rice and corresponding plant back restrictions.

Herbicide	Plant-Back Restriction
2,4-D	30 days – Consult Label
Aim	No Restriction
Dicamba	3 days/oz – Consult label
FirstShot	No Restriction
Glyphosate/Roundup	No Restriction
Grandstand	21 days
Ignite/Liberty	No Restriction
LeadOff	1.5 oz/A 60 days at pH less than 6.5 2.0 oz/A 90 days at pH less than 6.5
Sharpen	15 days preplant/45 days preflood
Valor	30 days

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Pest of the Quarter

Brown Spot of Rice

Rice blast

Brown spot disease caused by the fungus *Cochliobolus miyabeanus* (*Bipolaris oryzae*), is typically an indicator of plant stress, especially soil nutrient deficiencies. When you see high levels of brown spot in a field, it almost always means the rice is under stress. These stresses might include low nitrogen, potassium, manganese, magnesium, silica, iron, calcium fertility or physiological disorders. Low levels of nitrogen are most often associated with brown spot. Sometimes these problems are actually caused by root rots and/or root feeding insects destroying the rice plants' roots and causing poor nutrient uptake. Large amounts of incorporated organic materials, which produce high concentrations of organic acids and/or hydrogen sulfide, can also cause root rotting. Rice grown in unflooded soil and where large amounts of topsoil were removed tend to have more brown spot.

Yield losses associated with brown spot are most likely due to the nutrient deficiencies or disorders that predispose the plants to the disease rather than to the disease itself. The most important practice in the control of brown spot is determining what is causing stress in the rice field and correcting that nutrient problem or disorder, thus correcting the actual problem. Correct disease identification is critical. Leaf symptoms are often confused with blast lesions and careful inspection and examination of spore types after incubation in a moist chamber may be necessary for proper identification. Foliar applications of fungicides to reduce brown spot are not economical, but fungicides targeted toward blast are critical to prevent the devastating yield losses associated with that disease.

Brown spot of rice

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35th RICE TECHNICAL WORKING GROUP

MEETINGS HELD AT THE SHERATON NEW ORLEANS

HOSTED BY LSU AgCenter Research & Extension

FEBRUARY 18-21, 2014
NEW ORLEANS, LA

FOR MORE INFORMATION VISIT THE WEBSITE AT:

WWW.RTWG.NET

CLICK HERE TO REGISTER FOR THE RTWG MEETING

Accommodations

https://www.starwoodmeeting.com/Book/rice

500 Canal Street, New Orleans, Louisiana

504-525-2500

Rice Technical Working Group

February 18-21, 2014

Sponsorship Opportunities

Sponsorships for the 2014 Rice Technical Working Group Meeting in New Orleans, LA, are now available. This is your opportunity to showcase your company while also showing your support of both the rice industry and this long-standing professional research organization. Sponsorship gifts to the Rice Technical Working Group Meeting offer increased exposure and visibility to your company, position your company as an industry leader, and allow you to reach a large audience in a cost-effective manner.

CYPRESS $5000 +

•Two complimentary meeting registrations.

• One half-page full-color advertisement in the RTWG 2014 program.

• Your company can promote or highlight new products or services with the insertion of one promotional piece in registration bags.

• Access to meeting attendee list upon request.

• Recognition as an official Cypress level sponsor in the meeting program and on the RTWG 2014 website.

CATAHOULA $2500-4999

• One complimentary meeting registration.

• One quarter-page full-color advertisement in the RTWG 2014 program.

• Your company can promote or highlight new products or services with the insertion of one promotional piece in registration bags.

• Access to meeting attendee list upon request.

• Recognition as an official Catahoula level sponsor in the meeting program and on the RTWG 2014 website.

COCODRIE $1000-2499

• One business card size, color advertisement in the RTWG 2014 program.

• Your company can promote or highlight new products or services with the insertion of one promotional piece in registration bags.

• Access to meeting attendee list upon request.

• Recognition as an official Cocodrie level sponsor in the meeting program and on the RTWG 2014 website.

MAGNOLIA $100-999

• Access to meeting attendee list upon request.

• Recognition as an official Magnolia level sponsor in the meeting program and on the RTWG 2014 website.

Sponsorships of breaks or receptions are also available - please contact us for information.

Sponsorship Form

To commit sponsorship or for more information contact:

The Rice Technical Working Group is made up of research and extension personnel in the rice-growing states of Arkansas, California, Florida, Louisiana, Mississippi, Missouri and Texas. At the RTWG 2014 meeting, these professionals will come together to share the newest discoveries and innovations in rice breeding, genetics, entomology, plant pathology, weed science, rice storage and processing. An up-to-the-minute exchange of information, enabled by a meeting such as this, is especially important in current market conditions. Because many of the rice varieties growing in fields today were produced by public breeding programs, farmers trust these researchers to continue making advancements in DNA marker technology, to test the new chemistries needed to enhance fertility and combat yield-robbing pests, and to study grain handling efficiency.

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Thank you for your consideration as we look forward to a productive 2014 meeting.

Seed Treatment Insecticides in Wide Use

The biggest change over the past decade in the way producers manage insect pests in their rice fields is the widespread adoption of seed treatment insecticides. In a recent survey of rice producers and consultants, over 90 percent reported using seed treatments in one or more of the fields for which they were responsible. The reasons for this high rate of adoption are: seed treatments combine ease of use with a high degree of effectiveness, and levels of pest insects (particularly the rice water weevil) are usually high enough to justify their use. Currently, there are three seed treatment insecticides registered for use in Louisiana rice: Dermacor X-100, NipsitInside and CruiserMaxx. The major target for all these seed treatments is the rice water weevil. Studies conducted in small plots and commercial fields have shown that the control of weevils provided by Dermacor X-100 is superior to the control provided by NipsitInside or CruiserMaxx; however, these latter two seed treatments control some important pests that Dermacor X-100 does not, notably colaspis, which is an important pest in north Louisiana and Arkansas.

Our understanding of the benefits of seed treatments (in addition to weevil control) has evolved over the past five years. Most importantly, research and surveys in Texas and Louisiana have demonstrated that Dermacor X-100 suppresses late-season populations of stem borers. This is a particularly important consideration given the spread of the Mexican rice borer in southwest Louisiana. In addition, we continue to gather evidence for positive effects of CruiserMaxx and NipsitInside on early-season plant growth and cold tolerance, although much research remains to be done in this area.

Results of research have also been used to refine our recommendations for the best ways to use these seed treatments. More than three years of research at the Rice Research Station demonstrated the effectiveness of Dermacor X-100 in water-seeded rice culture, and in 2012, the use of Dermacor X-100 in water-seeded rice was approved by the EPA. As with other insecticides, the benefits of seed treatment insecticides observed in our experiments have been greatest when rice is planted early to escape extremely high populations of weevils. Also, some data indicate the effectiveness of seed treatments, particularly NipsitInside and CruiserMaxx, can be compromised at low seeding rates. Finally, combinations of Dermacor with the other seed treatments and with foliar insecticides, such as Karate, have been investigated. Combining Dermacor X-100 with either CruiserMaxx or NipsitInside should give protection from a wider spectrum of pests and may improve weevil control. However, in research to date, no improvements in weevil control have been found by combining seed treatments.

The availability of seed treatment insecticides has been a tremendous asset to Louisiana rice production. Research by the LSU AgCenter entomology program on seed treatments continues to refine recommendations for the use of these tools. Future research will focus in particular on the benefits and cost-effectiveness of using combinations of insecticides and on the possible growth-stimulating and stress-alleviating effects of NipsitInside and CruiserMaxx.

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2013 USA Rice Outlook Conference
December 4-6, 2013
St. Louis, Missouri

The USA Rice Outlook Conference is the annual educational forum for rice producers from all rice-growing states and all segments of the U.S. rice industry.

Location

The 2013 USA Rice Outlook Conference will be held at the Hyatt Regency St. Louis at the Arch.

Educational Program

The USA Rice Outlook Conference features a timely business program with expert speakers on important issues, including:

- Domestic and International Rice Situation and Outlook
- Market Outlook
- Farm Policy Outlook
- State-by-State Rice Production Outlooks
- State and National Rice Research Reports
- New Equipment, Products & Services Seminar
- And More!

Trade Show

The conference also includes a trade show devoted to rice-related equipment, technology, products and services.

Exhibitor and Sponsor Opportunities

Showcase your business and show your support for the U.S. rice industry at the 2013 USA Rice Outlook Conference. For exhibitor and sponsorship opportunities, contact Jeanette Davis (703) 236-1447, jdavis@usarice.com.

Conference Information and Registration

For more information and to register for the USA Rice Outlook Conference go to www.usarice.com under meetings.

Louisiana Foundation Seed Rice

The Rice Research Station has been developing and releasing new rice varieties since it was established in 1909. For almost as long, the station has specialized in the production of foundation seed of those varieties. Foundation seed is the seed the research station releases to the rice industry to provide beginning seed stocks for the future of new and existing varieties.

Production of foundation seed starts with the development of a new rice variety. This process requires meticulous measures to purify seed through the various generations as an experimental line is tested to judge whether it merits release as a new variety for commercial production. The average time from start to finish of this process is about seven to eight years – from a cross being made to a variety being formally released and foundation seed being made available by the LSU AgCenter.

The process leading to foundation seed production begins early in the life of any breeding line. Any experimental line that is in yield testing in the Rice Station's breeding program is also being grown as head rows. The term head row derives from the fact that each row is planted from the seed produced from one head (or panicle) of rice. This is an excellent and proven method for purifying rice lines as they advance in generations from the cross that produced them. Each year after a line proves its potential for advancement in yield testing, panicles are harvested from the head rows and planted the following year. Prior to harvesting these head rows each year, they are evaluated for purity and uniformity. Those that don't display the proper characteristics are removed before harvest. By the time an experimental line has proved its muster and is considered a candidate for release, it has been head-rowed for several generations, which serves to increase uniformity and purity.

The last stage before foundation seed production is a large head row increase, which can vary from 1,000 to 4,000 head rows. Often, this increase is grown at the winter nursery in Puerto Rico. After a final rigorous evaluation, this head row increase is bulk-harvested and turned over to the Rice Station's Foundation Seed Program.

Released varieties are also head-rowed each year to provide purified seed for future foundation seed production. Some varieties last only a few years, but others stick around much longer. An example is the variety Cypress, which was first released in 1992 but was still being grown as foundation seed in 2012.

This seed produced from "head rowing" – whether from a potential new or existing variety – is used to plant the foundation seed production fields each year.

Mr. Larry "Smokey" White has been in charge of the station's foundation seed program for most of his 33-plus-year tenure there. He has been responsible for establishing the station's reputation as the premier rice foundation seed program in the United States. Recently, Mr. Rick Zaunbrecher has joined the program to learn the tricks of the trade to maintain this program into the future. Each year this head row seed is used to plant increase fields of foundation seed. The head row seed is normally planted at a seeding rate of approximately 35 to 40 pounds of seed per acre. These fields are grown similarly to any commercial rice production fields with typical fertilization, insect, weed and disease control practices employed.

Then, as the fields begin to head, the roguing process starts. Roguing involves walking each field looking for nontypical plants that could be a genetic off-type or a volunteer plant. These plants are physically removed from the field. Fields are typically walked and rogued at least three times before harvest. In addition, the fields must be inspected by a Louisiana Department of Agriculture and Forestry (LDAF) inspector before harvest as part of the certification procedure.

Each field is harvested using a squeaky clean combine to ensure purity. It normally takes several Rice Station personnel two to three days to completely tear down and clean a combine between harvests of foundation seed fields. Once harvested, the seed is delivered to the station's foundation seed drier, which has also been meticulously cleaned to ensure purity. There, it is dried and stored to await processing. In the fall, each variety is cleaned and packaged using state-of-the-art equipment. After cleaning, an LDAF inspector collects a seed sample, which is submitted to the LDAF seed lab in Baton Rouge and subjected to a number of tests, including germination and purity. Foundation seed can only be distributed if it passes this rigorous testing program.

Brian Broussard (foreground) and Rick Zaunbrecher (background) package foundation seed at the Rice Research Station.

Distribution of foundation seed is handled by the extension agent with rice responsibilities in each rice-producing parish. The allocation to each parish is governed by an equitable system based on the previous year's rice production in that parish. Typically, the demand exceeds the supply only at the initial release of a new, promising variety.

Foundation seed is the backbone of the rice industry. This seed is the first step in assuring that the seed a grower purchases to plant his crop is the variety he chooses and is of high germination and free from noxious weeds such as red rice. The Rice Research Station has long prided itself in producing superior foundation seed.

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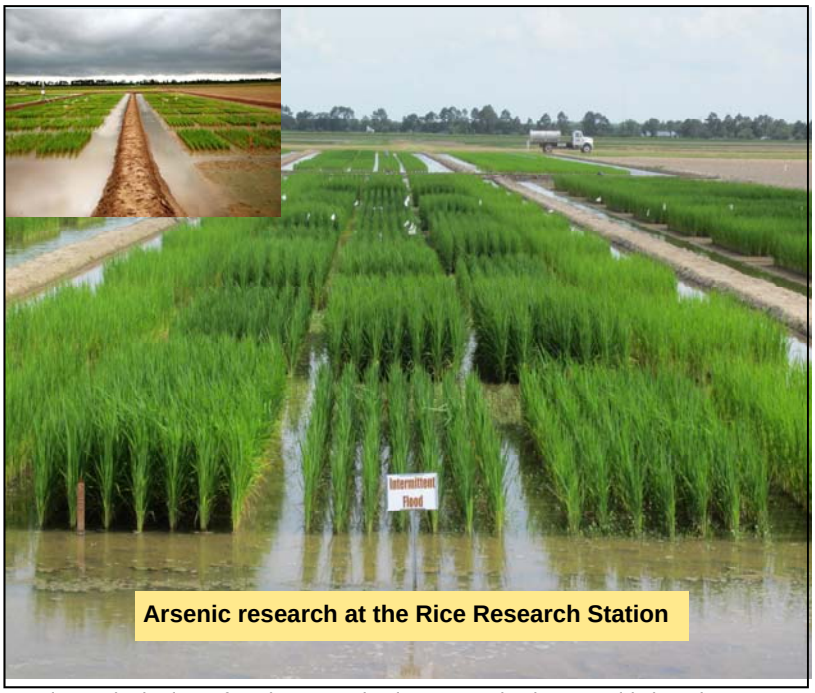
CAN RICE WATER MANAGEMENT ALTER ARSENIC LEVELS IN RICE

Arsenic can be found naturally in soil and water in both the organic and inorganic forms. The inorganic form of arsenic is particularly worrisome because it is a human carcinogen and has been linked to lung, skin and bladder cancer. Limiting our exposure to inorganic arsenic in the food and water supply is important to us all. Therefore, it is understandable that when Consumer Reports published that arsenic was found in some rice and rice products at "worrisome levels," coupled with the media blitz that followed, domestic sales and consumption took an immediate hit. Important questions needed to be answered, such as do the low levels of arsenic in rice pose a health risk to consumers? To answer this question, the Food and Drug Administration (FDA) evaluated the arsenic content in approximately 1,300 samples of rice and rice products. In September of this year, the FDA released the results of this study to the public, and they concluded that the levels of arsenic in rice and rice products occur in very low amounts and do not pose an immediate or short-term health risk. This is great news to the rice consumers and the rice industry as a whole. However, there are still many more questions that need to be answered. For example, can we alter our rice production practices to reduce arsenic content in rice even further?



Arsenic research at the Rice Research Station

It is well-known that in flooded, anaerobic soils, some arsenic species become more available for plant uptake. Because rice is grown in a flooded soil, it tends to take up more arsenic than other agronomic crops grown in upland, nonflooded soils. Knowing this simple interaction brings up many more questions. If we alter rice water management practices, can we alter arsenic uptake in rice? If so, because rice is an aquatic plant, would changing to a more aerobic production system reduce yield potential? Would the cost of production increase with increased chemical herbicide, fungicide and energy use? Would rice still be economical to produce? What about the genetic variation between different rice varieties and hybrids? Do some take up less arsenic than others? Is there a way to measure how reduced a soil is, and can we use this measure to predict the potential of rice to take up arsenic?

To help answer some of these questions, a multistate trial, funded by the USA Rice Foundation, was initiated this year. Participating in the trial are university researchers from each of the major rice-producing states, including Louisiana, Arkansas, California, Texas, Mississippi and Missouri. Each trial consists of six varieties/hybrids and four water management strategies. Rice varieties/hybrids evaluated in the midsouthern rice-producing states' trials include CL151, Cheniere, Jupiter, Presidio, CLXL729 and CLXL745. California rice varieties will differ from the other trials in that only rice varieties commonly grown in the region will be included. The water management strategies include:

1. The traditional drill-seeded, delayed-flood management practice where a continuous flood is applied after the rice reaches the 3- to 4-leaf stage of development and left until 2 weeks before harvest.
2. Intermittent flooding, where the initial flood is held for two to three weeks, then allowing the flood to evaporate until mud is exposed, followed by pumping water to a 2- to 4-inch depth.
3. Semi-aerobic rice management, where flushing is conducted regularly, but aerobic conditions are allowed to persist.
4. Straighthead management, where the rice is flooded for 10 days to two weeks followed by draining until the soil cracks followed by re-flooding until draining for harvest.

Rice grain samples (four replications) from each trial will be taken, milled at the same location, and sent for analysis to a laboratory capable of determining arsenic speciation and concentration. Agronomic data will include grain yield, plant height and days to reach 50% heading. Soil conditions such as redox potential, pH and soil moisture will be monitored continuously through the trial. Economic estimates will be determined at the conclusion of the trial. Preliminary results of the multistate trial will be shared at the 2014 Rice Technical Working Group Meeting in New Orleans, La.

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

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https://store.lsuagcenter.com/

RICE EXPERIMENT RESEARCH STATION 1909-2009

Focus

Ted Trahan

Ted Trahan has been working at the Rice Research Station for the past 5 years. His job as maintenance repairman is to keep things running and fix things when they break.

He did the same thing at the Iberia Research Station for 6 years before joining the maintenance crew at the Rice Research Station.

“The people are good here and easy to get along with,” he said. “The work is not that hard, and it’s stuff I know about.”

Trahan is from Kaplan, and as a boy he grew up there and in Texas where his father worked in the oilfields. After high school, Trahan joined the Army and became a paratrooper, serving in Vietnam from 1969-72, and saw his share of combat.

After 7 years in the military, he went to work in the oilfield as a floorhand on oil rigs, offshore and onshore.

Next, he became a welder and worked on a nuclear plant near Bay City, Texas. He recalled one weld of pipe 36 inches in diameter with a 3-inch thickness that required 10 days to complete.

At the station, he has to weld occasionally.

In his spare time, he fishes and hunts deer and ducks.

Trahan is the father of two boys and a girl, which are all grown, and five grandchildren.

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