LSU AgCenter
Research · Extension · Teaching

H. Rouse Caffey RICE RESEARCH STATION NEWS

Volume 15 Issue 2 May 1, 2018

1909-2017
54 released varieties

Southwest Region

Find us on Facebook Like

Alternatives to Insecticidal Treatments

The introduction of insecticidal seed treatments, such as Dermacor X100, CruiserMaxx, and NipsIt Inside, has revolutionized insect management in Mid-South rice production. In the southern rice production region of Louisiana, these products (chiefly Dermacor X100) are used on more than 80% of the rice acreage. The products control multiple insects and reduce the need for labor intensive pest scouting. The use of seed treatments is generally recommended for fields where high populations of weevils and stem borers are anticipated, but they don't fit every situation. Applying insecticides before any pests have been observed could result in unnecessary expenditures which don't provide returns on investment. Some growers may forgo the treatments due to concerns about impacts to crawfish production. Choosing to plant untreated seed doesn't mean insect pests must go unmanaged.

Rice leaf scarring

After the loss of registration of carbofuran in 1995, farmers achieved adequate weevil control with foliar insecticide applications. Pyrethroids can be applied immediately before flooding with a ground rig or aerially applied post-flood. Fields should be scouted for the presence of adult weevils and characteristic leaf scarring prior to flooding as well as post flood. If adult weevils are observed throughout the field, insecticides will likely be needed to prevent yield losses. One or two applications made within 7 days of flooding can effectively control adult weevils and prevent egg-laying. These applications control early season infestations at levels comparable to seed treatments. Infestations of larvae feeding on roots later in the season may still occur, but these are less damaging to yields. Stem borer infestations can also be controlled with pyrethroids. Untreated fields or fields treated with Cruiser or NipsIt should be scouted weekly for stem borers starting at preboot and continuing through heading. If leaf sheath feeding is observed and larvae have not yet entered into tillers, a pyrethroid application can provide some control. A pyrethroid application may be justified if numerous larvae are observed, particularly if it can be mixed with a fungicide and won't require an additional pass over the field. Pyrethroids aren't good options for every situation, particularly fields in close proximity to crawfish. In situations where no insecticide use is desirable, cultural controls can provide some benefit.

Stem borer leaf sheath injury

Early planting and delayed flooding are effective ways to reduce yield losses from weevils. Fields planted in early- to mid-March may escape damaging infestations of weevils as well as armyworms and stem borers. Delaying the flood by even one or two weeks can allow young rice to develop greater root systems prior to the onset of weevil feeding. This tactic doesn't prevent weevil infestation, but it delays them long enough to lessen yield losses. Delayed flooding may require additional herbicide applications.

Draining fields 2–3 weeks after flooding and allowing soil to fully dry can kill weevil larvae feeding on roots and has been used successfully in the past in certain situations. This tactic will not be effective if soil cannot be sufficiently dried and is not practical in many fields. Water stress, fertilizer loss, and poor weed control may result from removal of the flood, so this tactic should be used cautiously. Armyworm infestations, which can impact untreated rice, NipsIt or Cruiser-treated fields, or rice planted for crawfish forage, can also be controlled through manipulation of water management. Flooding fields to the highest practical level can drown larvae and push them to the tops of plants where they are more easily attacked by birds and beneficial insects. Water depth should be reduced before plants experience adverse effects of excess flooding.

While seed treatments are the best pest management options for many growers, I encourage you to consider where these alternatives might fit in your operation. No single pest control strategy is appropriate for every situation, and diversification of management tactics will help ensure that our tools remain effective in the future.

Dr. Blake Wilson
bwilson@agcenter.lsu.edu

Inside this Issue

Special Dates of Interest:

- **H. Rouse Caffey Rice Research Station Annual Field Day June 27, 2018**

***complete schedule of area field days on page 2**

New Herbicides and What to Expect

RiceOne is a pre-package mixture of clomazone plus pendimethalin which are the same active ingredients in Command and Prowl, respectively. RiceOne rates are soil texture dependent. Below is a table of the equivalent amount of Command and Prowl H2O found in RiceOne rates and the appropriate soil texture for each rate of RiceOne.

Soil Texture	RiceOne Rate	Command Rate	Prowl H2O Rate
Coarse: Sands, Loamy sands, Sandy loams	24 oz	8.5 oz	1.0 pt
Medium: Sandy clay loams, Sandy clays, Loams, Silt loams, Silts	35 oz	12.5 oz	1.5 pt
Fine: Silty clay loams, Silty clays, Clay loams, Clays	50 oz	17.8 oz	2.1 pt

If it is determined that more Prowl is needed, make sure to use Prowl H2O and not the Prowl 3.3 EC formulation or any other EC formulation of Prowl. The addition of the EC formulation can cause some incompatibility problems with the mixture and cause clogging of the sprayer. This pre-package mixture will control many of the problem annual grasses in rice production with the added benefit of activity on some broadleaf weeds. If weeds are emerged at application add a crop oil concentrate at 1% v/v or 1 gallon per 100 gallons of spray solution to achieve some postemergence activity from the clomazone. The herbicide can be applied from delayed-PRE to early postemergence; however, if applying to dry broadcast seed that have been covered with a field cultivator wait until the rice reaches the two- to three-leaf stage.

Gambit is a pre-package mixture of halosulfuron or Permit plus prosulfuron or Peak. Gambit should be applied at a rate of 1 to 2 oz/A under dry or flooded conditions. Do not apply more than 2 oz/A per year. A crop oil concentrate should be added at 1% v/v. The herbicide is more active on small weeds, one- to three-leaf in size. Gambit can be used in a burndown application with Roundup, and some residual can be expected from Gambit. This herbicide is a much better postemergence herbicide that happens to have some soil activity, but do not apply where no weeds are emerged. You will not be happy with the overall residual activity. I look at the residual activity as a bonus not as a strength. Gambit controls broadleaf weeds and sedges. If applied under flooded conditions, weeds should be exposed above the flood 70 to 80%; however, do not expect any residual when applied under flooded conditions. The strength of Gambit is activity on alligatorweed as a postemergence application.

Loyant has a new active ingredient florpyrauxifen-benzyl. Loyant has activity similar to 2,4-D and Grandstand; however, Loyant has activity on annual grasses, broadleaf weeds, and sedges. Loyant can be applied to both drill- and water-seeded rice in the 2-leaf stage at a rate of 1 pt/A. A methylated seed oil (MSO) at 0.5 pt/A is required. The one weed Loyant has no activity on is Texasweed. Apply to small actively growing weeds. If the flood is not present at application, establish permanent flood within 3 days. If the permanent flood is present at application, make sure weeds are exposed 70% above water level, and wait 3 hours before adding additional water. Loyant has no residual activity on weeds that have yet to emerge. Avoid the use of Loyant on freshly cut or leveled ground, except water-leveled fields. Caution should be taken to avoid drift of Loyant to neighboring soybean and other broadleaf crops. In my opinion, the best timing for Loyant is just prior to establishment of the permanent flood.

The Provisia rice system is available for the 2018 growing season. The active ingredient in Provisia is quizalofop. Apply this herbicide only to Provisia rice varieties. Provisia controls red rice, weedy rice, and annual and perennial grass weeds commonly found in rice fields. The first application to Provisia rice should be applied at 13 to 18 oz/A. Use a high quality crop oil concentrate at 1% v/v. I prefer crop oil concentrate close to an 80:20 ratio, and the one I prefer is an 83:17 ratio. Adequate soil moisture is required for optimum herbicide activity. A second application of Provisia must be applied prior to panicle initiation; however, flooded conditions are not necessary. Do not apply more than 31 oz/A per year. Applications of Provisia to Provisia rice can cause injury, and it is usually in the form of yellow foliage often referred to as a "Yellow-Flash." Caution should be taken to avoid spray overlap. When Provisia is mixed with other herbicides, antagonism can occur. Refer to Provisia label for approved mixtures.

All of these new herbicides have a fit in Louisiana rice production; however, none of them are silver bullets. As always, use a weed control program with multiple modes of action by taking advantages of residual herbicides like RiceOne, Command, Facet, or Prowl followed by postemergence herbicides such as Gambit, Loyant, and Provisia. Try to plant into weed-free fields and try to remain weed free 4 to 6 weeks after emergence. Planting into an existing weed stand can be very difficult and expensive to control. Remember, many times a herbicide is not your best option!

Dr. Eric Webster
ewebster@agcenter.lsu.edu

Schedule of 2018 Field Days

H. Rouse Caffey Rice Station Annual Field Day
Wednesday, June 27, 2018
RRS, Crowley,LA

Southwest Field Day
Wednesday, May 30, 2018, Iowa area

Evangeline Field Day
Thursday, May 31, 2018, Mamou area

Vermilion Rice Tour
Wednesday, June 5, 2018
Kent Lounsberry Farm

Acadia Parish Rice and Soybean Field Day
Wednesday, June 13, 2018
RRS South Farm

Northeast LA Rice Field Day
Wednesday, July 18, 2018, Rayville area

Rice Disease Management Update

Numerous diseases pose major threats to rice production. In Louisiana, sheath blight, bacterial panicle blight, blast and narrow brown leaf spot continue to be the most important diseases of rice causing significant yield and quality reductions costing farmers millions of dollars each year. Narrow brown leaf spot developed into a major pest during the 2006 growing season, and since that year, it has been problematic in susceptible later planted rice and the second crop. Due to the very cold winter, less rice survived. This should reduce Cercospora development. Bacterial panicle blight is a major problem in rice fields during abnormally hot conditions. In 2010 and 2011, strobilurin fungicide-resistant sheath blight pathogen was detected in Acadia Parish and has spread to surrounding parishes. Most recently, in 2012 and 2015, major blast epidemics developed on several major rice varieties causing significant damage. Again, the cold winter should reduce or at least delay blast development. Data from inoculated research plots and surveys in farmers' fields suggest that these rice diseases cause an average 6 to 25% loss each year in yield and quality. With present production costs and the low rice prices, these yield and quality losses can represent negative net returns due to rice diseases. Direct losses to disease include thin stands, lodging, spotted kernels, fewer and smaller grains, reduced milling, and a general reduction in plant efficiency. Indirect losses include the cost of pesticides used to manage diseases, application costs, and reduced yields associated with special cultural control practices that reduce disease but may not be conducive to producing maximum yields. Effective disease management is critical to maximizing rice profits.

In the United States, disease pressure is higher in the mid-south growing region than in the arid California production area; although California has had significantly more disease pressure recently with the introduction of blast in 1997 and the introduction of bakanae in 1999. The United States is fortunate that it does not have any of the devastating viral diseases that occur in most other production areas of the world. Also, the United States has a limited number of nematode and bacterial diseases compared with most of the world production areas. Unfortunately, there are enough fungal diseases that increase production costs and reduce yields and quality to limit the economic return U.S. farmers receive for their crop.

A number of factors affect disease development, including varietal resistance, cultural management, cropping history, weather, and pesticides. Host resistance is the best control method, but often, it is not available or breaks down after varietal release. Most long-grain varieties are susceptible to sheath blight, and several major varieties are also susceptible to blast. Cultural practices often play an important role in disease development as evidenced by the fact that sheath blight was a minor disease until the introduction of semi-dwarf varieties, high fertilization rates, and soybeans as a rotational crop. Cultural practices, such as reducing seeding rates and nitrogen levels, can reduce disease development, but this can limit yield. As a result, rice farmers often rely on fungicides to control diseases.

The current list of available fungicides is longer than ever. The QoI Strobilurins fungicides (Group 11) Quadris, Equation and Gem are good against the wild type sheath blight and blast but poor against strobilurin resistant sheath blight fungus, Cercospora and the smuts. The Carboxamides fungicides (Group 7) Sercadis and Elegia have good wild and strobilurin resistant sheath blight ctivity and some Cercospora activity but they have no blast nor smut activity. The Demethylation Inhibitors fungicides (DHI) (Group 3), Tilt, Bumper, PropiMax and others have good Cercospora and smut activity but are only weak against sheath blight and have no blast activity. There are several tank mixes of these active ingredients, Amistar Top, Quilt and Stratego, which combine the performance of the standalone products and have a very good fit in rice production. Syngenta has received a full federal label for the new rice fungicide Amistar Top. It will be available for use during the 2018 season. It is a pre-mix of azoxystrobin (Group 11) and difenoconazole (Group 3). The difenoconazole component has a different mode of action, the same as propiconazole, than the strobilurins or the DHI fungicides but is effective against the wild-type and fungicide-resistant sheath blight isolates. Just like other fungicides, if it is used exclusively over and over, resistance is likely to develop. Make sure you read the label and follow the use instructions and restrictions. Contact your local Cooperative Extension agent if you have additional questions.

Dr. Don Groth
dgroth@agcenter.lsu.edu

Cold winter temperatures killed rice that harbor rice pathogens.

Sheath blight initial infection.

To avoid fungicide resistance, only use fungicides when needed, use full label rates, and rotate the mode of action (don't keep using the same fungicide over and over).

Nitrogen Best Management Practices Promote Sustainability of Louisiana Rice Production

Sustainable agriculture has become one of the most thought provoking and frequently used terms over the past decade. It basically refers to our ability to minimize negative impacts on the environment while maintaining current production levels. One of the most important sustainable agriculture strategies to mitigate environmental impact is to minimize losses of fertilizer nutrients. Gaseous loss of nitrogen (N), particularly nitrous oxide, is one of the most deleterious to air quality. In fact, nitrous oxide has 310 times the global warming potential compared to carbon dioxide. In addition, losses of N in runoff events and leaching negatively impact surface waters. Therefore, if we follow best management practices for N fertilizer applications, we will not only be reaping the benefits of maximizing the return on every fertilizer dollar spent but also employing sustainable agriculture practices. Rice often gets a negative label for its environmental impact, or carbon footprint, mostly due to potential emissions of methane from rice soils being submerged 4 months of the year.

Did you know that when N fertilizer is used in drill-seeded delayed flood rice production according to best management practice recommendations, it is the one of the most efficient users of N of all agriculture row crops? On the other hand, if N fertilizer is applied improperly, it also can be one of the worst. As we begin gearing up for the coming rice season, I would like to remind you of a few best management practices for N fertilizer use in rice production.

To begin, it is very important that only ammonium or ammonium-forming fertilizers (urea) be used. Avoid all fertilizers that contain nitrate-N. All N in the nitrate form will be quickly lost via denitrification once a flood is established.

Optimum N rates vary according to the variety of rice grown, a soil's ability to supply N over the growing season, and environmental conditions. Research has identified a range of N rates that work across many different soils for each individual rice variety. These recommendations can be found in the Rice Varieties and Management Tips Publication, which is available online (http://www.lsuagcenter.com) and in print at your local extension office. Past experience should help you identify what N rate is best for your soil within that recommended range. It is important to note that this year we have a new N recommendation range for PVL01 of 150-180 pounds of N per acre. This is higher than almost all other currently grown rice varieties; however, the higher rate is needed to maximize the variety's yield potential. Due to the higher N rate for PVL01 and its susceptibility to blast, two fungicide applications may be necessary for this variety.

Starter N fertilization is not necessary in delayed-flood rice production. Research has shown that starter N applications most often do not result in a yield increase. However, an increase in early-season vegetative growth is often observed, which results in rice reaching the tillering stage of development faster, allowing a flood to be established earlier. This is particularly beneficial in weed management. Starter fertilizer N is the least efficient of all application timings and should not be counted toward your targeted N rate total. If starter N is used, no more than 20 pounds per acre should be applied.

Two-thirds of fertilizer N should be applied just before permanent flood establishment on a dry soil in delayed-flood rice production. Flooding the soil stabilizes the N in the ammonium form that can be utilized by rice throughout the growing season as long as the flood is not lost. The longer the urea or ammonium-based fertilizer stays on the soil before a flood is established, the more N will be lost from ammonia volatilization. If the soil is moist when the fertilizer is applied, higher rates of N volatilization should be expected. If the N is applied into a flooded field, the N volatilization losses will be even greater. The use of a urease inhibitor containing one of these active ingredients, NBPT, NPPT or Durimide, will temporarily delay volatilization losses while the fertilizer sits on the soil surface before the flood is established. This is particularly beneficial if it takes longer than 3 to 5 days to flood a particular field, which is the case for most of our commercial rice fields. Another loss mechanism of N that can occur in rice production is referred to as nitrification-denitrification losses. As ammonium-N from our fertilizer application sits on the soil surface prior to flooding, the ammonium-N can be converted to nitrate-N via the nitrification process. Upon flooding and after the soil becomes anaerobic, a process called denitrification will quickly convert all nitrate-N to gaseous forms, which will be lost to the atmosphere.

Following best management practice recommendations for nitrogen fertilizer applications is an important key for a sustainable rice crop.

The final N fertilizer application in delayed-flood production should be applied at midseason. Green ring is our visual indicator for identifying proper application timing. This time, urea or another ammonium N fertilizer can be flown onto a flooded field. Rice has developed an extensive root system by midseason that can actually out-compete volatilization losses at this stage of development. So flying N fertilizer into the water at midseason is not a problem. In fact, research has shown that N applied at midseason is taken up almost completely in as little as 3 days.

By using these best management practices for N fertilizer use, we will not only be obtaining the highest fertilizer use efficiency possible in our rice production system, but we will also be using sustainable agriculture practices.

Dr. Dustin Harrell
dharrell@agcenter.lsu.edu

H. Rouse Caffey Rice Research Station
1373 Caffey Road
Rayne, LA 70578

Phone: 337-788-7531
Fax: 337-788-7553
E-mail: dgroth@agcenter.lsu.edu
www.lsuagcenter.com/en/our_offices/research_stations/Rice/

This newsletter is produced by:

Karen Bearb
Bruce Schultz
Don Groth
Darlene Regan
Valerie Dartez

Join us on Facebook !

The LSU AgCenter H. Rouse Caffey Rice Research Station is now on Facebook. The page will provide timely updates on research conducted at the station as well as other useful information. The page can be accessed at the link below. Simply go to the page and click on *LIKE*. Updates will then be posted to your Facebook homepage. If you are not currently a user of Facebook, signing up is easy and free.

Online Store

Visit the LSU AgCenter online store at the following website:

https://store.lsuagcenter.com/

Focus

Nutifafa "Fafa" Adotey

As a youngster, Nutifafa "Fafa" Adotey grew up with hopes of becoming an architect. "I had nothing to do with agriculture."

But getting into school to study architecture was difficult, and he eventually decided to further his education in agriculture. He is now a post-doctorate researcher in the agronomy lab at the Rice Research Station.

Fafa grew up in the West African nation of Ghana. His mother was a homemaker, and his father was an accountant. The family had a backyard garden, and they also raised poultry, but he said the field of agriculture never occurred to him until he went to college.

"My passion for agriculture would come in my third year in college," he said.

"It was soil science that intrigued me."

He graduated from the University of Ghana in agriculture in 2008. He came to the U.S. to get a master's degree from Stephen F. Austin University in Nacogdoches, Texas, in 2013. Three and a half years later, he graduated with a doctorate in soil science from LSU.

He now works in the soil lab under direction of Dr. Dustin Harrell. Harrell said Fafa's projects involve fertilizer volatility. "He is a very intelligent scientist who is doing a tremendous job with our lab studies. We are very lucky to have him work with us."

Harrell said Fafa's work has gone beyond the lab. "He has become a very proficient publisher of scientific manuscripts."

Fafa returned to Ghana last year and he was married. His wife, Regina, is a crop physiologist who has studied at Kansas State University. She is working on her doctorate degree, focusing on drought-resistant grain sorghum.

Fafa said it's possible he will return to work in Ghana where rice is grown. "I do have plans to return to Ghana, but I'm open to opportunities in the U.S. and the world for some time to acquire valuable experience before heading home."

In the meantime, he likes his job at the Rice Research Station. "The station is a wonderful environment for a young scholar because the staff and faculty members are always welcoming, willing to listen, assist and teach when possible."

In his spare time, Fafa enjoys watching sports and listening to audiobooks.

Bruce Schultz
bschultz@agcenter.lsu.edu

Research partially funded by the Louisiana Rice Research Board
Research partially funded by USDA-NIFA