



Southwest
Region



Rice Research Station News

Volume 10 Issue 1
February 1, 2013

New Rice Herbicides Available for 2013

Herbicide development for use in rice has been amazing the past 10 to 15 years. No other crop has had new product development like rice. The herbicides Command, Newpath, Beyond, Aim, Regiment, Clincher, Ricestar HT, League, Permit, Grasp and Grasp Extra are a few of many. This development has not slowed. In 2012, the Rice Weed Management project evaluated several experimental herbicides and surfactants, and it appears that trend will continue in 2013.

In the past two years, Permit Plus and League have been labeled for use in rice, and each has been adopted as new standards for production in Louisiana. In 2013, FMC will have a new product on the market called Obey, and it is a pre-package 1:1 mixture of clomazone plus quinclorac. This herbicide is formulated as a 2.5 lb ai/gal, which means 1 gallon contains 1.25 lbs active of clomazone and 1.25 lb active of quinclorac. The use rate is 32 to 52 fluid oz/A. A rate of 38.5 oz per acre would be equivalent to 16 oz of Command and 0.5 lb of Facet. Command 3 ME can be applied as a preemergence herbicide up to 2-leaf rice. Obey can be applied as a preemergence up to 5-leaf rice. The best way to use this product will probably be as a postemergence herbicide. Use Command at the normal

rate as a preemergence herbicide followed by 38 to 40 oz/A of Obey postemergence. This will provide grass control with Command preemergence and residual and postemergence control with Obey. Always consult the Obey label for rates, restrictions and adjuvants.

The other major change this year is the reformulation of Facet into a liquid formulation sold as Facet L. It can be used in the same manner as the dry formulation but with the convenience of a liquid. A 32 oz/A rate of Facet L would be equivalent to a 0.5 lb/A product rate of dry Facet formulation. The label allows for a rate of 21 to 42 oz/A. Always consult the Facet L label for rates, restrictions and adjuvants.

In December, Dupont was granted a 24-C label for Leadoff. This herbicide is a burn-down herbicide that contains rimsulfuron plus thifensulfuron. In 2013, Leadoff can be used at a rate of 1.5 to 2 oz/A. The recropping restrictions are 60 days for 1.5 oz/A on a soil with a pH of 6.5 or less and 90 days when applied at 2 oz/A on a soil with a pH of 6.5 or less. The pH restriction may be a major issue in Louisiana in 2013; however, in the future when the full federal label is granted, the rotation interval will probably decrease, and the pH restriction will increase.

It appears that herbicide development for rice will continue over the next several years giving our producers more options for weed management. Future rice weed management strategies will be broad-spectrum, cost-effective and, more importantly, will help increase yields and profitability.

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Height and stand counts from Herbicide Tolerance Trial.



Off-station Rice Herbicide Tolerance trial.



Command applied postemergence on Indian jointvetch at different growth stages.

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Special Dates of Interest:

Rice Research Annual Field Day
Wednesday, June 26, 2013

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

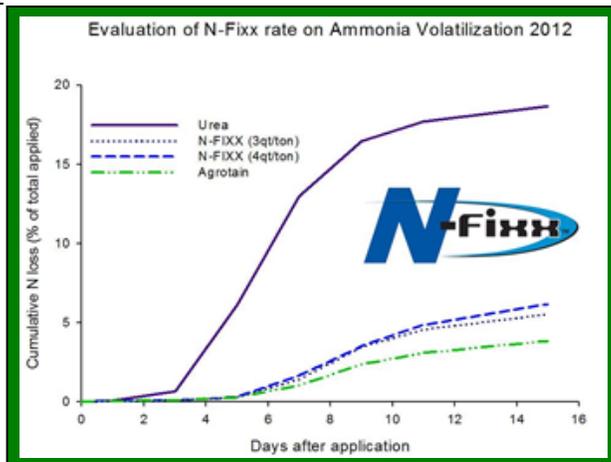
Improving Nitrogen Use Efficiency in Pre flood Applications

In drill-seeded, delayed flood rice production, the most important nitrogen (N) fertilizer application is the application applied just before permanent flood establishment. This fertilizer application timing is the most important because the largest amount of fertilizer N is applied at this time and it has the largest potential for loss. The nitrate (NO₃⁻) form of nitrogen is unstable under flooded, anaerobic (no oxygen) conditions and will be lost through a process call denitrification. Because of this loss potential, only fertilizers that contain N in the ammonium (NH₄⁺) form, like ammonium sulfate (21-0-0), or fertilizers that break down into the ammonium form, like urea (46-0-0), are recommended in rice production. Urea is the most commonly used N fertilizer source because it is the cheapest per pound of N. The only problem with urea is the potential for it to turn into ammonia (NH₃) gas and simply float off the field if it is left exposed on the soil surface for an extended period of time. This process is called ammonia volatilization. Studies conducted at the Rice Research Station over the past several years have shown that when urea is left on the soil surface for 10 days, volatilization losses generally range from 17 to 25 percent. That's a potential for 25 percent of your fertilizer dollars to be lost before you ever get the water on the field!

Unfortunately, it may take 10 or more days for a flood to be established on some of our larger fields. In this situation, a urease inhibitor containing the active ingredient N-(n-butyl) thiophosphoric triamide, or NBPT for short, is recommended. Urease inhibitors come in a liquid form and are applied on urea at your fertilizer distributor. The urease inhibitor basically slows down the breakdown of urea to the ammonium-N form, which is available to plants. Because it temporarily delays the breakdown of urea, it also temporarily delays the potential for ammonia volatilization losses. Currently, only three urease inhibitor products that contain the active ingredient NBPT are marketed in Louisiana. The three urease inhibitor products are Agrotain Ultra, ArboriteAg and N-Fixx. N-Fixx was released last year by the Helena Chemical Co. and was tested for its volatilization control in the field at the Rice Station last year. In the figure below, you can see that both N-Fixx and Agrotain Ultra reduced ammonia volatilization losses as compared to untreated urea. Our research has shown that all three products (Agrotain Ultra, ArboriteAg and N-Fixx) are similar in their volatilization control. Many other N fertilizer treatments have been evaluated at the Rice Station over the years, and only these three products have shown volatilization control and, therefore, are the only products recommended for rice production.

Many times I am asked, "When is it economical to use a urease inhibitor product and when is it not economical?" Our recommendation is that it is economical to use a urease inhibitor product when it takes more than three to five days to flood your rice field. I say three to five days, and not five days, because the economical break-even point changes from year to year and environment to environment. Right now urea costs approximately 61 cents per pound of N, and the urease inhibitor products cost approximately 6 cents per pound of applied N. Therefore, we need to have an N loss of approximately 10 percent to break even when using a urease inhibitor. If we again look at the figure below, you can see that the untreated urea lost about 10 percent of the applied N to ammonia volatilization somewhere between day 5 and day 6.

One last recommendation for pre-flood urea applications to maximize N use efficiency is to make sure the urea is applied only on dry ground and then flooded. When urea is applied to damp ground, the rate of volatilization is increased. The two- to three-day drag in volatilization shown in the figure below is much shorter, and the steep incline in the volatilization rate occurs faster. The use of a urease inhibitor will help in this scenario; however, it is only half as effective as compared to dry-ground applications. A urease inhibitor will not be beneficial if the treated urea is applied into the flood water at the pre-flood fertilization timing.



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From left, James Leonards and Ron Regan extracting captured nitrogen from a volatilization trial conducted at the Rice Research Station in 2012.



In-field volatilization chambers used to determine the amount of nitrogen loss from nitrogen fertilizers due to ammonia volatilization.

AWARDS

Several Rice Research Station scientists were recognized for their hard work and dedication recently. Dr. Don Groth was presented the Rice Industry Award and Dr. Ernest Girouard was presented the Distinguished Conservation Achievement Award at the USA Rice Outlook Conference in San Diego on December 10. Dr. Groth's award cited his career long efforts in rice disease control research which have had significant positive benefits for the rice industry. Dr. Girouard was recognized for the numerous areas his work has enhanced the conservation efforts of the U.S rice industry.

Drs. Herry Utomo and Steve Linscombe were recognized at the LSU AgCenter Annual Conference on December 17. Dr. Utomo was the senior author of an article that was selected as the outstanding article of 2012 in Louisiana Agriculture, the quarterly magazine published by the LSU AgCenter. His article dealt with the research in the use of aerial seeding in coastal restoration. Dr. Linscombe received the Doyle Chambers Research Award for his research in rice variety development.



Dr. Don Groth (left) and Dr. Ernest Girouard receive awards at the Rice Outlook Conference.

Pest of the Quarter **Fall Armyworm**

The fall armyworm is a sporadic pest of Louisiana rice. Armyworms can enter rice fields in large numbers and injure rice by feeding on leaves and other above-ground portions of plants. The fall armyworm feeds on many plant species, but it prefers grasses and is an important pest of corn and pasture grasses. Fall armyworms can consume large amounts of plant tissue, particularly when they enter unflooded fields in large numbers, and in some cases plants can be completely defoliated. Over the past several years, there have been several reports of fall armyworm infestations in Louisiana rice severe enough to require treatment. Most of these infestations occurred in April or May in young, unflooded rice, but infestations in older, flooded rice have also been reported. Fortunately, there are effective treatments for armyworm infestations in rice.

Adult fall armyworm moths are about 1 inch long, with gray-brown shaded front wings and iridescent, whitish hind wings. Adults are nocturnal and active on warm, humid evenings. Females lay masses of 50 to several hundred whitish, scale-covered eggs on the leaves of rice and other grasses in and around rice fields. Coloration of the larvae varies among individual larvae and changes with larval age. Young larvae are greenish, while older larvae are brownish with white stripes running the length of the body. Mature larvae are about 1 inch long and have a distinctive inverted "Y" on the head. The entire larval stage may be completed in as little as two weeks during the summer months. Mature larvae prepare a cocoon and pupate in soil or decomposing plant material. Moths emerge in eight to 15 days, mate and disperse widely before laying eggs on new plants. Four generations may occur annually in Louisiana.

Fall armyworm infestations generally occur along field borders, levees and in high areas of fields where larvae escape drowning. As noted above, larvae feed on the leaves of rice plants, consuming large amounts of tissue. The most damaging infestations occur in fields of seedling rice too young to flood. When large numbers of armyworms are present in such fields, complete pruning of rice seedlings can result in severe stand loss. Larger rice plants can tolerate some defoliation from fall armyworms, although the relationship between tissue loss and yield is not completely understood.

To scout for fall armyworms in young rice, begin scouting after germination of seedlings and continue to scout fields weekly for the larvae on plants. Scouting can be done with a sweep net or by visual inspection. Sample plants every 10 feet along a line across the field, and repeat this process in a second and third area of the field. Treat when there is an average of one armyworm per two plants.

Flooding infested fields for a few hours can reduce infestations by drowning larvae. This cultural tactic requires that levees be in place and that rice plants be large enough to withstand a flood. Parasitic wasps and pathogenic microorganisms frequently reduce armyworm numbers below economic levels. Because adults lay eggs on grasses in and around rice fields, larval infestations can be reduced by effective management of grasses. If application of insecticides is deemed necessary, a number of products are registered. These include Sevin, various pyrethroids such as Karate Z, Mustang Maxx and Prolex, and various formulations of *Bacillus thuringiensis*. Dermacor X-100 seed treatment should also provide some protection against fall armyworms in seedling rice, but CruiserMaxx and NipsitINSIDE seed treatments will not.



Fall Armyworm Moth



Fall Armyworm Larva



Infested Field

Potential New Rice Varieties

The Rice Research Station variety development program is a long-term research endeavor that has as its goal to continuously develop and release new varieties that will benefit the Louisiana rice industry. The program works with many different types of rice, including conventional and Clearfield long-grain, medium-grain and specialty types. Three years ago the project also initiated research into the development of rice hybrids. Variety development is an ongoing process with numerous genetically different lines continuously at different stages of development. Typically, it will take seven to eight years from when a cross is made until foundation seed of a new variety is delivered.

The station currently has two experimental lines that have shown superior characteristics and are very good candidates for release. LA2068 is an early-maturing, short-stature Clearfield medium-grain. It has consistently outyielded CL261, which is currently the only Clearfield medium grain variety available in the southern United States. In addition, the experimental line has shown excellent resistance to blast disease and is moderately resistant to sheath blight. CL261 is known for having excellent whole-grain milling yields and excellent grain appearance characteristics, and LA2068 looks to be similar to the variety in these traits. Seed of LA2068 was increased at the winter nursery in Puerto Rico this winter, and this head-row seed will be used to plant foundation as well



LA 2068



LA 2025

as a limited amount of registered seed during the 2013 growing season. If the line continues to look promising, it should be in large-scale seed increase during the summer of 2014 and readily available for the 2015 growing season.

Another promising line is LA2025. This is an aromatic, soft-cooking Clearfield long-grain experimental line. The line has cooking, appearance and aroma characteristics similar to that of Jazzman-2. This line was developed primarily through the work of Dr. Xueyan Sha and his associates at the Rice Station. Jazzman-2 was grown on approximately 13,000 acres in Louisiana in 2012, and that acreage will increase substantially in 2013. The experimental line, if released, will allow for the production of a Jazzman-type variety to be grown using the Clearfield production system. While LA2025 is a short-stature variety, it is taller than the semi dwarf Jazzman-2 and will be somewhat more susceptible to lodging. It has excellent grain yield and has consistently outyielded both Jazzman and Jazzman-2. LA2025 is highly resistant to blast disease and moderately susceptible to sheath blight.

Both LA2068 and LA2025 are Clearfield lines that will allow for the use of the Clearfield production system, which will allow for the control of red rice as well as other problem weeds in rice production.

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Belay and Nipsit INSIDE: New Insecticides for Rice

Two new insecticides, Belay and Nipsit INSIDE, will be available in the 2013 growing season for use against early-season insect pests, the most important of which is the rice water weevil. Belay is a pre- or post-flood foliar spray, while Nipsit INSIDE is a seed treatment. Both insecticides contain the active ingredient clothianidin, a third generation neonicotinoid insecticide that possesses chemical characteristics similar to those of thiamethoxam, the active ingredient in CruiserMaxx. Both Belay and Nipsit INSIDE are products of Valent U.S.A. Corp.

The introduction of Belay is important because it gives growers an alternative to the use of foliar pyrethroids such as Karate Z, Mustang Max and Declare in both water-seeded and drill-seeded rice. Although the chemistry of the active ingredient in Belay is different from the pyrethroids, it should be used in a manner similar to the foliar pyrethroids. Belay reduces damage from the rice water weevil primarily by killing adult female weevils before they lay eggs that hatch into the economically damaging larval stage. Fields can be scouted for adult rice water weevils at any time after rice emergence, but scouting efforts should be intensified at or near the time of flooding. The threshold for application of Belay is the presence of adult weevils where conditions are conducive to egg-laying (flooded fields or fields about to be flooded). In small plot trials, applications of Belay made a day before flooding have shown to be particularly effective. Evidence from small-plot trials suggests the residual activity of Belay is longer than that of the pyrethroids. The labeled rate for Belay is 4.5 fluid ounces of product per acre.

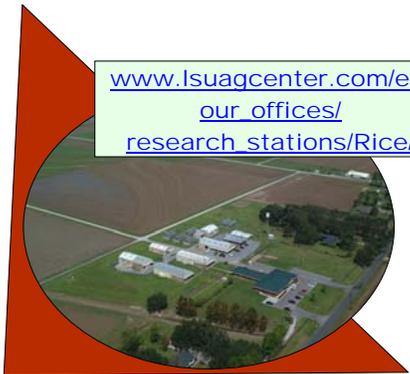
Use of the seed treatment Nipsit INSIDE is similar to the use of CruiserMaxx. Like CruiserMaxx, Nipsit INSIDE can be applied to seeds only by approved seed treaters and can only be used in dry-seeded rice fields. There is some evidence that use of Nipsit INSIDE and other neonicotinoid seed treatments improves early season stands, particularly under conditions of stress. Nipsit INSIDE probably controls weevils by killing adult weevils as they feed on rice leaves and by reducing egg-laying (the insecticide is plant systemic) in addition to killing small weevil larvae as they begin feeding on rice roots. Nipsit INSIDE and CruiserMaxx are about equally effective in controlling weevils. Unlike CruiserMaxx, Nipsit INSIDE does not contain fungicides. The labeled rate for Nipsit INSIDE is 1.92 fluid ounces of product per 100 pounds of rice seed. CruiserMaxx and Nipsit INSIDE can be used in combination with Dermacor X-100 seed treatment.

The active ingredient clothianidin, like all other insecticide active ingredients registered for use in rice, is toxic to crawfish, and both the Belay and Nipsit INSIDE labels include restrictions on use in crawfish ponds. Although clothianidin is toxic to crawfish, studies conducted by LSU AgCenter scientists have demonstrated that this active ingredient is approximately 1,000 times less toxic to crawfish than the pyrethroids.

Although the primary target pest for both Belay and Nipsit INSIDE is the rice water weevil, other early season pests are also controlled by these insecticides and are included on the labels. Belay is labeled against aphids, billbugs, chinch bugs (suppression), seed midges (suppression), and thrips (suppression) in addition to rice water weevils. Nipsit INSIDE is labeled against aphids, chinch bugs, colaspis and thrips in addition to rice water weevils. Neither Belay nor Nipsit INSIDE will control lepidopteran pests, such as the fall armyworm or stem borers.

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Donna Sonnier: Dedicated to Her Job

Focus

Donna Sonnier keeps the Rice Research Station clean and spotless. Track mud onto her floors, and you'll hear about it.
 "I fuss at Steve (Linscombe) because he has dirty boots. And don't spill coffee in the hall."
 Each day of the week, she cleans a different building. "Every day I have a lab to clean."
 She is modest about her work. "Everybody else works harder than I do."
 Sonnier has been working at the station for 10 years. Before this job, she worked at Popeye's Fried Chicken in Crowley.
 Her husband is John Sonnier, who also works at the station, conducting crawfish research with Dr. Ray McClain.
 Donna said she has known her husband since childhood. "We grew up together in the same neighborhood in Crowley," she said.
 They have a daughter, Michelle, 15, and her son, Bradley, 19, is about to complete votech school as a welder.
 In her spare time, she works out and spends time with her daughter.



Steve Linscombe, director of the Rice Research Station, said, "Donna is a very integral part of the Rice Research Station. She is very dedicated to her job and will do whatever is necessary to keep our office and labs spotless. She is also very personable and is a pleasure to be around every day."

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Research partially funded by the Louisiana Rice Research Board

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