



Texas Rice

Texas A&M University System
Agricultural Research and Extension Center
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A Brief Overview of Biological Weed Control

Weeds are estimated to cause more than \$40 billion in annual global losses through degraded agricultural and silvicultural productivity, reduced access to land and water, impaired esthetics, and disruption of human activities and well-being. Manual removal, mechanical cultivation, cultural practices, and chemical herbicides can control weeds. However, use of physical and/or chemical methods of weed control alone is not feasible, desirable, or sufficient in every situation.

To that end, the Weed Science Society of America (WSSA) wrote in a position statement, "It is the goal of WSSA to promote the development and implementation of biological control methods as a component of weed management strategies."

Biological control of weeds is broadly defined as the use of an agent, a complex of agents, or biological processes to bring about weed suppression. All forms of macrobial and microbial organisms can be considered biological control agents. Examples of biological control agents include, but are not limited to, arthropods (insects and mites), plant pathogens (fungi, bacteria, viruses, and nematodes), fish, birds, and other animals. Biologically based weed management is a much broader category of ap-



A nutsedge specimen of the genus *Cyperus*. Researchers at the University of Florida have identified two plant pathogens that are effective bioherbicides for this genus, and are host specific at the generic level.

proaches that may include gene modification and gene products. Human activities intended to remove weeds directly or indirectly, such as hand-weeding and burning, deliberate uses of plant competition, allelopathy, and cultural and soil management practices that alter the biotic balance of the soil are considered important adjuncts to biological control in integrated weed management systems.

Biocontrol has been used successfully as a practical and economically affordable weed control method in many situations. While there has been an increase in inter-

est in biological control over the past 20 years, earlier instances of its use date back over 200 years.

Successful biocontrol programs can significantly reduce the abundance of the pest, but in some cases, they simply prevent the damage caused by the pest (e.g. by preventing it from feeding on valued crops) without reducing pest abundance. Biocontrol is often viewed as a progressive and environmentally friendly way to control pest organisms because it leaves behind no chemical residues that might have harmful impacts on humans or other organisms, and when successful, it can provide essentially permanent, widespread control with a very favorable cost-benefit ratio.

However, some biocontrol programs have resulted in significant, irreversible harm to untargeted (non-pest) organisms and to ecological processes. Of course, all pest control methods have the potential to harm non-target native species, and the pests themselves can, in some cases, cause harm to non-target species if they are left uncontrolled. Therefore, before releasing a biocontrol agent (or using other methods), it is important to balance its potential to benefit conservation targets and management goals against its potential to cause harm.

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From the Editor...



Growing a rice crop involves walking a fine line. Each decision point during the course of a season involves the possibility of expending hard earned income (or credit) to protect the future yield and value of the developing crop. In simple terms, the only profitable management decisions are those that return more than they cost. The difficulty is putting it all together and determining which management actions save or make more money than they cost.

An important part of crop protection and management occurs after the crop has been harvested when the grain is waiting in storage to be sold to a buyer. Once the harvest is in, it is easy to think that the money is in the bank. But in reality, the post-harvest stage of rice management can be every bit as important as the field management part. How many producers have you known who have lost part of their crop during storage due to moisture levels in the bins being so high that the grain spoils, or due to excessive amounts of grain dust creating poor circulation, resulting in the development of a huge cone of moldy rice in the middle of the bin? How many times have you seen grain moths and grain weevils literally consume your rice right in front of your eyes leaving you with rice that looks like it is covered with fine sawdust and tons of insects?

Until your grain is sold and the money is in *your* bank, several post-harvest management decisions must be made to insure that your grain keeps its high quality and value. During October 26, 27, and 28, Texas A&M University, the University of Arkansas, the University of Missouri, and the USDA-ARS Post-Harvest Insect Research Lab in Manhattan, Kansas will be hosting three consecutive post-harvest grain storage workshops, one each in Dexter, Missouri; Little Rock, Arkansas; and Beaumont, Texas. During each workshop, scientists will be presenting the latest information on post-harvest grain storage. Topics that will be covered will include 1) controlled aeration and drying, 2) moisture absorption, 3) insect population growth, 4) weather impacts, 5) practical on-farm recommendations, and 6) future developments and tech-

nologies. **At each workshop site, a free lunch will be provided and there is no registration fee for attending a workshop.** Pre-registration by October 8 is requested, so the required number of meals and hand-outs can be determined.

If you wish to pre-register or if you have any questions about the workshop, contact Brandy Morace at the Beaumont Center. Her number and email address are (409) 752-3045 and bmorace@aesrg.tamu.edu.

Corresponding to the workshop, the post-harvest research team who is putting together this workshop will also release a web application that will allow users to estimate the impact of different grain bin aeration options on grain cooling, grain moisture content, and post-harvest insect injury. The model was developed by a team lead by Drs. Terry Siebenmorgan and Canchun Jia from the University of Arkansas, Drs. Yubin Yang and yours truly from the Beaumont Center, and Dr. Frank Arthur from the USDA-ARS lab in Manhattan, Kansas. Look for an article summarizing the workshops in a later issue of *Texas Rice*.

We are heading down the main stretch of the 2004 season, with most of the main crop fields harvested. Main crop yields are looking to be about 5-10% behind last year, but with acreage up by about 20%, it is turning out to be a good season.

Keep on sending us your ideas and suggestions.

Sincerely,

A handwritten signature in black ink that reads "L.T. Wilson".

L.T. Wilson
Professor and Center Director
Jack B. Wendt Endowed Chair
in Rice Research

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Farming Rice

a monthly guide for Texas growers

Providing useful and timely information to Texas rice growers, so they may increase productivity and profitability on their farms.

Controlled Ambient Aeration and Pest Management in Stored Rice

Stored rice can be infested by a variety of primary and secondary insect pests that can cause product damage and reduce quality. Chemical controls are often used to control insects in rice storage systems, but currently there are only two conventional chemicals that are labeled safe for use on stored rice, the organophosphate insecticide, chlorpyrifos-methyl (Reldan) and the fumigant, phosphine.

Producers must have adequate, safe alternatives to protect stored rice from insect infestation without sacrificing product quality. Controlled ambient aeration is a potential alternative to chemical treatment of stored rice. The process calls for the cooling of grain to temperatures below 15.6°C (60°F), which is the approximate lower limit of development for most stored-product insects. By reducing the temperature of the grain mass more quickly than would occur naturally, insect growth and propagation can be limited.

Scientists from the University of Arkansas, Texas A&M University, USDA-ARS Manhattan, Kansas and the University of Missouri have been working on a joint project to evaluate the on-farm storage capabilities and practices of producers in the southern rice-growing region. Their goal is to determine the effectiveness of controlled, ambient aeration for rice grain pest control, and to integrate new and existing aeration and pest data into a management and decision system.

The management and deci-

sion system is a web-based program which is menu-driven and user-friendly without exposing the complexity of the underlying models to users. It will allow users to create different scenarios of bin and fan configurations and different initial conditions of pest infestations, and to simulate changes in grain temperature and moisture content, giving the resulting pest density and grain damage.

The web-based program is directly linked to a weather database that contains data for more than 2000 weather stations for the southern rice-growing region (Arkansas, Louisiana, Mississippi, Missouri, and Texas). The weather database is updated automatically with data from several weather data sources, but mainly NOAA weather data sources. The program allows users to choose historic and near real-time (for some stations) weather data to evaluate the effectiveness of regional weather on bin aeration and pest control.

The program provides advanced options for analysis of simulation results, economic analysis, and sensitivity analysis. A preliminary version of the program will be demonstrated during the workshop “On-Farm Rice Storage Management Strategies” organized by the joint project participants.

For information on how to register for the workshop see *From the Editor* on page 2. *

Research conducted by Yubin Yang, L.T. Wilson, Terry Siebenmorgen, Canchun Jia, Frank Arthur, Terry Howell, John Murdock, Jenny Wang and Peter Lu.



Protecting the rice crop from insects after it leaves the field can be as important as insect management prior to harvest.

Beaumont Center Scientists Awarded Funds for Marker Research

The world's food supply is based on intensive agriculture, which relies on genetic uniformity. But this uniformity increases crop vulnerability to pests and stresses.

To protect this vital industry, scientists must have access to genetic diversity to help bring forth new varieties that can resist pests, diseases, and environmental stresses. The National Plant Germplasm System (NPGS) aids scientists and the need for genetic diversity by acquiring, preserving, evaluating, documenting and distributing crop germplasm

One of the challenges for the NPGS staff is to accurately verify the hundreds of accessions submitted annually. Say for example, they receive seed from two different sources for the same variety, but when grown out, the specimens show phenotypic differences, i.e. they look different. How can the scientists determine which is correct?

Thanks to molecular marker technology, researchers can now create a genetic map of a variety that is as distinctive as a human fingerprint. USDA-ARS scientists at the Beaumont Center have been awarded \$60,000 from the USDA-ARS National Program Staff to develop markers for rice, a landmark project that, for the first time, will allow genetic marker information to be added to the GRIN system. Not only will the information be useful for identification purposes, but it will also help plant breeders in the development of improved varieties.

Dr. Anna McClung, Supervisory Research Geneticist at the Beaumont Center said there are around 17,000 rice accessions in GRIN. "We are analyzing a core collection of 1700 accessions that is representative of the diversity of locations and types in the whole collection," she said. According to McClung, they have just finished collecting marker and phenotypic data for rice cooking and quality traits, and next year, will add markers for major blast resistance genes.

The marker work was done by Dr. Bob Fjelstrom, USDA-ARS Molecular Geneticist at the Beaumont Center. The cereal quality analyses were performed by the ARS Quality Lab at Beaumont in conjunction with Dr. Rolfe Bryant at the Dale Bumpers National Rice Research Center in Stuttgart, AR. Co-worker, Dr. Wengui Yan, produced seed of the accessions in nurs-

A Short History of GRIN

In 1990, the U.S. Congress authorized establishment of a National Genetic Resources Program (NGRP). It is the NGRP's responsibility to acquire, characterize, preserve, document, and distribute to scientists, germplasm of all lifeforms important for food and agricultural production.

The Germplasm Resources Information Network (GRIN) web server provides germplasm information about plants, animals, microbes and invertebrates. This program is within the U.S. Department of Agriculture's Agricultural Research Service.

Within the NGRP is the National Plant Germplasm System (NPGS), a cooperative effort by public (State and Federal) and private organizations to preserve the genetic diversity of plants.

Since many important crop species originate outside the United States, the first steps toward diversity are acquisition and introduction. New germplasm (accessions) enter NPGS through collection, donation by foreign cooperators or international germplasm. For rice, 115 countries are represented in the collection.

An identifying number, called the Plant Introduction number (PI number), is assigned to each accession. The accession is evaluated to confirm descriptors are accurate, which may include plant height, days to heading, hull color, grain shape, bran color etc. Samples available for distribution weigh 5 grams, and roughly 2200 samples are requested annually. *

eries at Stuttgart and Puerto Rico, and prepared them for distribution to the other scientists for analysis.

According to McClung, there are several examples of exotic germplasm being successfully used to develop improved US rice varieties. The best example is the use of two varieties from Taiwan, Taichung Native 1 and Dee Geo Woo Gen, which provided the gene for semi-dwarfism that is now found in most southern U.S. cultivars. Other examples include, Tetep, a Vietnamese rice, which led to the development of Katy, the first rice variety with broad spectrum resistance to blast disease, and Jojutla, a variety from Mexico which is responsible for the parboiling quality in Dixie Belle.

"We are confident," said McClung, "that this new genetic information will be valuable to the thousands of researchers worldwide that access GRIN. DNA marker data will help breeders find new forms of genes that control economically important traits and will facilitate using this germplasm library."*

Biological Control continued...

Organisms used to feed on, parasitize, or otherwise interfere with targeted pests are called biocontrol agents. There are several general approaches to using biocontrol agents: 1. 'Classical' biocontrol targets a non-native pest with one or more species of biocontrol agents from the pest's native range; 2. the 'New Association' or 'Neoclassical' approach targets *native* pests with non-native biological control agents; and 3. 'Conservation', 'Augmentation' and 'Inundation' approaches maintain or increase the abundance and impact of biocontrol agents that are already present, and in many cases, native to the area. Classical biocontrol is, by far, the most common approach for plant pests. Conservation and augmentation approaches show great promise, especially for enhancing the impacts of classical biocontrol and other weed control measures, as researchers and managers focus on maximizing native biological diversity in invaded ecosystems.

Two international weed scientists presented a chronology and overview of bioherbicides, (biological agents used to control weeds) a form of pest management that, for a variety of reasons, and in spite of intriguing potential, has yet to play a significant role in world agriculture.

In a 1995 paper published in *Weed Technology*,



Photo by Jay Cockrell

According to research conducted at the TAES Station at Bushland, common morning glory, also called bindweed, can be controlled by the bindweed gall mite.



Photo by Jay Cockrell

The genus *Sesbania*, common in Texas rice fields, can be controlled by the plant pathogen *Colletotrichum*, according to scientists at the USDA-ARS Southern Weed Science Research Unit in Stoneville, Mississippi.

B.A. Auld and L. Morin reveal the history of bioherbicides and the barriers that have emerged to thwart their broad usage. The article, "Constraints in the Development of Bioherbicides", organizes deterrents for bioherbicide development and use into four categories: biological constraints, environmental constraints, technological constraints, and commercial limitations. The authors, drawing on extensive documentation (207 citations), label some of the problems as real and some imaginary.

Even the expectation implied in the term "bioherbicide," that performance of the products based on these agents will equate with a chemical herbicide's efficacy, cost, ease of handling, and commercial viability, is "in itself, a constraint to bioherbicide development," the authors note.

Despite these obstacles, or possibly because of them, the WSSA states emphatically, "It is imperative the next generations of weed scientists are trained in the principles and practices of biological weed control. Weed science curricula must introduce students to the major groups of biological control agents and research methods. Conservation and integration of biological control agents must be taught as one of the foundations of sustainable weed management." *

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Sources: *Weed Control Methods Handbook*, the Nature Conservancy; Weed Science Society of America, Position Statement on Biological Control of Weeds; www.ipmnet.org, IPM News; *Weed Technology*, 9(3), 638-652, July-September 1995. To receive a copy of the proceedings of the X International Symposium on Biological Control of Weeds contact Bethany Redlin at 406-433-9427 or email bredlin@sidney.ars.usda.gov

Researcher in the News...

Dr. Ted Wilson at the Beaumont Center

Throughout his career, Dr. Ted Wilson has worked with scientists in over a dozen countries developing guidelines for integrated pest management in cotton, tomatoes, grapes, alfalfa, corn and rice.

Born in Bakersfield, California, and raised in Wasso, a nearby farming community, Wilson grew up the oldest of 3 boys, with one older sister. His father and uncle owned a welding business that produced farm implements and machinery. At the age of 13, Wilson began working during the summer and after school in the family business sweeping floors and scraping paint from the 200 ton press. He eventually worked his way up and was given duties in the paint shop, running the drill press and polishing grinder, the duplicating torch, track torch, lathe, horizontal mill, threading machine, and 50 ton press.

After high school, he continued working for his father while attending Bakersfield Junior College as a pre-veterinary medicine major. In 1970, he changed directions and accepted a summer job where he worked for Dr. Vern Stern, the world renowned entomologist who is recognized as the founder of the concept of economic thresholds. Wilson worked as a field assistant, sweeping for insects in cotton and alfalfa.

In 1971, he graduated from Bakersfield Junior College and enrolled at the University of California to pursue a bachelor's degree. That summer he worked at Davis for Dr. Tom Leigh, a cotton entomologist located at a research center near his home town. He took a second job with Diamond Shamrock testing chemicals for insect control on cotton.

In June of 1973, Wilson completed his BS in entomology with a minor in biological sciences. Averaging over 19 credit hours per semester at Davis left him needing a break. He had no plans to continue his education.

That summer, Wilson took a job with entomologists Danny Gonzalez and Tom Leigh, as part of a field crew studying the cotton bollworm. He stayed on through the winter and was made crew chief by the middle of the season. Gonzalez and Leigh were impressed with Wilson's work ethic, and felt he had



Dr. Ted Wilson with the incoming Deputy Director of TAES, Dr. Bob Whitson, ready to take the field tour at the 2004 Beaumont Field Day.

great potential for a career in entomology. They connected him with Dr. Paul DeBach, who had a fellowship with the National Academy of Sciences for biological control. DeBach provided this to Wilson to pursue his PhD in population biology, a degree plan that was a cooperative effort between UC Davis and UC Riverside.

Soon after, Wilson met Dr. Andy Gutierrez, an entomologist and applied systems ecologist. This was his first exposure to biological systems research and understanding how insects interact with plant populations. Wilson remembers a 'eureka moment' when he was going over some graphs with Gutierrez, showing the distribution of bollworms on cotton plants of different growth stages. Gutierrez remarked, "Do you see the relationships?" The light went on and Wilson began to think about how everything fit together, and the impact of plant development on insect populations.

After earning his PhD in Entomology in 1977, with minors in applied statistics and population biology, Wilson began his professional career as a Fulbright Fellow at Queensland University in Australia. He worked in the IPM unit and received his first exposure to sequential sampling, a method which allows scientists to get more information for each unit of sampling time.

Researcher continued...

During this time, he met Dr. Norm Thompson, the Director of the Narrabri Research Center, which is part of the Commonwealth Scientific & Industrial Research Organization (CSIRO). One of the organization's key projects was developing a computer model to predict how cotton grows and responds to feeding insects. Thompson asked Wilson to fill in for a scientist who was moving to another position, and develop sampling plans for pests and beneficial insects in cotton.

Wilson became part of the team that developed SIRATAC, the first computer based cotton management program in the world. It provided insect thresholds, water management and nutrient recommendations.

This was before the age of the internet, and farmers used phone lines connected to fence posts to directly connect to the system. At its peak SIRATAC was used on 40% of the cotton acreage in Australia. The program evolved over the years to CottonLogic, which is still used by Australian farmers today.

In 1980, Wilson was contacted by the Office of the Vice President of Agriculture at the University of California and was asked to return to California to work on the brand new statewide IPM program. Wilson accepted the position and oversaw research for cotton and tomatoes.

In 1981, Wilson competed for and received a faculty position in the Department of Entomology at UC Davis. From 1980 – 89 he continued to serve on the executive committee for the UC Statewide IPM Program, and was an industry liaison to the Raisin Advisory Board, the Table Grape Commission, the Fresh Market Tomato Board, and was also a member of UC's cotton research committee. During that time he worked his way up the UC Davis career ladder, achieving full professorial status in 1988.

In 1989, Wilson was offered a position with Texas A&M University as Professor of Entomology, where he first began working on rice, but also honey bees,

grapes and cotton. He served as Director of the Agricultural Knowledge Engineering lab where he helped develop computer models for crop production. Wilson also served as Associate Director, then Director of the Center for Biointensive IPM.

In 1998, he returned to Queensland at the request of the Australian government to review the cotton IPM program. After 5 weeks, he returned to College Station to find messages waiting from Dr. Ed Hiler, Vice Chancellor for Agriculture and Life Sciences and Director of the Texas Agricultural Experiment Station. Hiler offered Wilson the position as Director of the Research and Extension Center at Beaumont. After extensive negotiations, Wilson accepted the position and came to Beaumont in June of 1999.

According to Wilson, one of the most rewarding aspects of his job is working with high quality researchers in the rice industry. He also feels blessed to have a tremendous amount of industry support, and commends the Texas Rice Research Foundation for their commitment to research that has fueled numerous advances in the rice industry.

Since coming to the Beaumont Center, Wilson has added key positions including a plant physiologist, a senior biosystems analyst, a communications specialist, and the first rice breeder in TAES. Wilson has a 3-way split administrative assignment in research, teaching and extension, and strongly values the role each component contributes to the mission and goals of Texas A&M University System.

Over the years, Wilson has been the recipient of many awards and honors. He received the Creative Teamship Award from the California Farm Bureau in 1990, the National Excellence in IPM Award from the Entomological Society of America in 1997, and in 2000, was awarded the Jack B. Wendt Endowed Chair for Rice Research. Wilson has served on 6 USDA-NRI grant panels, and numerous advisory boards in Texas and California.

Since his career began, Wilson's extension research and graduate student training programs have received nearly \$8 million in grant awards. As senior or co-



Wilson with his wife Sally, enjoying the 1st Annual GoTexan Culinary Salute wine and food tasting event held at the Beaumont Center.

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US Rice Producers Campaign for Agriculture

The US Rice Producers Association (USRPA) joined seven other important agricultural groups this week in an effort to educate and inform the American consumer of the importance of the country's farming industry and the benefits they receive as a result of American farm policy.

The campaign, known as *Home Grown* is designed to give the consumer a better understanding of the vital role that the American farmer plays in the country's economy.

Chris Williams, Chairman of the Board for the USRPA and a rice farmer in Poplar Bluff, Missouri, discussed the project and the goals of the campaign at a recent board meeting. "A secure and reliable food supply must be supported with a solid American farm policy out of Washington D.C. or all consumers will suffer as a result," said Williams.

Home Grown will conduct a number of activities in different areas of the country in an effort to increase the awareness of agriculture's contribution to society and that every single person in America benefits from a strong farm program.

Dwight Roberts, President and CEO of the USRPA says the Rice Producers Association is committed to the campaign, adding "Unfortunately the average American consumer, by and large, does not understand the world of modern agriculture and takes for granted our abundance and quality. We must do a better job of conveying to the American public that farmers use new technology and techniques as farm policy encourages them to protect the environment. Farmers' livelihoods depend on a healthy environment as much as or more than anyone in the country," concluded Roberts.

The public information effort will include a program to educate school children in large cities, a project that is in line with the objectives of the USRPA's educational website www.RiceRomp.com. *Home Grown* encourages corporate sponsorship and invites other groups to join in the campaign. Currently the program is supported by the American Farm Bureau, and the corn, cotton, sugar, soybean, wheat and rice industries. *

For more information contact Dwight Roberts at 713-974-7423 or email Dwight@usriceproducers.com

What's Going on at the Beaumont Center



Area high school students competing in the Youth Rice Judging Contest. Students are asked to identify live and bottled specimens of insect pests of rice, common diseases and weeds of rice, and the stages of processing.



In celebration of National Rice Month, Beaumont Center employees held a rice cooking contest featuring recipes like this fruity rice pudding. Grand prize went to Robert Weatherton for crawfish and mushroom rice.

To Drain or Not to Drain?

That question may be answered by a computer program on rice irrigation termination being planned by researchers at the University of Arkansas. When completed, the program will provide rice farmers a tool to save valuable moisture and, in the end, money. When it is released, the finished product will have been fed the sweat of many researchers, built upon foundations constructed long ago.

It's been known for several decades that great water savings can be had by draining rice in the early dough stages without reducing yield or milling quality. "I came to Arkansas over 22 years ago, and scientists here had already established that," says Dr. Paul Counce, Rice Physiologist at the Rice Research and Extension Center in Stuttgart, Ark. "The way had been paved."

Still, there were gaps in knowledge. "The early studies didn't measure head rice yields. We needed that data. So, in cooperation with Earl Vories (an agricultural engineer at the Northeast Research and Extension Center in Keiser, Ark.) and Terry Siebenmorgen (a food scientist with the University of Arkansas in Fayetteville) we conducted studies over four years."

Rice test fields were drained at 50 percent heading (when half the panicles have emerged) and then two weeks and four weeks after. When drained at 50 percent heading, rough rice and head rice yields were reduced. However, there were no yield reductions when draining at two weeks after 50 percent heading. When this information was published in the early 1990's, draining recommendations for Arkansas and Mississippi rice changed.

Since then, Counce and colleagues have developed a growth staging system for rice. "We needed to get some rules in place," says Counce. "This helps in all manner of ways: making hail-damage claims, applying chemicals, knowing when cool temperature damage could occur.

"For example, grain at the R5 stage, when held up to the light, is seen expanding inside the hull. At R6, the grain is gaining in thickness. At R7, at least one grain on the main stem panicle has turned yellow. At R8, at least one grain on the main stem head has turned brown. At R9, all grains that have reached R6 have brown hulls. The growth stages follow DD50s and this new finding will allow us to do timing work we've not done before."

Proper water management is critical to rice farmers, for the health of their crop *and* their pocketbook.



With rice, as with grain sorghum and corn, a water deficit before grain is filled reduces yield and quality. "In the greenhouse, we would induce drought stress at different growth stages," says Counce. "Anytime before R9, we reduced yield. We also studied water use by the rice crop. At growth stage R3 the crop uses about 0.25 inch of water daily. Researchers have found that at stage R8, rice will use about 0.06 inch every day. Rice at developmental stages after R6 just isn't using much water." In addition, a rice crop uses less water after the flood is removed. In their calculations, though, the researchers overestimate water use to insure the crop doesn't run out of moisture.

Whenever the amount needed in a growth stage is less than or equal to the amount of water the soil holds when drained, there's enough water in the soil profile to take the crop safely to maturity.

"We're trying to take this to farmers," says Counce. "We're talking to farmers to get input. I'd really like to see this available to all rice farmers. Right now, though, it's still a science program."

Understandably, the bottom line is what everyone is curious about. By using the termination program, economists say, farmers can save as much as \$23 per acre. "You can save that much just by taking water off at the right time," says Counce. "Of course, if someone is pumping from a full aquifer that's 12 feet from the surface, the savings will be less dramatic. In areas like the Grand Prairie (Arkansas), where water is often very deep, savings would be substantial."

Counce says there has been "much positive response" from farmers learning about the program. "We need to test it some more, but everyone I speak with seems excited." *

Excerpted from an article in Farm Press Daily by David Bennett, e-mail dbennett@primediabusiness.com



The Eighth Annual National Conservation Tillage Cotton & Rice Conference will be held January 13-14, 2005 at the Park Plaza Hotel in Houston, Texas. Sponsored by the US Rice Producers Association and Cotton Incorporated, the conference is designed to address the issues and problems that farmers confront in producing a crop and serves to inform them of the issues in the marketplace and in Washington D.C. that affect their livelihood. Presentations will be given by a variety of speakers including academic and university extension specialists, technical research experts, corporate related industries, trade associations such as the US Rice Producers Association and farmers themselves who have conducted successful innovative practices and experiences on their farms.

“What makes this conference so unique and successful is the atmosphere created that is conducive to a healthy exchange between growers, researchers, consultants and supporting industries,” according to Dwight Roberts, President & CEO of the US Rice Producers Association. “We want farmers to learn something they can take back to their own farming operations and improve their profit. Judging from the attendance at the past conferences and comments by farmers we expect the 2005 conference to be highly successful,” added Roberts.

Expecting 700 attendees, presentations will be given principally on rice and cotton. However sorghum, corn, soybeans and wheat topics will also be addressed. Farmers of all commodities are encouraged to contact the US Rice Producers Association for suggestions they have for presentation topics and subject material that they feel needs to be addressed. “Farmer input is essential and is the reason this conference has been so successful and continues to grow,” stated Roberts.

The 2004 conference had attendees from seventeen different states and represented 2,365,487 acres of crop production. For more information contact the USRPA at 713-974-7423. *



New Rice Released With Parboiling Quality

The USDA-ARS Rice Research Unit at Beaumont is proceeding with the release of “Sabine”, a new variety that was designated as RU0103123 (TX 1123) in the Uniform Regional Rice Nursery.

Sabine was developed from the cross ‘RU9302165/ Dixiebelle’ made by Dr. Candido R. Bastos at the Instituto Agronomico in Campinas, Sao Paulo, Brazil in 1996. RU9302165 is an unreleased breeding line developed by Dr. Steve Linscombe at the Louisiana State Experiment Station at Crowley, LA. It was derived from irradiating the conventional long grain cultivar Cypress.

Sabine will benefit the U.S. parboiling and canning industries because it possesses the same allele of the Waxy gene and processing quality as Dixiebelle. Although Sabine is similar to Dixiebelle in many other characteristics, it offers a significant yield advantage (13%) over Dixiebelle, which will increase economic value to farmers and processors. In addition, Sabine can be grown throughout the southern U.S., making it an alternative for rice growers and processors in several states. *



“Sabine” (TX 1123, center plot below) in the 2004 Commercial Variety plot at the Beaumont Center.

State, National and International News...

Arkansas Rice Malady Identified

LITTLE ROCK - The unknown malady plaguing a small portion of Arkansas' rice crop has been identified as hydrogen sulfide toxicity.

"When we began working on this mystery, it had a lot of similarities to hydrogen sulfide toxicity (where soil, under flood, becomes toxic through the production of hydrogen sulfide gas)," says Rick Cartwright, Extension plant pathologist. "There were some new aspects, however, that threw us off the chase a little."

First, many of the fields didn't have a history of the problem. However, the main spanner in the deductive works was internal crown rot. "We'd never seen crown rot associated with hydrogen sulfide — nor has anyone else I've talked to. However, as we worked on it this summer, we began receiving reports on high sulfates around wells in some of the problem fields. That got our attention."

A few weeks ago, searching for answers, Cartwright and Chuck Wilson, Arkansas Extension rice specialist, traveled to a northeast Arkansas field they'd worked in a decade ago. The field had suffered true hydrogen sulfide toxicity, says Cartwright, the water even stank of sulfur.

Revisiting the old problem field, the men dug up rice plants and thoroughly checked them. Sure enough, the field's crop had gotten sick again, and the insides of the crowns were beginning to rot.

The crown rot was a new symptom, says Cartwright, probably because "we weren't looking at the rice late enough in the season. Also,

the fields from a decade ago were obviously suffering from an abundance of sulfur. That isn't the case in many of the newly affected fields."

Study on this will continue. "There's still an organism or two that may be aggravating the problem," said Cartwright.

Excerpted from an article by David Bennett in [Farm Press Daily](#)

Evolutionary Genomics and RiceTec to Collaborate

ALVIN - Evolutionary Genomics of Aurora, CO and RiceTec, Inc. of Alvin, TX announced recently that they have formed a collaboration to identify the natural genes controlling yield in rice.

The most common scientific approach to increase yield has been to introduce genes from other organisms into crop plants, creating genetically modified (GM) crops. This approach has raised concerns about health problems and possible negative environmental effects

Evolutionary Genomics and RiceTec are taking a decidedly different approach to increasing rice yields, by using Evolutionary Genomics' patented technology to identify the natural genes in rice that control yield.

The companies will work together to establish connections between these adapted genes and control of rice yield. "Without resorting to moving genes across species boundaries, we can build on the work of early (breeders) to increase yield in rice by identifying the rice genes that control yield." said Ginny Orndorff, President & CEO of Evolutionary Genomics.

Amendments Defeated by Commodity Groups

The US Rice Producers Association joined with other leading commodity and farm groups this week to defeat proposals that would have reduced commodity program fixed payments, and severely reduced farm program payment limits.

The amendments were offered during the House Agriculture Committee's consideration of H.R. 3242, a bill designed to assist the producers of fruits, vegetables, and specialty crops.

The bill, under consideration by the Committee, authorizes a number of programs to assist these producers, but the bill provides no funding for the programs.

Congressman Cal Dooley (D-CA) offered amendments to provide funding for the new programs. He proposed to provide budgetary offsets for the funds by reductions in farm program fixed payments and by imposing new restrictive payment limitations on farm program payments.

USRPA and a number of other groups opposed these amendments. The amendment to reduce fixed payments for rice and other commodities was defeated on a voice vote.

Dooley withdrew the payment limit amendment without asking that a vote be taken. USRPA and the other groups sent a joint letter to all of the Members of the House Committee on Agriculture stating their opposition to these amendments.

For more information contact USRPA at 713-974-7423.

Researcher continued...

author, he has published over 280 papers, equally distributed between technology transfer and refereed research journals. Wilson has taught 9 university courses from undergraduate ‘Intro to Entomology’ to graduate courses including “Diagnosis and Control of Plant Pest Problems” and “Principles of Agroecosystems Management”.

In 1984, Wilson met his future wife, Sally Drefke, on a plane trip from Minnesota to Chicago. He said she had the most beautiful eyes he had ever seen, and he was instantly captivated. They exchanged letters and visited over the next year, and were married in July of 1985.

Sally has a Bachelor of Music (BM) degree in Music Education and a BM in Piano Performance from Wright State University and a Masters of Music in Piano Performance and Pedagogy (study of how to teach) from Wichita State University. She taught music in Minnesota, and then in California after she and Wilson married. She is an accomplished pianist, and teaches music at All Saints Episcopal School where their children attend school. She is also organist and choir director at St. Stephens Episcopal church.

The couple have two children, Christopher (14) who enjoys swimming, tennis and basketball; and Kathleen (12) who participates in dance, gymnastics and swimming. Chris is active in NetCasters, and Kathleen in AWANAS, both church youth groups.

Wilson is committed to promoting the Center, to insure that it will continue to be a valuable resource for farmers in Texas, and a jewel in the Texas A&M University System. *

Professor and Center Director: L.T. (Ted) Wilson
lt-wilson@aesrg.tamu.edu
Ag Communications Specialist: Jay Cockrell
j-cockrell@aesrg.tamu.edu
Texas A&M University System Agricultural
Research and Extension Center
1509 Aggie Drive, Beaumont, TX 77713
(409)752-2741

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Association of Natural Bio-control Producers

<http://www.anbp.org/>

Bio-control Services Victoria (Australia)

<http://www.thereef.com.au/biocontrol/semi2she.htm>

Biological Control News

<http://www.entomology.wisc.edu/mbcn/mbcn.html>

Biological Control of Weeds, Inc.

<http://www.bio-control.com/>

Biological Control Virtual Information Center

<http://cipm.ncsu.edu/ent/biocontrol/>

Bugwood Net

<http://www.bugwood.org/>

Center for Invasive Plant Management

<http://www.weedcenter.org/>

Cornell Bio-control Web Site

<http://www.nysaes.cornell.edu/ent/biocontrol/>

FICMENEW

<http://ficmnew.fws.gov/index.html>

Integrated Weed Control

<http://www.integratedweedcontrol.com/>

Invaders Database

<http://invader.dbs.umt.edu/>

IPMNet News

http://www.ipmnet.org/IPMnet_NEWS/archives.html

National Agricultural Pest Information System

<http://www.ceris.purdue.edu/napis/>

Web Resources

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