Volume 4 Issue 1 February 1, 2007

RICE RESEARCH STATION NEWS

Rice Variety Update

Southwest Region

Rice variety selection for 2007 will be more restricted than last year because of the loss of the availability of Cheniere for this growing season. A number of excellent varieties and hybrids, however, will be available for 2007 production. The Rice Varieties and Management Tips publication, available from county agents or online at www.lsuagcenter.com, provides excellent information on varieties and hybrids for 2007. The conventional long-grain varieties recommended for statewide production are Cocodrie, Cybonnet, Cypress, Trenasse and Wells. In addition, the conventional long-grain hybrid XL723 will also be recommended in 2007. The Clearfield long grains recommended are CL131 and CL161. The medium grains Bengal and Jupiter and the short grain, Pirogue, will also be recommended for 2007 production.

Uniform Regional Nursery at the Rice Research Station

Two new Clearfield varieties will be grown primarily for seed production in 2007, although a small amount of seed will be available for limited commercial production. CL151 is a long-grain line that has consistently shown yield potential comparable to Cocodrie, Cheniere and Trenasse. The variety has good lodging resistance and good milling quality. CL171 is a Clearfield long grain developed by the Arkansas program. It has shown good yield and quality traits.

The Rice Research Station is also looking at a long grain (LA2082) and a medium grain (LA2028) for potential future release. Both of these lines have shown good yield, quality and agronomic characteristics. These lines were both increased at the Puerto Rico nursery this winter and probably be grown as potential foundation seed fields in Crowley this summer.

LL Elimination Program

Certified seed of Cheniere that was to be available for production in 2007 has been found to contain a trace adventitious presence of LL Event 601, which traces back to 2003 production of foundation seed of that variety. (LL601 is a Liberty Link rice event researched from 1999-2001). In an effort to purge the rice production system of this adventitious presence of the Liberty gene, it has been decided that Cheniere will not be planted for commercial production in the 2007 growing season. Foundation and registered seed of Cheniere, however, can be planted for seed production, provided that seed has been tested and found to test negative for the LL gene within the specified level of detection. In fact, all seed rice will be tested for the presence of LL events and only that seed that has tested negative within the specified level of detection will be available for purchase. Rice producers will need to provide three documents before selling (or first point of delivery) for the 2007 crop. These include:

A certificate stating that seed purchased has tested negative within the specified detection level for LL traits.

A receipt showing the amount of seed purchased.

A FSA form of certified acres planted.

In addition, any producer who had the variety Cheniere in commercial production in 2006 is strongly encouraged to clean any field or grain handling equipment that may have residual seed remaining in the system.

Dr. Steve Linscombe
slinscombe@agcenter.lsu.edu

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Special Dates of Interest:

Rice Research Field Day

Thursday, June 28, 2007

Rice Research Station, Crowley, LA

DD50 Rice Management Program

The DD50 rice management program is a temperature-based program designed to predict the growth stages of rice based on accumulation of heat units. DD50 stands for Degree Day 50. The number 50 indicates the threshold for growth in rice is 50 degrees F. The number of heat units per day is calculated by adding the high and low air temperatures for the day, dividing that sum by two and then subtracting 50. The result is the number of heat units for that day. If the temperature is less than 50 degrees, the heat units for that day are zero. There is no negative heat unit number. When the temperature exceeds 95 degrees F, no growth occurs and no heat units are recorded.

Data on growth stages of rice plants at the Rice Research Station in Crowley are recorded and then compared to weather data. Then threshold values for specific growth stages for specific varieties are developed. These values are part of the DD50 program.

In its early stages, this program used 30-year average temperatures to make predictions. No data regarding the grower or fields was stored. The current program is Web-based. Once entered, the grower and information about the grower's fields is stored. Weather data is automatically downloaded from the weather station nearest to the grower's farm. The program uses current weather data up to the date of access. From that point forward it uses historical weather data. As a consequence a grower may obtain one set of predictions from data entered early in the season and another later in the season as the program updates the weather information.

The program is not fool-proof. It is simply another tool to help the farmer anticipate the date at which a stage of growth might occur during the growing season. Most commonly growers are interested in internode elongation (green ring), heading and harvest dates. The program has been most accurate for rice grown in the southwestern portion of the state and most accurate early in the season. Greater variation in predictions occurs in rice grown in northeast Louisiana and in drill-seeded rice than water-seeded rice in the southwestern areas of the state. The program is under constant review and revision to make it more accurate and functional.

The DD50 project can be accessed on the LSU AgCenter's Web site (www.lsuagcenter.com). You must have an e-mail address to enroll online. If you do not, then your local county agent can run the program for you.

We encourage each user to enter the acreage for each variety. For the past two years the numbers derived from the DD50 program have been close to the acreage figures determined through our traditional survey methods.

Dr. Johnny Saichuk
jsaichuk@agcenter.lsu.edu

Master Farmer Conservation Plan Development

Currently, there are 13 certified as Louisiana Master Farmers and more will be recognized at the annual Farm Bureau Convention in July 2007.

Participation in the Louisiana Master Farmer Program has been great across the state and many of you have continued to move forward in the program. More than 500 of you have completed Phases 1 and 2 and are contemplating the move to Phase 3. This phase is the most challenging phase of the program, but with a little effort, a conservation plan at the Resource Management System (RMS) level can be developed for your farming operation.

LSU AgCenter Master Farmer personnel can provide information on conservation plan development that may reduce or eliminate some of the anxiety you may have in taking the next step in Phase 3.

It is important that you understand what is involved in developing a conservation plan. A conservation plan is a site-specific, thorough, and action-oriented plan that addresses one or more resources of concern. An RMS level conservation plan is a complete and thorough plan that addresses all the resources of concern for the entire farming operation. Soil, water, animals, plants and air are the primary natural resources of concern.

As you go about the daily activities in your farming operation, you may not realize that you are already addressing or protecting some resources of concern. Some examples might include taking soil samples and following recommendations, installing water control structures or underground irrigation pipeline, land grading, implementing conservation tillage or keeping records. By doing these things, you have developed a means of addressing resource concerns in your farming operation. This is your personal effort to solve problems or concerns with natural resources. By implementing BMPs that protect the resources of concern, you are providing yourself with a great beginning for the development of a conservation plan. Also, if you have participated in a conservation program under the current farm bill, such as EQIP or WRP, a conservation plan addressing one or more resources of concern was developed for you.

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Pest of the Quarter-Seedling Diseases

A complex of fungi and bacteria cause seed and seedling problems at planting. These include seedling blights, rots, and water molds. The seed are attacked soon after planting, causing poor emergence or seedling growth. Environments that favor the disease are cool moist or very warm conditions, which normally occur early or late in the growing planting season. This complex causes stands to be spotty, irregular and thin. Seedlings that survive tend to lack vigor and be yellow or light green. They do not compete well. Stands are reduced so yield is reduced. There is poor competition with weeds. If severe enough, the field will need to be replanted resulting in delayed maturity. Affected seeds can be observed through clear water surrounded by a ball of fungal strands or, if the flood is removed, they are surrounded by fungal strands radiating out over the soil surface causing a copper brown or dark green spot about the size of a dime around the rotted seed. The fungi attack the endosperm destroying the food source of the seedling or directly attack the embryo or young seedling. Seedling blights attack older seedlings causing some type of lesions on the emerging or emerged plant.

Signs of Water Mold

The problem usually is most severe either early or late in the season when environmental conditions do not favor seeding growth. Therefore, planting when temperatures favor rapid seedling emergence and growth is the best management practice. Fungicide seed treatments will reduce symptoms and increase stands in most situations. Proper cultural management, including shallow seeding, draining and flushing when needed, will reduce damage from these problems by increasing seedling establishment. Application of gibberellic acid also favors seedling emergence and help seedlings avoid disease problems.

Dr. Don Groth
dgroth@agcenter.lsu.edu

Master Farmer Conservation Plan Development

Cont.

Most of you have your conservation effort as a part of the farm operating plan. A typical farm plan will consist of a business plan and a farm operating plan. When an RMS level conservation plan is developed and added to your farm plan, it will then consist of three parts – business, operating management and conservation plan. The business plan will consist of a budget, loans, investments, notes, etc. The operation management plan will include the daily activities normally done on a farm, and the RMS level conservation plan will address all resources of concern for the entire farming operation.

While your RMS plan is being developed, many of you will be pleasantly surprised how easily your plan can be implemented. This plan will identify your efforts, evaluate effectiveness and progress being made, make sure all resources are addressed, identify new BMPs needed, provide a plan to be implemented and a time-line in which you agree to implement the necessary practices. Your efforts to address resource concerns will be part of an accepted, formal RMS level plan, which will evaluate all resources of concern and make recommendations when necessary. Your plan will give recognition of your successful efforts to address certain resources of concern. In many instances, your efforts will demonstrate the effectiveness of your stewardship in protecting those resources.

To begin work on a conservation plan, you must give permission to LSU AgCenter Master Farmer and NRCS personnel from both agencies to view maps, cooperator case files and information needed to begin your conservation plan development. Persons involved with developing this plan will include you, LSU AgCenter personnel, the District Conservationist and other NRCS personnel with special expertise if needed. Your RMS level plan is a voluntary effort and does not legally obligate you to a binding agreement. This is NOT a contract unless you apply for cost-share assistance through a program such as EQIP. An advantage to developing a plan is the ability to have input. You decide how rapidly you wish to make progress with the plan.

Currently, there are 13 certified as Louisiana Master Farmers and more will be recognized at the annual Farm Bureau Convention in July 2007. Will you be one of those recognized? The Louisiana Master Farmer Program and NRCS staffs are willing and anxious to assist you in any way we can. We firmly believe the program should be an integral part of your farming operation and that Master Farmer certification is attainable.

Dr. Ernest Girouard
egirouard@agcenter.lsu.edu

Keeping Clearfield Rice Viable

There have been several cases of red rice resistance to NewPath, ClearPath and Beyond. In most cases this resistance is due to an out-crossing event between a Clearfield variety and red rice. Research in Louisiana has shown that Clearfield rice and red rice can outcross and produce a red rice plant resistant to NewPath, Beyond and ClearPath herbicides. As producers, consultants and researchers, we all have a responsibility to make sure red rice does not escape the Clearfield herbicide program to prevent the loss of the technology through out-crossing.

It is important to follow the recommendations developed by the LSU AgCenter and BASF. In 2007, NewPath, ClearPath and Beyond labels will be the same as 2006. Two applications of NewPath or a ClearPath followed by NewPath program must be used before Beyond is applied. Producers can use up to 6 oz/A of NewPath per application for a total of 12 oz/A. The first application of NewPath or ClearPath should be applied from planting up to emerging to 1-leaf rice. It is important to apply the first application early to control emerged red rice and obtain the maximum residual activity from NewPath or ClearPath. The second application of NewPath should be applied no later than 10 to 14 days after the first application. If the permanent flood has not been established before the second application, the rice should be flooded as soon as possible.

Beyond, like NewPath, is in the imidazolinone herbicide family. This herbicide has the same mode of action as NewPath and affects the same weeds. However, Beyond has little to no soil residual activity, but it has better activity on grasses that are in the tillering or early reproductive stages. These characteristics make Beyond an excellent choice for use as a late-season herbicide application to control red rice and other troublesome grasses such as barnyardgrass and broadleaf signalgrass. With the lack of soil activity, there is little to no problem with carryover to the next growing season.

Beyond should only be applied following two applications of NewPath at labeled timings and labeled rates. The labeled rate of Beyond is 5 oz/A and can be applied to Clearfield rice between tillering and panicle initiation plus 14 days. A crop oil concentrate must be added at 1 gallon per 100 gallons of spray solution. It is important for the red rice to be above the rice canopy to obtain adequate spray coverage to increase the probability of control. Research in Louisiana has shown reduced red rice control when treated with Beyond in the mid to late boot stage. However, Beyond has excellent activity on red rice when treated before the boot stage.

The final option, and usually the least desirable, is hand weeding of surviving red rice plants. This can be labor intensive, but it can also mean the survival of the technology.

Dr. Eric Webster
ewebster@agcenter.lsu.edu

RESULTS OF RICE REFERENDUMS

The Rice Research and Rice Promotion referendums were voted on by Louisiana producers on January 30, 2007.

The Rice Research Referendum was approved 85% for and 15% against.

The Rice Promotion Referendum was approved 85% for and 15% against.

The approval of both referendums is for the next five years.

Learning Early-Season Growth Stages

Following planting, rice growth occurs when the daily average temperature is around 60 degrees F or above (daily highs in the 70s and nightly lows in the 50s). This is the minimal temperature for significant growth, and with higher temperatures, growth accelerates. Along the coastal rice growing areas of Southwest Louisiana, minimal temperatures begin around the middle of March. With planting at that time, early-season growth of rice or the vegetative phase of growth takes about two months and roughly covers planting to the beginning of stem internode elongation (green ring).

During germination and emergence, the root and shoot grow through the embryo end of the seed. The root grows downward and the shoot elongates upward. When the shoot is first noticeable as a white to light green growth above the soil surface and attains a length of 0.5 inch, rice is emerged. When the seed is below the soil surface, it may be necessary to actually dig below the surface to determine if the shoot is rice. Sometimes rice can be confused with certain grass weeds during the early season.

Growth is identified by the number of leaves on the main shoot. This type of identification is useful through the fourth leaf stage. As the collar at the base of the blade of the leaf appears, the leaves are used to determine growth: 1- through the 4-leaf stage. At the 4-leaf stage, the main shoot is established, and leaves (sheath, collar and blade) originate from the base of the shoot.

By the 4-leaf stage, tillers may have begun to emerge from the base of the shoot inside the sheaths of seedling leaves. Usually, the first tiller forms inside the sheath of the first leaf. At this point, the stage of growth is early tillering or first tiller. Depending on the variety, stand density, soil fertility, pest control, plant growth regulators and other factors that contribute to the overall vigor and health of the seedling, additional tillers may emerge from within other seedling leaves on the same main shoot and tillers may even originate from within leaves of some of the early tillers. Tillering occurs over a three- to four-week period, and initiation of new tillers is complete around seven to eight weeks after emergence when stem internode formation begins. The main shoot continues to add new leaves during tillering. At the end of tillering, the rice plant is comprised of a main stem with four to five additional new leaves and one or more tillers originating from its base.

Concentration of Chlorophyll (green ring) prior to internode elongation

An example of a 3-leaf stage plant with a sheath, collar and blade showing for each leaf.

Stem internodes form inside the main shoot, and the beginning of this growth is highlighted by the concentration of chlorophyll (green pigment) at the base of the shoot. This gives the appearance of the shoot being encircled by a green ring. Internode initiation marks the approach of the end of the vegetative or early-season growth of the rice plant and indicates the approach of the reproductive phase of growth. Photos and detailed descriptions of rice growth are in the Rice Production Handbook available through country agents or online at www.lsuagcenter.com.

Dr. Richard Dunand
rdunand@agcenter.lsu.edu

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

Rice Research Station
1373 Caffey Road
Rayne, LA 70578

Phone: 337-788-7531
Fax: 337-788-7553
E-mail: **slinscombe@agcenter.lsu.edu**

This newsletter is produced by:

Karen Bearb
Bruce Schultz
Don Groth
Darlene Regan
Steve Linscombe
Linda Benedict
Frankie Gould

Focus on Research Associates

Karen Bearb's preparation for the 2007 crop at the LSU AgCenter Rice Research Station started before the end of the 2006 calendar year.

As research associate for Dr. Steve Linscombe, she began preparing for planting by filling 60,000 seed cells between Thanksgiving and Christmas.

"Usually by the first or middle of February we have everything ready to plant," she said.

She has been working at the station in Linscombe's breeding program since May 1992. She was already well acquainted with the station where her father, Wayne Faulk, was farm manager.

"I grew up out here," she said.

She also worked at the station during summers while attending the University of Louisiana at Lafayette, where she graduated with a bachelor's degree in home economics.

Before working at the station, she was a manager at Dillard's department store in Acadiana Mall, but she decided working at the station would be more accommodating in her role as a mother.

Much of her job involves organizing seed and harvest samples that fill shelves and drawers. She credits her mother for a sense of organization.

Karen said she prefers the growing season at the station because it is fast-paced and she stays busy.

"I just don't like sitting still," she said. "Staying ahead of Steve is not easy, but I always try to keep one step ahead of him."

She also tries to keep in step with three children and two stepchildren. Her two youngest are a boy in first grade and a girl in pre-kindergarten.

When she's not at the Rice Station, she and her husband, Clarence, are working on their home in Lafayette and tending to vegetable and flower gardening.

Research partially funded by the Louisiana Rice Research Board