Texas Rice

Texas A&M University System Agricultural Research and Extension Center
Beaumont, Texas

March 2001 Volume I Number 1

History of the Beaumont Station

Rice culture in Texas originated around Baytown in 1850 and was developed into a commercial crop by the late 1890's. One of the oldest business institutions in Jefferson County is the Beaumont Rice Mill established in 1892 by Joseph Eloi Broussard, a legendary figure in the history of the rice industry in Texas. That year 175 acres of rice were grown in the state - all on the Beaumont prairie. By 1899, 8500 acres of rice were harvested in the Beaumont district, and 200 acres in Colorado County.

Research on rice in Texas started a decade later, when the State Legislature established an experimental station at Amelia in 1909. The U.S. Department of Agriculture joined the program in 1914 and the center became Substation No. 4 of the Texas Agricultural Experiment Station. By 1945 the program had outgrown the facilities in Amelia and was relocated to the present site off highway 90, a tract of land originally purchased in 1893 by B.C. Hebert and Joseph Eloi Broussard. The land for the experiment station was financed by a group of rice farmers that became the nucleus of a non-profit organization now called the Texas Rice Improvement Association (TRIA). This organization oversees the production of foundation seed at the Beaumont Center.

Belle and Joseph Eloi Broussard

From the beginning, research was devoted to rice and the alternative crops associated with rice farming. Varietal improvement work consisted of testing varieties introduced from foreign countries and isolating selections suitable for Texas growers. Criteria included adaptability to soil and climate, earliness of maturity, resistance to disease, and yielding ability. It wasn't until 1931 when USDA scientist H. M. Beachell joined the staff at Beaumont that a comprehensive rice breeding program began. That year Dr. Beachell made several rice crosses, probably the first artificial crosses of rice made in the state. This was the beginning of the modern method of rice breeding in Texas.

Texas Patna was the first official release, coming in 1942. Nearly 20 years later Dr. Beachell released Belle Patna, in honor of MaryBelle Broussard, the wife of Joseph Eloi, to acknowledge the tremendous contribution made by the Broussard family. To this day 33 rice varieties have been released from the Beaumont Station.

Critical to this success was establishment of the USDA/ARS Rice Quality Laboratory at the Beaumont Center in 1955. The lab was created to serve as a worldwide resource for rice quality evaluation, in addition to supporting rice breeding programs throughout the U.S.

Continued on page 12

The Beaumont Center as it looks today

From the Editor...

I would like to take this opportunity to introduce the first issue of *Texas Rice.* The newsletter is produced by the Texas A&M University System Beaumont/ Eagle Lake Research & Extension Center. Several of our university and USDA scientists and staff have contributed to the newsletter, but special recognition should be given to Jay Cockrell, who compiled much of the information and helped develop the newsletter layout, also to Jim Medley for bringing us up to speed on the software and hardware necessary for publication, and to Tammy Tindel who assembled and sorted the numerous mailing lists.

Nine issues of Texas Rice are planned each year, one per month from March to September, with the ninth issue produced during the winter months. The first issue includes a summary of the history of the Beaumont Center, highlighting the role the Broussard family played in its establishment. Each issue will include a *Monthly Guide for Texas Growers*, which will provide timely production and management information. The March *Monthly Guide* provides information on how flooded soils and soil-type affect nutrient availability to the rice plants. Each issue will also include a *Researcher in the News* section, which highlights one or more aspects of a rice researcher's program, and a *Grower Profile* section, which provides a glimpse into the life of one of our rice producers. The current issue includes an overview of the career of Toni Marchetti, our Center's plant pathologist. Although Toni retired in early January, we are hopeful that the Center will continue to have access to his valuable knowledge. This issue also provides an overview of Bill Dishman Sr. and his family's contribution to the rice industry. Although Bill says he is retiring, I am sure that he will remain actively involved with the rice industry.

Each issue will include a monthly *Rice Statistics* section, a *Marketing News* section, a Rice *Web Resources* section, a *Local News* section, and a *National and International News* section. Beginning with the April issue, the newsletter will add a *High-Yielders Tips* column, which summarizes what some of the best producers in Texas do to obtain high yields. With several of our best growers consistently producing over 8,000 lbs./acre for the main crop and often over 3,000 lbs./acre for the ratoon crop, these high-yielders have some advice that could be of benefit to other growers. Beginning with the May issue, the newsletter will incorporate a *Rice Crop Update* section, which will provide information on rice acreage by variety and stage of crop growth for different regions of the state. Each issue will also include a monthly *Editor's* section. Future *Editor's* sections will be used to highlight activities and events that affect the Beaumont/Eagle Lake Center and the Texas rice industry.

Texas Rice will be available as a printed copy via regular mail or as a pdf copy via email. If you would like to receive a pdf copy, please send your email address to either lt-wilson@aesrg.tamu.edu or j-cockrell@aesrg.tamu.edu. Once the Beaumont Center has its website up to speed, *Texas Rice* will also be available via the web.

As a final note, the newsletter is intended to be of use to growers. I welcome any suggestions that you might have to improve the newsletter's value to the rice industry.

Sincerely,

L. T. Wilson

Ted Wilson
Professor and Center Director

Inside This Issue

Cover: History of the Beaumont Station

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Farming Rice

a monthly guide for Texas growers

This is the first 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.

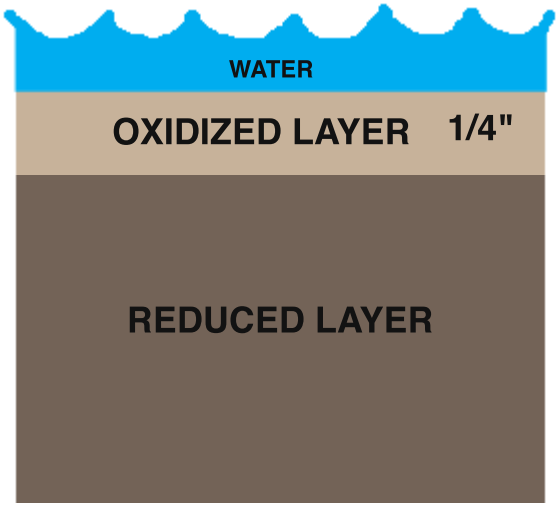
Special Considerations of Submerged Soils

Submerged or flooded soils (as is the case in rice production) are very different than well drained, aerated soils. We will look at some special considerations of anaerobic soil, and how rice producers can take advantage of these differences.

As the flood water deepens, less and less oxygen can move from the air into the soil profile. This results in changes in the microbiological process, which influence the soil properties. The microorganisms that use oxygen from the air in their life processes become inactive, but those that use oxygen-containing molecules as a source of oxygen become active. The resulting reduction (deletion of free oxygen) in the soil has a strong influence on nutrient availability in flooded soils.

In flooded conditions, the rate of movement of oxygen from the atmosphere into the soil is reduced to 1/10,000 of that in aerated soil, but some diffusion does occur. This results in the formation of a thin layer of oxidized soil at the soil water interface. The degree to which a soil is reduced has an influence on the chemical properties, which in turn affect nutrient availability and plant growth. The first effect is pH stabilization. No matter if a soil is initially alkaline or acid, its submerged pH will stabilize at 6.5 to 7.5.

Research has shown that the pH of a Beaumont clay changes from about 4.96 to 6.71, and a Katy fine sandy loam changes from 5.22 to 6.81, with the changes beginning as early as two weeks after submergence depending on environmental conditions. These increases in pH are attributed mainly to the reduction of iron (Fe) and manganese (Mn) as described by the following reactions:



$Fe(OH)_3 + e^- = Fe^{+2} + 3OH^-$

Here the liberated OH- ions result in an increase in overall pH.

$MnO_2 + 4H^- = Mn^{+2} + 2H_2O$

In the case of Mn, the consumption of H^- ions reduce acidity, hence increasing pH.

These chemical changes also serve to increase the concentrations of Fe and Mn in the soil, making these nutrients more available to rice plants. It has been postulated that this is one reason why rice does better in flooded than aerated soils.

Phosphate Utilization in Submerged Soils

There are essentially two forms of phosphorus that occur in soils - organic (contains carbon) and inorganic (no carbon). The organic forms are the components within the plant tissue and thus cannot be utilized until the organic residue has decomposed. The rate of decomposition is affected by environmental factors, as well as microbial levels in the soil. The reason there are significant levels of phosphorus in the plant tissue is because phosphorus plays a major role in energy transfer in the metabolic process of rice plants. In some soils, the majority of available phosphorus is the organic form and is found in the surface horizon, from 4 to 25 inches deep.

Inorganic forms of phosphorus can be grouped into 5 categories:

1) calcium phosphates (Ca-P)
2) aluminum phosphates (Al-P)
3) iron phosphates (Fe-P)
4) reductant soluble phosphates (those that become soluble in a reducing environment)
5) occluded iron and aluminum phosphates (phosphates covered with iron oxide coating, not available until the coating is removed).

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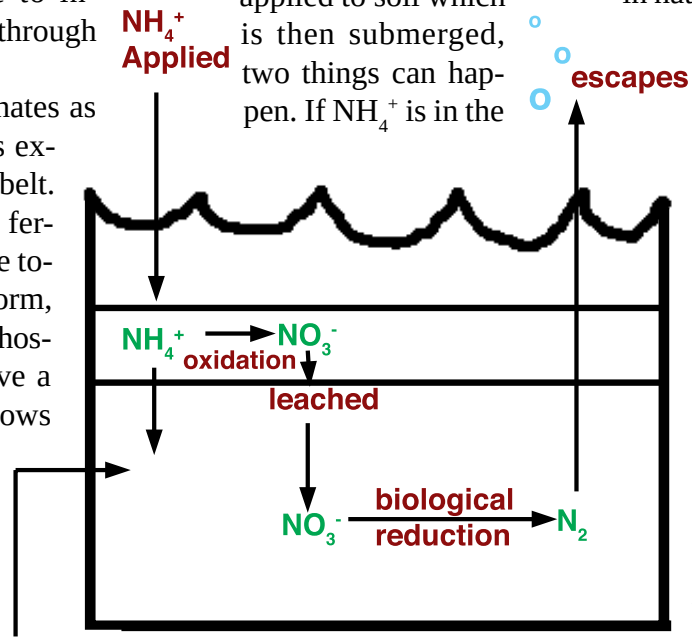
The most plentiful form of inorganic phosphorus is the reductant soluble type. This is particularly significant in submerged soils since reduction occurs after flooding, making this phosphorus available to the rice plant. A study done in 1974 by Turner and Gilliam (1) suggested that increased phosphorus diffusion upon flooding is responsible for the pronounced increase in phosphorus availability to the plants in flooded soils. Further, an earlier study by Islam and Ullah (2) concluded that the addition of nutrients to soils at field capacity simulated the benefits of soil submergence on rice growth showing that an important benefit of soil submergence is overall increased nutrient availability due to increased nutrient diffusion through soil to roots.

The use of polyphosphates as sources of phosphorus has expanded in the Texas rice belt. In a polyphosphate-based fertilizer, only 50 - 80% of the total P is in polyphosphate form, the remainder being orthophosphate. Polyphosphates have a chelating ability which allows for the inclusion of micronutrients in the material. However, the hydrolysis of polyphosphates (chemical reaction involving water that converts poly- to ortho-) in flooded conditions happens fairly quickly, usually within 6 - 15 days, depending on the soil type. The rate of the process is dependant on temperature also, increasing as the temperature increases. This research indicates that there is no great advantage to using polyphosphate fertilizers in rice production, unless you are using it as a way to increase micronutrients as well.

Nitrogen Chemistry in Rice Production

The efficiency of nitrogen fertilizer in rice production is low compared to other agronomic crops. Studies have shown that as much as 50% of the nitrogen applied at planting may be lost. Upon flooding, the formation of an oxidized layer (at the surface of the soil) and a reduced layer (further down in the soil profile) has a definite influence on nitrogen chemistry and availability.

When ammonium (NH_4^+) is applied to soil which is then submerged, two things can happen. If NH_4^+ is in the oxidized layer, close to the surface, it will be converted to nitrate (NO_3^-). In clay soils, nitrate moves to the reduced zone by diffusion. When this happens biological reduction by microbes, called denitrification, occurs and the result is formation of nitrogen gas (N_2). This form of nitrogen is not available to plants and eventually escapes into the atmosphere. If the ammonium form of nitrogen is incorporated into the soil, or applied on dry soil and then moved down with water to the reduced layer, it will be stable and remain available to the plant for a longer period of time. As the rice plant develops, its root system expands as does its ability to absorb nitrogen. Consequently, nitrogen applied at panicle development is rapidly absorbed by the plant. Studies by Ric Norman in Arkansas have shown that 50% - 70% of the nitrogen applied at PD can be absorbed by the plant.



In Texas, the observation that sandy surface soils inherently low in native soil nitrogen supply more N to plants than clay soils containing nearly twice the amount of N, lead researchers at the Beaumont Center to conduct a study to determine the cause of this phenomena. It was postulated that the movement of ammonium (NH_4^+) through the different soil types in flooded conditions might be the reason. In 1998 a test conducted by Dr. Fred Turner on five soils commonly found in the Texas rice belt showed that NH_4^+ diffusion to plant roots is 15 times faster in sandy soils than in clay soils. The slow NH_4^+ diffusion in heavy clay soils may explain the lower N supplied to plants, as compared to sandy soils, since ammonium diffusion is the limiting step

continued on page 12

Researcher in the News...

Dr. Marco Anthony Marchetti

When Toni was a just a boy growing up in Queens, little did he know that he would end up helping to feed the world.

Toni had the normal boyhood dreams of flying planes, building skyscrapers and driving a garbage truck. In spite of the fact that his father was an obstetrician and his mother was a nurse, Toni had no desire to enter the medical community. That turned out to be fortunate for the rice industry, since his career has had a tremendous impact for rice producers, both in the U.S. and overseas.

When Toni was eleven his family moved to Maryland, and being the oldest of four boys, he was expected to help out. In high school he worked every summer for his uncle in their lumber business, and was given the opportunity to apprentice with the intention of having his own yard one day.

That led him to major in Forestry at Pennsylvania State University, where he acquired a Bachelor of Science degree in 1957. Somewhere along the way to his degree, Toni realized he was more interested in the agricultural component of Forestry, than marketing the end product. He was intent on pursuing entomology in graduate school, but as a ROTC cadet, the Army had different ideas. They didn't consider entomology a critical field at the time, and so encouraged him to enter the field of plant pathology.

He went on to Iowa State as a commissioned officer and acquired his Masters and Ph.D. in Plant Pathology. He conducted research on rice blast (*Pyricularia grisea*) for the Army at Fort Detrick, MD until 1971 when the Crops Division of the Army was transferred to the US Department of Agriculture. That was how Toni became a Research Pathologist with the Agricultural Research Service.

In 1971 the pathologist at the Beaumont Station became ill and had to take extended leave. Dr. Charlie Bollich was the breeder at the time and knew Toni from work they had collaborated on in the past. Dr. Bollich asked Toni to come to Beaumont to fill in for Dr. Atkins that summer. Three years later, in 1974, Bollich requested a transfer for Toni, and he came to work full time at the Beaumont Station. He was responsible for conducting research on the genetics, evaluation and control of diseases of rice including

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Spotlight on Support

***Gerald Gibson** was senior technician for Dr. Marchetti for seven years.*

Gerald was born in Ocean Springs, Mississippi just East of Biloxi. He was the third of eight children, with four brothers and three sisters. Gerald's mom had a full time job taking care of the family, while his dad was a supervisory chef at Keesler Air Force base. This may explain Gerald's culinary talents, that and the fact that he grew up less than an hours drive from New Orleans. When Gerald was in high school he excelled in art and received a scholarship to attend Jackson State University. In his freshman year, though, he realized that he needed to pick a degree plan with better earning potential after college. He had a strong interest in biological sciences, so that was the new direction. Gerald received his BS in Biology in 1970 and went on to teach two years before going to work for the USDA.

He began his career with the USDA at Stoneville, MS in the Biological Insect Control Lab. From there he went to Baton Rouge and worked at LSU in the National Bee Breeding Center. Gerald joined the Beaumont Center in 1977 and worked in the Stored Rice Insect Lab. During that time he earned his Masters degree in Biology from Lamar University. In 1994 Gerald moved to the Pathology Department under Dr. Toni Marchetti, where he was in charge of pathogen isolation, greenhouse planting, inoculation and screening for blast. Gerald had an excellent working relationship with Dr. Marchetti, and felt that Toni's encouragement and motivation were instrumental in the productivity of the lab.

Gerald is active in mentoring school age children in the field of science. Working through his college fraternity, Kappa Alpha Psi, he helps children prepare science projects and volunteers to judge at regional science fairs. He also lectures to children about science, entomology and the importance of education. Coming from a family of eight children, who all graduated from college, this is definitely a subject he is qualified to speak about first-hand. ∗

Researcher continued

blast, sheath blight, bacterial leaf blight, narrow brown leaf spot, straighthead and brown spot.

There have been many achievements throughout his career in Beaumont. He developed a mini-plot technique for evaluating partial resistance to rice blast that has been used extensively in the U.S. and overseas. His research on the presence of *Pi* blast resistance genes in U.S. germplasm has been the basis for U.S. breeding efforts to pyramid genes for multi-race resistance in domestic cultivars.

Throughout his career in Texas he has monitored the presence of the blast pathogen in the Southern U.S. and has one of the most extensive pathotype collections in the world. With colleagues at Purdue University, this historical collection was characterized using molecular techniques and demonstrated how the blast pathogen has evolved in response to the deployment of resistance genes in rice cultivars.

Over the last few years, Toni has worked with other colleagues to identify disease resistance genes in rice mapping populations using molecular markers. These markers provide a new tool for breeders and geneticists to study the inheritance of disease resistance in a crop that is the basis for feeding much of the world's population.

Toni has played a key role in developing rice cultivars having improved levels of disease resistance. He is a co-author on the registration of 26 rice cultivars and germplasms that have been used throughout the Southern U.S. rice production area, as well as parental sources in breeding programs worldwide. He played an integral role in the development of the station's newest release, Saber, which has resistance to blast, sheath blight and narrow brown leaf spot. Toni is recognized nationally and internationally, particularly for his expertise in rice blast disease. He has co-authored over 150 publications and has served as a consultant for public and private researchers, farmers extension agents and government officials throughout the U.S., as well as in the Philippines, Egypt, Indonesia and Japan.

He has participated in the training of graduate students and has collaborated with visiting senior scientists from China, Yugoslavia, Korea and Egypt. In the mid 1980's, Toni was a co-recipient of Superior Service Unit Award from the U.S. Department of Agriculture and Distinguished Achievement Awards from Texas A&M University and the Rice Technical Working Group for his contribution to the development of the cultivar Lemont.

Given the professional accomplishments, and taking care of a family, (four children and fifteen grandchildren) you wouldn't think there would be much time for anything else. As always, though, there is room for pastimes. Toni's interests range from gardening, to bird watching, to singing in a Barbershop Quartet. And then there is the family farm in Pennsylvania, purchased back in the summer of 1942. The 125 year old farmhouse sits on 80 acres of pristine farmland and forest. When the family first bought the place there was no electricity, and water was spring-fed. The old barn is constructed from hand-hewn oak logs and wooden pegs. The families would go every summer when school was out and stay through September. With a tenant farmer living on the site, there was always fresh food along with cows, horses and chickens - a paradise for young children.

Toni still goes back to the farm every year to meet up with his cousins for a month long sabbatical. They use the time to make repairs, catch up on family events, and generally have fun.

With all there is to do, we are certain retirement will be a blessed pastime for Dr. Marchetti, but he will be sorely missed here at the Beaumont Center. *

Grower Profile...

Dishman Brothers Farm: Four Generations of Rice Farming in Texas

It all began in the early 1900's when J.A. Dishman bought 100 acres of land in the small community of Amelia.

To help finance the farm he had a mule team for hire, and worked pulling rigs in the local oil fields. J.A. was part of the historic event at Spindletop, which launched the oil industry in Texas. But farming was his life, and through his three sons - George, Clyde and Herbert, he began a tradition that continues on today.

The brothers farmed rice like their dad, and went on to have a profound impact on the rice industry in Texas. Clyde was one of the founding members of the Texas Rice Improvement Association, and George's son Bill Sr. still serves on that board today. Bill Sr. also serves on the Texas Rice Research Foundation board of directors, as well as the Texas Rice Producers Board - which handles check-off funds from the farmers. His son, Bill Jr., sits on the Texas Rice Council, a subgroup of the US Rice Producers Association and the Texas Rice Producers Legislative Group. It is obvious that Bill Sr. was inspired to public service from the example set by his family, but when asked what moved him to such an active role in Texas rice farming he credits an early friendship with Jim Stansel.

From left to right: Hillary, Blain, Casey, Ford, Bill Jr. and Bill Sr.

Back in 1956 Bill Sr. had just finished his tour in the army and was attending college at the University of Houston. It was there he met his wife Martha, and they were married while still in school. After Bill finished his BS in Geology he planned to go on to graduate school, but a call from home that his Uncle Clyde had suffered a heart attack brought him back to help out on the family farm. They set up house in a small housing complex in Beaumont, where a mutual friend introduced him to his neighbor Jim Stansel. As Bill and Jim became acquainted, they realized they had actually served together in the army, and found many other points of common interest - namely rice. It was at Jim Stansel's encouragement that Bill became an active leader in the rice industry here in Texas.

In 1960 Bill Sr. and his first cousin Gene, who was Herbert's son, formed a partnership. They took over management of the Nome and China properties purchased by J.A.'s three sons back in the late 40's and early 50's. J.A.'s middle son Clyde, along with his son J.C., kept control of the original homestead farm in Amelia. Early on Bill Jr. worked with his dad and cousin Gene farming the 3000 acres passed down from his grandfather. Bill Jr. met his wife Lisa while attending college at Lamar University and was married in 1978. They have one girl, Erin, who is attending college at Texas A&M and a boy, Ford, who will be attending A&M in the fall. Bill Sr. has two other sons that have also participated in the family business. The youngest, Blain, has a son Casey and a daughter Hilary. The middle son Bryan has a son Garrett and

continued on next page

Dishman Farm continued

daughter Elyse.

While Bill Sr. has many more years experience, he insists that his son Bill Jr. is the boss of the operation and he and Gene just follow instructions. Actually, they all three share in the management decisions and day to day operations.

Gene and his wife Laura live on the China farm where they raised four children, all gone off to college now. In addition to rice, the Dishman partners grow

Bill Dishman Sr. and Bill Dishman Jr.

wheat, milo and soybeans - and have experimented with cattle in the rotation scheme. They have tried several different rice varieties over the years including Jasmine 85, Jefferson, Cypress and Lemont. This year they plan to grow Cocodrie, Gulfmont and the new releases Saber and Clearfield rice.

Specialty varieties such as Jasmine 85 have done well for them, but niche marketing can be a challenge. They work mostly with Doguet's, but sell occasionally to others as well. As for the future of rice farming in Texas, Bill Jr. is cautiously optimistic. He believes that much will depend on the quality of the farm programs coming out of Washington, and how quickly the biotech industry moves forward.

When asked his opinion about the drop in rice acreage over the past few years Bill Sr. emphasized the fact that growers can now make comparable yields on less acreage. He attributes this to modern advances such as precision drills, laser leveling, better herbicides and pesticides, and the development of high yielding, lodging resistant semi-dwarfs.

So it is with confidence that a fourth generation of Dishman's continue the farming tradition started by J.A. Dishman a century ago. *

Marketing News

Highlighting buyers, processors and distributors

SunRich
Hope, Minnesota

SunRich is a leading producer, supplier and ingredient developer for the food industry. They were founded in 1978 and have over 300 grower members. They offer agronomy services, crop scouting, soil sampling, fertility recommendations and crop input planning. SunRich also owns and operates processing facilities that provide custom orders to buyers throughout the U.S. and abroad. They work with conventional and organic farmers buying soybeans, corn, wheat, milo and other cereal grains, and have recently looked to the Southern states to bring new growers into the SunRich family. For more information contact Dan Bewersdorff at (810)672-9001 or write PO Box 128, Hope MN 56046.

Clarkson Grain
Cerro Gordo, Illinois

Clarkson Grain was founded in 1974 and began dealing in organic commodities in 1991. They buy organic corn, soybeans, and wheat and have recently looked to developing markets for rice. They sell in the U.S. and Asian markets, with a strong tie to large Japanese markets. They are interested in forming relationships with Southern growers, as the demand for organic feed in the U.S. is rapidly increasing. Currently they are offering $10 to $18 a bushel for organic soybeans, picked up at your farm. For more information contact Lynn Clarkson at (800)252-1638 or write PO Box 80, Cerro Gordo, IL 61818-0080.

Specialty Export Products
Greenfield, Tennessee

Specialty Export Products sells to international buyers throughout the world. Established in 1992, roughly 70% of their business is in organic commodities. They buy soybeans, corn, wheat, milo, flax, buckwheat, millet, peas and other cereal grains. They specialize in non-GMO and Identity Preserved (IP) crops. For more information contact Max Krouse at (901)235-2124 or write 204 S. Front St., Greenfield TN 38230.

Share the Harvest

A Texas Grassroots Effort to Help Feed the Needy

From left to right: Traci Harvey, J.T. Garrett, Nancy Garrett, Jacko Garrett

Share the Harvest just totaled up a banner year, donating more than one-half million pounds of rice to the Houston Food Bank. In just two years since it was founded in 1998, the non-profit organization of rice farmers and other related industry principles operating along the Gulf Coast of Texas, has donated and delivered close to 1.1 million pounds of rice to the needy.

The Houston Food Bank, the southeast's largest food collection and distribution agency, was able to distribute this much-needed staple in the fight against hunger to more than 500 nonprofit member agencies in a 25-county area. Says Brenda Kirk, executive director of the Houston Food Bank, "For the first time since our inception, thanks to the remarkable efforts of the people behind *Share the Harvest*, the Food Bank can count on a consistent, steady supply of rice, an important staple for every food pantry in the area. I don't know of any other major food bank that has a system like this in place."

About 15 years ago, Jacko Garrett, owner of Garrett Farms in Danbury, saw a food drive broadcast on a Houston television station. The request for food donations touched him and he responded by donating rice from his farm. Besides personally donating rice from Garrett Farms, Garrett has also been acting as a missionary in his own right, telling neighbors and area farmers about the need for rice and how they can help in their own way. "A lot of people want to give if they just had a way," he notes.

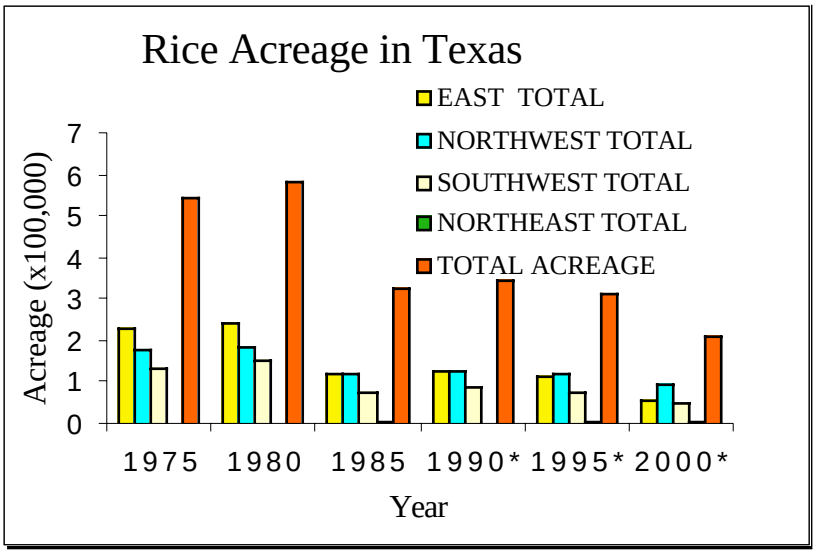
Garrett developed "a way" for giving when he conceived Share the Harvest. Established in 1998 as a non-profit program, *Share the Harvest* brought together not only the farmers, but also the people who own or manage the companies and agencies that are essential to the complex chain of events that culminates with the delivery of bagged rice to the Houston Food Bank.

Garett, whose father started ranching on the Garrett Farms land near Danbury in 1936, secured the donations needed to fufill the mission. These donations included land by I.P. Farms; seed from Rice-Tec, Inc.; water from Chocolate Bayou Water Company (International Paper); fertilizer from Helena Chemical Company; herbicides and pesticides from Zeneca, Novartis, Rohm&Haas, FMC, BASF and DuPont; aerial applications provided by Garrett's Flying Service; grain transportation by T&T Trucking of Alvin; crop drying and storage by Eagle Lake Rice Dryer; and a portion of the processing by Colorado Co. Rice Mill. Four local farming families provided the harvesting equipment. The result was 460,000 pounds of rice donated with virtually no out-of-pocket expenses.

Jacko Garrett's wife, Nancy, is his partner in both Garrett Farms and *Share the Harvest*. She explains, "An extraordinary thing happened. Even the high school kids we hire to help with the summer harvest wanted to get involved. They understood that the program was intended to be a donation and they wanted to work for free and contribute."

Now in its third year, *Share the Harvest* is projecting rice donations over the million-pound mark. Today, more than 20 farmers and 50 related agricultural –based companies are participating in the program. For more information on how you can participate in *Share the Harvest* call (979)922-8405. *

Rice Statistics



*Source: Texas Agricultural Statistics, *USDA-FSA certified*

Market Prices

	Rough Long Grain	Milled Long Grain	Brewers
Arkansas	$5.70	$11.75	$4.35
Louisiana	$6.00	$11.75	$4.35
Texas	$6.20	$11.75	$4.35
Mississippi	$5.70	$12.10	$4.35
Missouri	$6.00	$12.10	$4.35

From Oryza, Feb 20, 2001, all prices cwt

Rice Supply and Use

million cwt

	1999	2000	2001 est.
Area Harvested (million acres)	3.26	3.51	3.04
Yield (pounds per acre)	5663	5866	6278
Beginning Stocks	27.9	22.1	27.5
Production	184.4	206	191.1
Imports	10.6	10.1	10
Total Supply	222.9	238.2	228.6
Domestic Consumption	114	121.9	123
Exports	86.8	88.9	81
Total Use	200.9	210.7	204

Source: Oryza Feb 20, 2001

Local News...

Rep.Cook request funds for "Ag-Duck Initiative"

Rep. Robbie Cook, D-Eagle Lake testified before a Subcommittee of the House Appropriations Committee on behalf of the Texas Agricultural Experimental Station, the Texas Rice Industry, various sportsman and environmental groups for $2.2 million dollars to go towards various agricultural/habitat initiatives being referred to as the *Agriculture/Wildlife Environmental Research Initiative*. Hats off to Rep. Cook for his tireless work and dedication, not only to the rice industry but to the State of Texas! Specific request include:

-Enhanced Rice Crop Water Use Efficiency

Establish an ultra high-yielding water efficient rice culitvar development program. This would involve hiring a plant breeder and providing support for a state rice plant breeding program. Develop yield enhancing management approaches which will promote the profitability of rice production in Texas. Establish a management enhancement research/extension grants program. Expanded research on improved cultural, biological, agronomic, and pest management programs. Total Request for this portion:$1.2 Million

-Wildlife Habitat and Environment

Develop baseline data on the impact of rice production practices on wildlife species, their habitats, and environmental impact. Establish a Wildlife Biologist position. Research on the impact of rice production practices on wildlife species. Research on the impact of habitat fragmentation on wildlife species. Establish a Wetlands Environmental Scientist position. Research on the impact of rice production practices on water quality and coastal wetlands. Establish a related extension grants program.

Total Request for this portion:$1 Million

Previous research indicates that agricultural industry funded research has a $22 dollar rate of return for each dollar invested in research. *

from US Rice Producers weekly newsletter, 2/20

National and International News...

Conservation Reserve Program

WASHINGTON- USDA's Farm Service Agency (FSA) Administrator Keith Kelly announced in January that certain Conservation Reserve Program (CRP) participants whose contracts expire on September 30, 2001, will have an opportunity to extend their contracts for one year.

All or a portion of the acreage under contract may be included in an extension, but no new acreage may be added. Although no general signup opportunity is scheduled for fiscal year 2001, interested producers may continue to enroll relatively small, highly desirable acreage such as filter strips and riparian buffers at their local FSA office.

With regard to hunting, Farm Service Agency Notice CRP-380 resolves a two-year controversy on use of CRP lands for hunting preserves. The final notice sets reasonable and fair guidelines for allowing commercial shooting preserves, providing habitat for all wildlife normally found in the area is not adversely effected.

It specifically allows CRP participants to lease hunting rights, charge fees for access to hunters, or conduct other similar hunting operations during the normal hunting season for game normally found in the area.

The Notice also allows the operation of legally licensed and operated Commercial Preserves Shooting on CRP acreage providing that cover maintenance must enhance the habitat for all wildlife and in all cases be conducted outside the primary nesting season.

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Japan Finds More Starlink

PLANETRICE-The Health Ministry in Japan said in January it found traces of unapproved Starlink corn in another shipment from the U.S. This shipment had already passed tests in the U.S., which were just recently approved by the Japanese government. In November, Japan accepted the U.S. plan to test corn for food to make sure it didn't contain any GMOs, and then approved a test for corn bound to Japan for feed purposes shortly after.

Japan, who has not approved Starlink corn for either food or animal feed, has cut back significantly on U.S. corn importation due to the Starlink problem. Normally, Japan is the biggest buyer of U.S. corn. The recent discoveries of GMO corn in U.S. shipments has raised concerns that the U.S. tests are not rigorous enough to comply with strict Japanese GMO legislation.

Mix Rice Husks, Antifreeze, Then Add Dash of Salt

PLANETRICE- Rice husks, antifreeze, and a dash of salt. That's not a new holiday drink for rice farmers, but a relatively cheap and nontoxic way to make silicon-based compounds for use in electronics, plastics, polymers, and optical glass, Business Week recently reported. This radical technique was developed by Richard M. Laine, professor of Materials Science and Engineering at the University of Michigan. He believes that it could also fundamentally change production of silicon chips.

Silicon is traditionally manufactured from sand, a process that requires huge inputs of heat and electricity. Laine says that about 70% of the energy that goes into refining silicon is released as the toxic waste gas hydrochloric acid. But Laine's novel method eliminates nasty by-products. Laine recently formed a startup to commercialize the technology.

Japan's WTO Ag Proposal Threatens U.S. Rice Exports

USA RICE FEDERATION- Success of Japan's agricultural proposal for the upcoming World Trade Organization agricultural negotiations could threaten access to the United States' number one export market.

Japan's proposal, made public Dec. 21 in Geneva, Switzerland, threatens to substantially decrease import quantities and is a step in the wrong direction, moving away from expanded world trade opportunities, said Ellen Terpstra, USA Rice Federation president and CEO. "We support the proposal of the U.S. government to reduce trade barriers and continue the progress made in the Uruguay Round," she said.

The cost of U.S. rice exported to Japan is either doubled through the market access measures Japan imposes or is subject to a $3000 per ton tariff. Japan is currently the largest market by value for U.S. rice and the industry is optimistic that Japanese consumers would buy more rice if the price weren't distorted by Japan's import measures.

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History continued

Identification and evaluation of the quality characteristics in rice are carried out through every stage of development leading up to the release of a new variety.

Another component of the success in breeding varieties adapted for Texas was establishment in 1972 of the Eagle Lake, Katy, Bay City, El Campo and Ganado satellite units of the Beaumont Center. This was made possible through an initial $45,000 appropriation of the Texas Legislature with supplementation from producers in the form of check-off funds coordinated by the Texas Rice Research Foundation (TRRF). These additional sites provide research results applicable to the many soil types and climatic conditions of the western rice belt.

Currently, the Texas A&M University/USDA Agricultural Research and Extension Center at Beaumont has on-going research in Variety Improvement, Soil Science, Molecular Biology, Cereal Chemistry, Entomology and Plant Physiology - with plans on the horizon for new departments in Water Quality and Wildlife Biology.

Through the cooperation of the Texas A&M University System, The United States Department of Agriculture, Texas Rice Improvement Association and the Texas Rice Research Foundation, efforts will continue to improve rice production here in Texas, and throughout the southern United States. *

Soils continued

in nitrogen supplied to rice roots.

As for increasing the overall efficiency of nitrogen uptake in rice soils, one solution might be to incorporate the urea deeper in the soil profile before planting, so that it will remain stable and be available to the growing rice plant longer into the season. Another solution might be the use of slower release manure-based fertilizers, and including nitrogen fixing legumes into the standard rice rotation. *

*(1) Turner, F.T. and Gilliam, J.W., Increased P diffusion as an explanation of increased P availability in flooded rice soils. Plant and Soil **45,** 365-377 (1976)*

*(2) Islam, A. and Ullah, S. M., Chemistry of submerged soils and growth yield of rice. II. Effects of additional application of fertilizers on soil at field capacity. Plant and Soil **39**, 567-579 (1973)*

Web Resources

National Agricultural Library
http://www.nal.usda.gov/

International Rice Research Institute
http://www.cgiar.org/irri/

U.S. Rice Producers Association
http://www.usriceproducers.com/

USDA Agricultural Research Service
http://www.ars.usda.gov/

Agricultural Network Information Center
http://www.agnic.org/

AgriNet by Texas A&M University
http://agrinet.tamu.edu/

AgriSurf Search Engine
http://www.agrisurf.com/

PlanetRice
http://www.planetrice.net/

Rice Web
http://www.riceweb.org/

Rice World
http://www.riceworld.org/

Oryza
http://oryza.com/

USA Rice Federation
http://www.usarice.com/

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