Texas Rice

Texas A&M University System Agricultural Research and Extension Center
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Ratoon Production in Texas: A Look Back

Whether it was called stubble rice, regenerated rice, volunteer rice, providence rice or ratoon rice,as it is known today, a second crop has the potential to increase profits.

For centuries farmers in Taiwan and China have sporadically practiced ratoon production, and by 1950 ratooning was common practice in Ecuador. In the United States growers in the Carolinas were ratooning in the 1800's, but it wasn't until 1940 that second crop rice was noted with any regularity in the South. Texas farmers began experimenting with ratoon production in the late 1940's and early 1950's, but yields were inconsistent and quality was considered poor.

In 1955 Nathan Evatt, an Agronomist at the Rice Pasture Research and Extension Center in Beaumont, began to conduct research trials on the economic viability of ratoon production. At the time, there was considerable skepticism about the value of the research, as the practice was not widely accepted in Texas. But Evatt believed it had potential if a shorter season variety was developed, and went to Dr. Hank Beachell with his findings.

Dr. Beachell was the USDA breeder at the Beaumont Station, and encouraged Evatt to continue his research. In a recent phone interview Dr. Beachell said, "I encouraged Nathan to continue the studies because I knew we were on the verge of releasing a 100 day rice that would make wide scale ratoon production possible." In 1958 Evatt's research data showed that the main limiting factor was low temperatures as the second crop matured. That year, Dr. Beachell gave Evatt several experimental lines of early maturing rice to continue and expand his research. One of these lines was to become Belle Patna, which was later released in 1961. By testing these shorter season selections, Evatt was able to provide valuable data on ideal planting times, harvest procedures and the nitrogen requirements of ratoon rice.

Nathan Evatt in a commercial field of ratoon rice - 1956

In the year of Belle Patna's release, only 10% of Texas acreage was ratooned. By 1962 that number had doubled, and by 1963 over 35% of Texas acreage was managed for a second crop. Bill Dishman Sr. remembers when his family began ratooning back in 1960. The partnership consisted of George and Clyde Dishman, with their sons Bill and J.C. Jr. The variety was Gulfrose, an early maturing medium grain that was released from the Beaumont Station that year. They got 24 barrels per acre on the first crop and 14 on the second, which was considered excellent at that time. Says Bill Sr., "There was quite a bit of skepticism regarding Evatt's research, but when farmers came out to look at our fields you could tell they were changing their minds about second cropping."

When Belle Patna was released in 1961, Jim Stansel encouraged the Dishman's to try out this new 100 day rice, and see how it produced a second crop. Other growers were soon to follow this profitable new trend. Robert Bauer, rice farmer and president of the Texas Rice Improvement Association, says, "Belle Patna was an early maturing rice that revolutionized the Texas rice industry because farm-

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From the Editor...

A few weeks ago, the faculty and staff at the Eagle Lake and Beaumont Centers hosted our annual field days. Visitors were given the opportunity to observe several of the experiments being conducted by our researchers, and to hear industry leaders discuss issues from water availability and water rights, to integrated pest management, to new uses for rice. The tours broadly focused on the field research programs, covering varietal improvement, nutrient management, plant physiology, weed management, and insect control.

Although rain threatened most of the day of the Eagle Lake field day, it held back and we were blessed with a cool breeze and a strong turnout. A total of about 140 people participated in the field tour, with 250 people attending the evening program. A week before the Beaumont field day, we were on pins and needles waiting to see if the rain would continue or let up long enough for us to repair the roads and to clean up the fields. We had already received 45 inches of rain and it looked like we might soon be on the receiving end of another big storm. Just a few weeks earlier, all of the fields at the Beaumont Center had been under water, with the rice plants in many fields completely covered for two or more days.

All the worrying was for naught. The weather cleared, the fields drained, the roads were all put in good shape. The hard work of everyone involved was rewarded by nearly 200 people attending the morning field tour, almost 400 attending the morning program and luncheon, and 60 attending the Clearfield-Newpath herbicide tolerant variety afternoon tour.

Each field day brings a slate of interesting questions from our visitors. One rice producer asked "What was the most important research being conducted by our scientists?" Such a straightforward question required a bit of thought. In a nutshell, each area of research impacts each and every other component and contributes to a management program. Varietal improvement is certainly the most visible part of what we do at the Beaumont Center and accounts for all of the increase in grain quality, 30% of the increase in yields, and all of the improvements in desirable resistance over the past 50 years. But, this means that 70% of the yield increase has been due to improvements in agronomic and pest management.

Following World War II, inexpensive fertilizers, herbicides, insecticides, and fungicides began to become increasingly available. Researchers responded by devising literally thousands of experiments to determine when and how best to use these valuable tools. Each variety responds differently to fertilizer management, and each variety differs tremendously in their seasonal pattern of growth and development, their ability to compete with weeds, and their response to insect injury and attack by plant pathogens. Researchers are continually faced with developing new and improved management programs. While varietal improvement provided the building blocks, agronomic and pest management allowed the improved varieties to increasingly approach their yield potential.

This past season, rice yields in Texas averaged nearly 7000 lbs/A. But, several of our producers averaged nearly 9000 lbs/A, with some having yields approaching 13,000 lbs/A. Preliminary data suggests that the yield potential for existing types of rice in Texas is somewhere near 16,000 lbs/A. Our best producers are getting closer and closer to this level. Continued research at the Beaumont and Eagle Lake Centers will lead to further improvements in varietal development and in agronomic and pest management that will benefit the Texas rice industry.

Sincerely,

T. T. Wilson

Ted Wilson
Professor and Center Director

Inside This Issue

Cover Story:
Ratoon Production in Texas: A Look Back

Farming Rice

a monthly guide for Texas growers

This is the sixth in a series of articles that will be published throughout the year. Our intention is to provide useful and timely information to Texas rice growers, so that they may increase productivity and profitability on their farms.

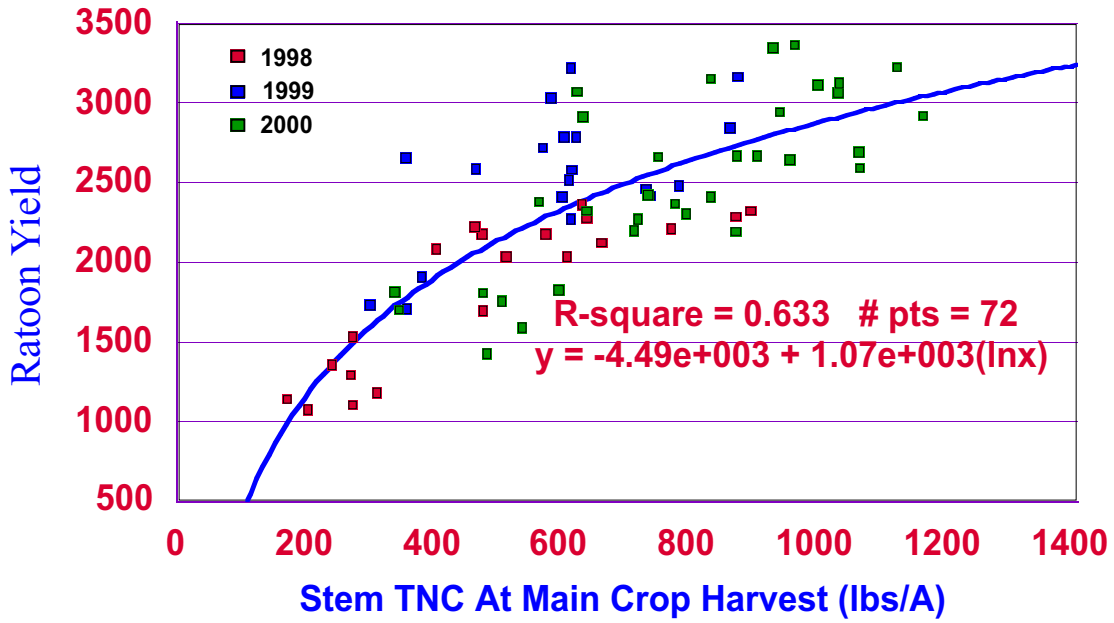
Total Non-Structural Carbohydrates (TNC) And How It Affects Ratoon Potential

The Soils and Nutrition Project, led by Dr. Fred Turner, processed 335 Total Non-Structural Carbohydrates (TNC) samples representing approximately 110 farmer fields during the 2000 crop year. 2001 will be the third year of providing farmers, consultants and extension agents with "TNC Sampling Kits".

Main crop stem samples submitted for TNC analysis 3 to 5 days prior to main crop harvest allow for data to be returned to farmers within 3 days for use in predicting ratoon yield potential and management level of individual fields. Data from the past 2 years suggest variability in stem TNC causes variability in ratoon tillering and ratoon yield. In research plots where other ratoon yield influencing factors such as fertilization, disease pressure, and soil condition were held constant, 66 to 90% of the ratoon crop yield was attributed to the amount of TNC in stems at main crop harvest.

When ratoon tillers are not visible and TNC levels are less than 350 lbs/A, this is a strong indicator that ratoon yield potential is less than 1200 lbs/A even under very high input levels. TNC levels of 1000 or more lbs/A typically produce ratoon yields of 3000 or more lbs/A. This research was made possible by information submitted by producers, enabling Dr. Turner's project to establish a direct relationship between TNC at main crop harvest and ratoon yield.

Using the TNC samples from the kits and research plots the Soils Project continues to refine the Near Infrared (NIR) quick method of TNC analysis so that it will be as accurate as the time consuming wet chemistry method. Dr. Christine Bergman, along with Naomi Gibson, helped initially to develop the procedure for using NIR technology for this type of analysis and they continue to provide equipment and support for the project. The TNC results, coupled with information on harvest data, disease pressure, and rutting of field, provide a powerful tool for rice producers in deciding whether or not to ratoon, and what level of inputs are necessary. *



from the Soils and Plant Nutrition 2000 Annual Report, Dr. Fred Turner and Mike Jund

Farmers can request the TNC kit by contacting the Soils Project at 409-752-2741 ext. 2223

Ratoon continued...

ers were able to increase their yield and also have a ratoon, or second crop, which increased their revenue."

Evatt's research findings yielded valuable advice for the early days of ratoon production. Growers were encouraged to seed no later than April 20th, and harvest the first crop before August 15th to insure that a ratoon crop would mature. They were also given research data on fertilizer inputs necessary to produce a second crop. It was found that additional phosphorus and potassium were not necessary but nitrogen should be applied at a rate of 45 to 60 pounds per acre, depending on the variety. They were also cautioned not to harvest their first crop if the fields were wet, as rutting from equipment could drastically reduce second crop yields. Another important fact that came from Evatt's research was the need for evenly distributing the straw at first harvest, or removing it from the field altogether. While much of this information holds true today, the recommendation for cutting height of the first crop was higher than is suggested today.

Dr. Hank Beachell at the Rice Pasture Research Station in Beaumont - 1957

In visiting with Clodis Cox, who was seedsman at the Beaumont Station during the time of Beachell's tenure, he indicated that ratoon production in Texas initially was more widely adopted on the west side of Houston. Says Cox, "Western area growers had the advantage of sandier soils and lower rainfall, which meant they could plant earlier in the spring and the fields did not rut as badly at harvest time."

According to Dr. Steve Linscomb, Professor of Rice Breeding at the LSU Rice Research Station at Crowley, "wet conditions at harvest time is one of the reasons Louisiana growers don't regularly ratoon." Another reason for lack of ratoon acreage in Louisiana is the problem of red rice. Says Linscomb, "if a grower has a red rice problem in the first crop, it will be amplified in the ratoon crop." (This is also a problem in the eastern rice belt in Texas.) Also, many Louisiana farmers practice a rice-crawfish rotation. In this system, the volunteer rice is left in the field for the crawfish to feed on over the winter months.

In a paper titled 'Second Crop Rice' that was published in the May 1963 issue of the *Rice Journal*, the author states, "Many farmers have expressed the opinion that Evatt, through his early beliefs back in 1955 that second crop rice offered great potential to the Texas rice farmer for greatly increasing yields, and Beachell, through the development of Belle Patna, have unblocked the path for the Texas rice farmer to effectively compete in a world rice market." Today ratoon production in Texas is 30-40% of planted acreage, with some western areas averaging as high as 80%, and growers continue to benefit from the early research conducted at the Rice Pasture Research and Extension Center in Beaumont. ⁎

Article by Jay Cockrell

Early Obstacles for Ratooning

In the early 60's there was concern among leaders of the Texas rice industry about how second cropping would be interpreted by the USDA Farm Program. When a reporter wanted to do a story on second crop rice for the *Rice Journal*, he was told in no uncertain terms not to publish this information.

The industry was concerned the second crop would be interpreted by the USDA as additional acreage, and the Texas rice leaders did not want to publicize the practice, which in their minds would have jeopardized this "new" technology.

Later, the USDA made the determination that second crop rice was not replanted, and therefore would not be counted against acreage allotments. An unfavorable ruling could have eliminated second cropping in the U.S.

contributed by Jim Stansel

Researcher in the News...

Dr. Fred Turner

When Fred Turner was a child growing up in rural Beaumont, he didn't know Texas A&M had a research station just around the corner, or that he would travel around the world and end up back here working for Texas farmers.

Dr. Fred Turner at the 2001 Beaumont Field Day

As a youngster, Fred was intensely interested in pasture management and the nutrients required for healthy forage production. His dad worked for Sun Oil Company, but had pastureland and raised cattle on the side. Before Fred even started high school he sent a letter to the Texas Agricultural Extension Service requesting information about nutrient management and forage crops. He probably would have attended Texas A&M, but his sophomore year in high school his dad was transferred to Thibodeaux, La. Consequently, Louisiana State University was his choice for college, as that was the premier ag school in the state. Dr. Turner knew he wanted to work in agriculture but with an emphasis on science, so he chose Agronomy.

While obtaining his bachelors degree, he worked in the soil-testing lab at LSU, furthering his interest in soil science and plant nutrition. After obtaining his undergraduate degree, Dr. Turner was invited by Dr. William H. Patrick to pursue his Masters Degree in Soil Chemistry. Dr. Patrick is considered the father of flooded soil chemistry, and had a profound influence on the course of Dr. Turner's career.

It was during this time that a friend and co-worker in the soil-testing lab arranged a blind date for Fred that turned out to be the love of his life. DeAnna was also a student at LSU and had grown up in Baton Rouge, right next door to Dr. Patrick. Her mom wasn't too sure about the business of a blind date, and cautioned DeAnna that if her suitor didn't meet with her approval she would insist it was too cold to go out. Luckily, the weather warmed and Mrs. Noblitt warmed up to the young scientist from LSU. Fred and DeAnna were married in the summer of 1967.

After completing his Masters degree, Dr. Turner spent two years in India working on a project for the Ford Foundation focusing on phosphorus (P) soil testing for rice production. The objective was to correlate laboratory and greenhouse test results with rice yield response to P fertilizer in field trials. At the time, the lack of response of lowland rice to P and the increase of P availability upon flooding was attributed to the release of P to the soil solution from ferric phosphate as the iron was reduced during anaerobiosis. This explanation did not fit, however, as the soils they were working with in India were alkaline, and the dominant form of P was calcium phosphate rather than ferric phosphate. This raised the question as to the mechanism that increased P availability in alkaline flooded soils. Dr. Turner brought soil samples back from India and began his PhD work at North Carolina State. After three years of research at NC State, Dr. Turner concluded that increased P diffusion rate to rice roots upon flooding is a major factor in the increase of P availability in both acid and alkaline flooded soils.

While completing his PhD, Dr. Turner found a note on his desk about the position open at the Beaumont Center for a soil scientist. He interviewed with Dr. Julian Craigmiles in November of 1973 and was hired in February of 1974, replacing Dr. Dwayne Westfall. Although Turner's training is in soil fertility and soil chemistry, he has a stronger interest in plants than most soil scientists. Several of his research efforts illustrate how he "reads" the rice plant to accomplish his goal of understanding more about this important crop.

One example of this was the utilization of the handheld chlorophyll meter, or SPAD meter, to indicate the rice plant's need for nitrogen. It gives a quantitative assessment of leaf color, rather than relying on per-

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sonal vision, which varies with individuals and sunlight. Turner and Mike Jund, a research associate at the Beaumont Center, were the first in the U.S. to use this device to quickly and accurately identify nitrogen deficient rice plants, and were followed by other researchers who now use the device in corn, cotton and wheat. Another example of plant related research was the determination that a short mesocotyl was the limiting factor in stand establishment for Belmont, the first semi-dwarf rice variety in Texas. This understanding greatly influenced the way semi-dwarfs were

Mike Jund and Darrell Hagler sampling research plots.

managed by producers. Adjustments included the use of gibberellic acid as a seed treatment to boost seedling vigor and a shallower planting depth.

With the help of Mike, Turner has shown how total non-structural carbohydrates (TNC) present in the stem at main crop harvest correlate to ratoon potential. *See page 3 for full story on TNC research.*

Another important area of research, conducted in conjunction with Rice University, explored methane emissions from flooded rice fields. Findings showed that release of this 'greenhouse' gas from flooded rice fields is significant. As a result of this work, water management practices were developed to reduce emissions without reducing yield. The study also showed that the net benefits of flooded rice fields are similar to what has been projected for government protected natural wetlands and constructed wetlands.

Turner and C.C. Bowling researched the idea of coating rice seed with an oxygen-releasing chemical, calcium peroxide, to allow planting into a continuous flood as a

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Spotlight on Support

Mike Jund, one of the senior technical support employees in rice research at Beaumont, is currently a Research Associate in the Soils and Plant Project where he began his career in 1973. Mike got his BS in Agronomy from Texas A&M in 1971. His agricultural background started on the family farm in central Texas where he learned to grow wheat, sorghum, and cotton. Although he enjoyed life on the farm, when Texas A&M offered him a job at the Beaumont Station he and his wife, along with their 6 week old daughter, decided to move to this place he knew little about, to work on a crop he knew nothing about.

But Mike was a quick learner, and soon made himself indispensable to the project. He is recognized as an essential contributor to the project because of his multi-talented abilities. He is an asset with field equipment, greenhouse studies, and chemical analysis of soils, plants (especially the N^{15} technique) and water quality. Mike is an excellent research planner and excels at organizing data on the computer to statistically analyze research results, including high quality graphics.

Dr. Turner credits Mike with all the chemical analysis for the Total Non-Structural Carbohydrate (TNC) tests, as well as the more expeditious Near Infrared (NIR) method of carbohydrate analysis. This chemical analysis work paved the way for the rice stem carbohydrate research designed to expand ratoon crop acreage and income for Texas growers.

In 1993 Mike received the Vice Chancellors Award in Excellence for technical support off-campus. Recently he was certified as a nutrient management specialist, which allows him to assist farmers and livestock producers in nutrient management planning. In addition to his research duties, he assists in the operation of the Center wastewater treatment facility and performs analysis of effluent in order to meet state and federal requirements.

Darrell Hagler, Research Technician, is also a vital member of the project. His experience as a machinist, ability to improve research equipment, and his interest in plants and farming lends to a synergistic union with the project. Mike and Darrell combine their expertise in the utilization of Soils and Plant Nutrition equipment to plant and harvest some of the rice research plots planned by Ted Wilson and Lee Tarpley.

Jeremy Burrell, a Lamar University student, and more recently Bob Vaughan, a retired Mobil Oil employee, provide their assistance during periods of peak activity. Dr. Turner praises Jack Vawter and the staff at Eagle Lake for their excellent support. Cynthia Tribble provides the primary secretarial support and helps to prepare complex proposals and reports, including technical graphs and charts. In addtion, Cynthia monitors the manuscript review process for Dr. Turner's Associate Editorship with the Soil Science Society of America Journal.

Grower Profile...

Raymond and Russell Rabius at RR Farm

Raymond Rabius is a first generation rice farmer, a textbook example of a self made man. But Raymond would take exception to that evaluation, as he believes the secret to his success has been to surround himself with good people.

Raymond's wife of 39 years, Jo Marie, is the cornerstone of his life and his business. His son, Russell, is a talented young man with his father's easy-going, friendly disposition and strong work ethic. When I asked about his employees, Raymond insisted he has no 'employees', but rather partners. There is Chad Hundl, his nephew, who was driving the combine the day I visited. Chad has a talent for electrical work and machinery. He raises cattle as part of the rice rotation, along with Raymond and Mark Daigle. Mark is the resident agronomist, having acquired his bachelors degree from Texas A&M. Besides making sure the fertilizer and other inputs are timed correctly and applied properly, he is in charge of the dryers and taking care of the rice once it leaves the field. Tim Rabius, although not related to Raymond, is considered one of the family and a partner in the business. Tim has a good eye for leveling and shaping fields. He is a top-notch welder and does an excellent job with all types of field work. There are other workers who help out seasonally, but this is the core group. Together, but divided among the partners, RR Farm grows over 1500 acres of rice a year in the sandy soils of Wharton County.

After the laser leveling is complete, this 80 acre field will have only 5 levees, as opposed to 25. This will save labor, water and precious topsoil on the Rabius farm.

Raymond was born and raised in East Bernard, the son of a cotton farmer. Even with one older sister and two younger brothers there were plenty of chores to go around. Raymond remembers long hours working in the dry cotton fields, tending the animals, shucking corn and taking care of the hundreds of turkeys his dad raised commercially. Though his mother has passed away, Raymond's dad still farms on the old family homestead in East Bernard.

After high school Raymond went to work for the Anderson Brothers. Rice farming, unlike cotton farming, really appealed to him. He liked to walk the cool, flooded fields and know that the plants had as much water as they needed. In 1968 Raymond purchased his first combine, and did custom cutting as a way to make the notes. During the 70's he entered into a partnership with Harry Anderson farming milo and soybeans. 1970 was the first year Raymond farmed rice on his own. Jo Marie has a sample from that first crop in a glass jar in their office. By 1979 Raymond was completely independent and RR Farm was created.

Russell worked with his dad on the farm as soon as he was big enough to drive a tractor. But even before then, Russell farmed rice. Jo Marie remembers well when Russell was just a little boy, he would take his toy tractors out to her garden and work up a little patch of ground. He planted his rice, kept it watered

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and used his toy tractors to maintain the tiny levees. Most likely he had already disassembled and reassembled the toy equipment to see how it worked. As he got older he graduated to radios and appliances. He was fascinated by what made things work. In high school he participated in FFA, not raising animals, but competing in tractor and machinery repair contests. Right after school Russell went to work full-time with his dad. He did the general contracting to build his own home and did much of the work himself. His wife Kerrie, works for El Paso Production Co. in Houston, and was raised in Wharton County.

Mark Daigle, the young agronomist from Texas A&M.

According to Raymond, Russell has brought 20th century technology to the farm. He is very interested in computers, and has found innovative ways to increase profits and efficiency through their use. One example is the computer he uses to monitor the efficiency of the diesel engine that pumps water from an underground well to irrigate the rice. By plugging into the engine's ECU, Russell can tell how much energy is being used to pump a given amount of water, and therefore the most efficient speed to run the system. He also designed and built a computer for the auger carts that directs their wheels so they perform cooperatively and most efficiently to move the cart through the fields. When there is a problem to solve or a question to answer Russell turns to the internet to get what he needs. Most recently he found an out-of-state company that could design custom fans built to the specifications Russell required for their rice dryers. Needless to say, no work is contracted out at RR Farm. With the pooled talents of Raymond, Russell, Chad, Mark, Tim and Jo Marie everything from tractor repair to bookkeeping is done on the farm.

F1 Brangus cows with their market calves.

This year RR Farm is growing Jefferson, Cocodrie and Cypress. According to Mark, the Jefferson was seeded at a rate of 95 lbs/A, with nitrogen applications totaling 195 lbs/A on the first crop and 90 lbs/A on the second crop. The Cocodrie was seeded at 80 lbs/A with 180 lbs/A of nitrogen on the first crop and 90 lbs/A planned for the ratoon. The Cypress was seeded at 75 lbs/A and receives 180 lbs/A of nitrogen on the main crop and 90 lbs/A on the ratoon. The team keeps two laser leveling rigs operating almost year round, one is owned by the farm and the other is contracted. Raymond believes this is very important for water and soil conservation, as well as saving labor. 80% of the water for the farm is supplied by wells located on the properties. Most of the Rabius land is leased, and Raymond & Russell have a very good relationship with their landlords. They trust the father and son team completely to take care of the land as if it were their own, and leave management decisions up to them and the other partners.

Chad Hundl, waiting on the truck to dump his combine and start again.

The cattle, which are part of the rice rotation, are F1 Brangus from Nancy Garrett. They run them with Charolais bulls and occasionally Red Limousines to produce calves for market. The cattle go well in the rotation, as they provide nutrients to the soil during the fallow years, and help with red rice problems. Raymond has one 400 acre piece of land in milo this year for that very reason. He plans to put it in milo again next year to try and defeat the noxious weed.

In addition to his work on the farm, Raymond spends a good deal of time in public service. He has

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RR Farm continued...

served on the Texas Rice Improvement Association board for 6 years now. He was nominated to serve by Joe Mike Crane who, according to Raymond, got tired of hearing him complain. Even before his tenure started with TRIA, Raymond was working to help his fellow rice farmers. In 1988 he hired John Dornak and established East Bernard Rice Marketing, Inc. Raymond felt like the rice farmers needed someone to look out for their best interest, not just tell them the world market price for rice. After about 5 years, John was hired away to Uncle Ben's in Houston, so Raymond and other growers went out and found Jay Davis and Andy Hewes. Raymond turned over the business to them, and only retains ownership of the building. They provide a number of services to the growers, and always try to get them the very best price possible for their rice. They stay up to date on market news and legislative issues, and even work to affect positive legislation that will benefit the farmers. Says Raymond, "these guys treat us as individuals, and look at each farmer's personal needs in marketing their crops."

Russell Rabius, second generation rice farmer with a talent for innovation.

Raymond carefully examining a panicle for ripeness.

When I commended Raymond on the tremendous service he had provided to his fellow farmers, he just ducked his head and asked me not to print that in the article. I realized then that Raymond Rabius is one of those rare individuals that believe in doing good for the sake of good, not for fame and fortune. But he would be the first to say that his fortune is great, as he was blessed with a loyal and supportive wife, a hard-working and respectful son, and 'partners' that have made their farming venture a success. *

Article and photos by Jay Cockrell.

Marketing News

Government Loan Program

The government loan program is designed to allow the farmer to borrow money from the government using his rice as collateral. The amount he can borrow is based on the yield of his rice in whole kernels and broken kernels. Value Factors are used to calculate the loan value. For the 2001 crop the Loan Value Factors are: Long grain whole kernel is $10.69 and brokens is $5.35. The factors are used as follows:

60/72 long grain
60 = whole grain yield %
72 = total grain yield %
broken yield is the difference between the whole and total
72 – 60 = 12
60% x 10.69 = $6.41
12% x 5.35 = $0.64
Loan Value = $7.05

Before the farmer can sell his rice he must settle his debt. He can settle the debt by paying back the Loan Amount or the World Market Price Value of his rice, whichever is lower. Also, this is considered a non-recourse loan, which means the government must accept the rice as payment if the farmer decides to forfeit the crop.

The World Market Price Value Factors are calculated each Tuesday by the USDA using rice transactions worldwide. In an effort to simplify the program, instead of using the WMP Value Factors to calculate each and every possible yield combination, the government takes the national average milling yield and calculates the loan value. Then they calculate the World Market Price Value of the national average yield using the World Market Price Value Factors. The difference between the two amounts is the LDP Rate. World Market Price is the Loan Amount minus the LDP rate. The current LDP for long grain is $3.70 per cwt. Using the example above the farmer is loaned $7.05 cwt from the government. The payback amount is equal to the Loan Amount minus LDP Rate. $7.05 - $3.70 = $3.35 The Premium to World Market Price is the extra amount a cash buyer is willing to pay for the rice above the $3.35 payback amount.

Information provided by Michael Creed, Creed Rice, Inc.

method of red rice control. Related to this was a paper published by Turner with Garry McCauley and Cy Chen on the importance of oxygen in rice seed germination. Rice seed will produce a coleoptile in the absence of oxygen but will not produce a leaf or root. In the presence of oxygen, germination proceeds and the first leaf is produced, and in the presence of light the rice plant can generate enough oxygen through photosynthesis to supply its roots, which grow in an oxygen deficient zone.

Some of Turner's important soil related research addresses the diffusion of ammonium nitrogen and phosphorus through the soil to plant roots. The data illustrate how flooded soils increase phosphorus availability, as mentioned earlier, and how sandy soil relative to clay soil increases ammonium nitrogen availability to flooded rice plants. Both observations were new introductions to the scientific literature and Turner's field plot research has contributed significantly to current critical soil test levels for P and K on rice in Texas.

The most recent soils research is the use of N^{15} tracers to quantify the uptake efficiency of urea N fertilizer at various developmental stages. In carefully controlled field plots, the N^{15} enriched urea is applied to plants at different growth stages. The samples are later harvested and analyzed to determine how much urea was taken up at specific times.

Jeremy Burrell processing TNC samples.

Dr. Turner has also contributed to the scientific community by serving as an associate editor of the Agronomy Journal for six years, from 1989 to 1995. He is currently in his second year as an associate editor for the journal of the Soil Science Society of America. Awards received include the USDA Superior Service Award for Group Research, the Distinguished Performance Award for Agriculture for Team Research from Texas A&M, and the Distinguished Rice Research Award from the Rice Technical Working Group. Dr. Turner has done consulting work in India, Egypt, Uruguay, South Africa, the Ivory Coast, Jamaica, Haiti and Nigeria. He currently holds the position of Professor, Soils and Plant Nutrition on Rice with Texas A&M, and is Adjunct Professor, Department of Ecology and Evolutionary Biology, with Rice University.

Mike Jund explains the Near Infared (NIR) technique of TNC analysis.

In his free time Dr. Turner enjoys woodworking and gardening. He also manages two small ponds, with all the associated waterfowl and aquatic life (including an orphaned 3 foot alligator!) He has a grove of pine trees he tends near Woodville, where his mother lives. According to Fred, she can make a broomstick grow leaves - a gift she obviously passed to her son. Dr. Turner is also an accomplished artist, with a special talent for capturing the beauty of flowers and trees. Fred and DeAnna are proud of their two children, Debbie (31) and Drew (26), who are successful young adults. Dr. Turner's personal life centers around his loving family and his church family, where he has taught youth Sunday School for 20 satisfying years. He recalls countless times throughout his life that he has been especially blessed, and expresses a willingness to credit God for all that is good in his life.

Dr. Turner attributes much of the success of the Soils and Plant Nutrition Project to Mike Jund, who has worked tirelessly to ensure reliable and accurate data. Turner also cites funding from the Texas Rice Research Foundation as a major factor in their projects success. He loves his work, enjoys working with employees at Eagle Lake and Beaumont and considers it a privilege to conduct research for a unique, elite and progressive group of Texas rice farmers. *

Article and photos by Jay Cockrell.

High Yielder's Tips

Information provided from discussions by Gary Bradshaw, Jacko Garrett, Hal Koop and Des Woods at the High Yielders meeting in February 2000, and from an interview with Mike Burnside in March of 2001.

Q: What is most effective methodology for harvesting your rice?
A: Timing is critical. Most growers harvest at 16% to 20% moisture, and when the fields are sufficiently dry to prevent rutting. If you let it dry out too much, though, it will hurt your ratoon yields. It's very important to establish a back and forth pattern that will result in as few trips as possible through the fields. If you've planted your levees then go across them as though they were part of the field. Keep auger carts on the road and out of the field to minimize tracks if you are planning on a ratoon crop. A 30' header on the combine means less trips to get the job done.

Q: What about combine speed?
A: Usually 1.3 to 2 mph works best. If the rice is damp you'll need to go at the lower speed or you will lose rice out of the back of the combine.

Combining at the Rabius farm in East Bernard, July 2001.

Q: Is there an ideal cutting height?
A: Turner and McCauley's data show that around 8" is best for semi-dwarfs if you are planning on ratooning. This lets light in so the plants producer better. When you cut this low you need to slow down or, as said before, you will lose rice out of the back.

Q: Does the straw from first harvest cause a problem with the ratoon yield?
A: Only if it shades the plants. Using double knife shredders insures that the straw will distribute evenly. This actually helps keep the field from drying out too, as the layer of mulch covering the ground retains moisture.

Q: When is the best time to apply ratoon nitrogen, and how much?
A: Some growers prefer to put the nitrogen down about 10 days before first harvest, or even earlier while the field is still flooded. Mike Burnside puts around 80 lbs. of nitrogen down on the dry field just before first harvest. That way, when the straw is distributed over the field, the nitrogen will be underneath it instead of on top for that first flushing. After establishing permanent flood he goes back with another 40 lbs for a total of 120 lbs. on the ratoon crop. Most growers go with a rate of 70 – 125 lbs of total N for the ratoon crop, depending on the variety and what has gone out already.

Q: What about water on ratoon fields?
A: Again there are several approaches. Some wait a week, apply nitrogen, then establish flood. This may depend on what the moisture level is in the soil at the time of first cutting. If there is sufficient moisture you can wait and let second growth become established before adding nitrogen and establishing permanent flood. Other growers, like Mike, insist that the water should chase the combine from the field. Mike also lets the "black water" escape from the bottom as the ratoon crop is being flushed. He establishes permanent flood around 14 – 18 days after first harvest. Carefully monitor ratoon flood and keep it at a uniform depth of 3 – 5 inches. Losing flood will cause weed problems and loss of nitrogen to "gassing off."

Q: What about weed/insect/disease control in the second crop?
A: Of course you want to carefully evaluate your fields and spray only as needed. If necessary, Mike applies a broadleaf weed killer 10 – 14 days after first harvest. If you've seen sheathblight symptoms in the first crop, and the weather is warm and humid during second crop maturation, then a fungicide will be needed for control. Also watch for stink bugs, especially if sorghum is harvested in nearby fields as the second crop approaches grain fill. Use the same techniques for monitoring that you do in the first crop. *

Cheers and Congratulations!

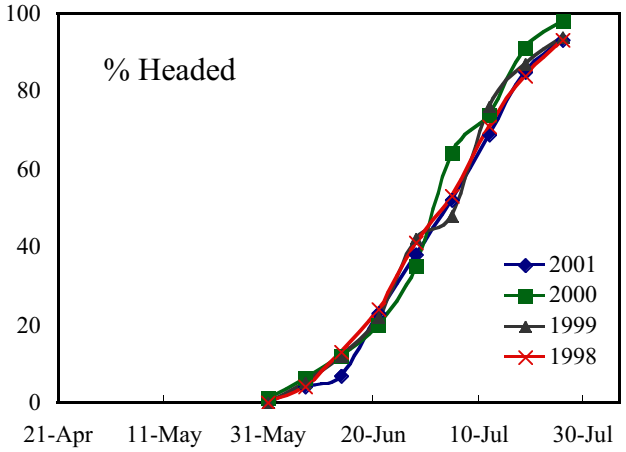
Dr. Christine Bergman, USDA-ARS Research Chemist at the Beaumont Center, was recently awarded Early Career Research Scientist of the Year by the Agricultural Research Service. The award is for research leadership in understanding the genetic control of grain functionality traits in rice and wheat. Please join us in congratulating Christine on this excellent achievement!

!! Attention Producers !!

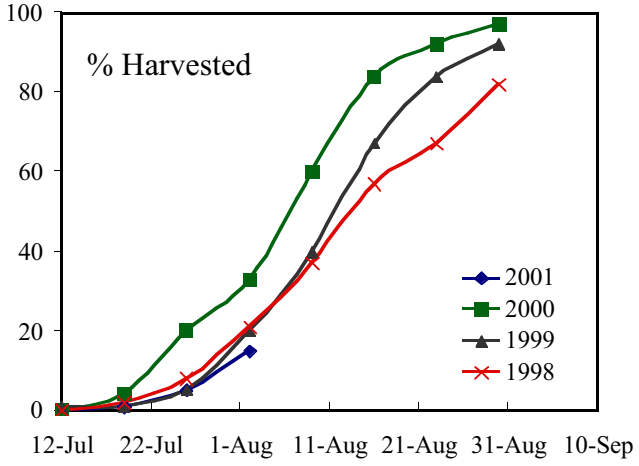
Rice Belt Warehouse, Inc. and East Bernard Rice Marketing are pleased to announce the formation of a joint rough rice marketing venture. This combined effort will provide producers with the broadest local, national and international marketing exposure and will be open to all producers who might be interested. Timely information, market advice and recommendations, extensive record keeping, active marketing, and consultation regarding USDA programs, and the use of futures and options for hedging will be available to those producers who participate. In addition, newer and more aggressive use of the internet will be available to interested producers for use in showing rough rice for sale to buyers in the U.S. and overseas. Rice Belt Warehouse and East Bernard Rice Marketing are organizations with many years of experience and deep roots in both Texas and the U.S. rice industry. The full weight of this experience will be put into marketing this year's crop. Producers who are interested in participating call Dick Ottis or Fae Popp at 979-543-6221, Fulton Drumgoole at 979-543-2726, or Jay Davis at 979-335-7591.

Rice Crop Statistics Report

Heat Accumulation: The accumulation of heat units above 50ºF at the Beaumont Center for the 2001 season (3297ºD) are greater than what was accumulated to this date in 1999 (3262ºD) and less than 1998 (3345ºD), but very similar to 2000 (3300ºD).



Headed: As of Aug 2nd, 97% of the rice belt was headed. This is equal or slightly behind previous years.



Harvested: As of Aug 2nd, 15% of the rice belt was harvested. This is 18% behind 2000, 5% behind 1999, and 6% behind 1998.

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