Partnerships: Growing Prosperity
Wheat has long been a major cash crop for Oklahoma, symbolizing the state’s search for economic gold in amber waves of grain and other agricultural products. Today, scientific and technological advances are helping Oklahoma to diversify its agricultural base, resulting in new prospects for community growth and prosperity, while also providing opportunities to enhance environmental stewardship needed to protect and sustain the state’s natural resources.

Front and back cover designs by Gayle Hiner
Front and back cover photos by Todd Johnson
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One juicy deal

By Rachel Johnson
Some entrepreneurial Oklahomans are making a name for themselves in the grape juice industry as one of only three producers in the United States, thanks to Redland Juice Company.

Redland Juice Company, located in Lexington, is composed of three vineyards: Willow Pond Vineyard, owned by Jill Stichler; the Vineyard at Dripping Springs, owned by Kathy Bates; and Rock Creek Vineyard, owned by James and Rinda Skaggs.

The partnering vineyards planted their first vines between 1998 and 2001, with the first batch of grape juice going out to stores in November 2003.

“Steady production doesn’t come about until the third or fourth year,” Stichler said. “This was the first year we produced grape juice using only Oklahoma grapes; the ones we didn’t grow ourselves, we bought from Cleveland and Pottawatomie counties.”

Grapes galore

Oklahoma provides a complementary area for grape production, Stichler said. Currently, there are approximately 125 vineyards on 250 acres within the state, producing 225,000-plus vines.

“Grapes are a great crop for farmers to have in Oklahoma, especially if they have a spot they want to do something with, because they are heavy producers,” Stichler said. “I know a man in western Oklahoma who has grapes planted in the corners of his fields that are watered using a circular irrigation system, and he does very well with them.”

Practically any type of grape can be produced in the state because of the wide variety of growing regions. Oklahoma is one of only four states with 10 or more distinct, ecological regions, which allows different varieties to be grown in different areas.

When it comes down to red versus white grapes, however, Stichler said white grapes tend to fare better because of the hot Oklahoma summers. Redland Juice Company grows approximately half and half.

A helping hand

The Oklahoma Food and Agricultural Products Research and Technology Center at Oklahoma State University (FAPC) assisted Redland Juice Company with production of their unique juices.

The company had two objectives: to own a production and processing facility within the state where all their juice could be produced and to process juice from other in-state growers.

“The owners of Redland Juice Company came to the Center in the summer of 2003 to see how we could help with the processing stage of production,” said William McGlynn, FAPC Horticultural Products Processing Specialist. “They wanted us to help them with a processing pilot run and point out the facilities and technology needed to do this.”

Stichler attended the Center’s Basic Training for Entrepreneurs and Non-meat Hazard Analysis and Critical Control Point workshops to learn about the rules, regulations, and laws required to properly produce, distribute, and market the juices.

“The whole process was fun. I learned so much and hope the non-meat HACCP program can be expanded to assist everyone, especially with grapes,” Stichler said.

Upon deciding to use FAPC resources, Redland Juice Company had the 2003 grape crop pressed locally and then trucked the juice to the Center.

Once at the Center, the owners of Redland Juice Company spent two weeks learning about processing their grapes, going from a pressed state into a finished, bottled product.

A ‘priceless’ process

The grape juice underwent a two-week process, including a preliminary filtration, heat pasteurization, and refrigerated storage period, followed by another filtration and pasteurization process. The resulting product was then placed into gourmet wine bottles.
Stichler said the whole experience was priceless, making it possible for the company to gain the knowledge and experience needed to blaze their own path.

“We couldn’t have done it at all, not with the amount of money we had to spend, without OSU,” she said. “I don’t think we could’ve gotten the hands-on experience anywhere else. It meant a lot to my partners and me.”

Redland Juice Company, which is comprised of 10 acres, boasted a 1,500-gallon juice crop for the 2003 season.

Stichler said the company hopes to grow from the 10-ton production of the 2003 season to 50 tons in 2004.

**The fresh difference**

Many U.S. juice makers buy their grapes from abroad. When this is done, the juice must be reconstituted, as well as having additives such as corn syrup included, to produce a final product.

Stichler said Redland Juice Company does not take any additional steps to create a fine beverage.

“Grapes naturally want to ferment; they produce sugar and want to turn it into alcohol,” she said. “It’s a lot harder to make juice than you might think because we have to stop it from fermenting. We don’t do anything else to it, though.”

The difference in taste can be an eye-opening experience, usually resulting in a purchase upon taste testing.

“It’s just like eating a grape. The juice has a very fresh taste that is alive and full-bodied; it kind of explodes in your mouth,” she said. “For adults, it’s the grape juice that grandma made in the late ’40s and early ’50s.”

Beyond the fresh taste, another surprise awaits with each variety.

“People are just amazed that each variety of grape has a different flavor,” Stichler said. “They’re all so different. Concord is completely different from a Catawba or a Muscadine.”

Redland Juice Company is currently in the process of expanding its operation by purchasing a 30,000-square-foot building in the Lexington area. The Oklahoma company hopes to be operational by August 2004.

Stichler said when this is accomplished, other plans can be put into action.

“When we have our own production facility, we can begin crushing and processing our own grapes, as well as the grapes of other producers, locally and across the state,” she said.

“Eventually, we want to expand to other lines of juice, such as elderberry, and provide the juices sold to school vending machines,” Stichler said.

Throughout the expansion process, Redland Juice Company plans to continue working closely with the OSU Food and Agricultural Products Center to develop a marketing plan and conduct a marketing analysis.

“We’re looking forward to working with the Center and producing more Oklahoma juice next year,” Stichler said. “We want to produce the purest and freshest juices we can.”
By Donald Stotts

Cattle are a longtime staple of the Oklahoma landscape, grazing contentedly on pastures and native range.

But cattle are also walking profit-loss margins to state beef producers, which in turn has caused Oklahoma State University Cooperative Extension specialists and educators to look at cattle as laboratories on legs.

Nowhere is the idea more evident than with the Oklahoma Quality Beef Network (OQBN), a programming partnership consisting of OSU Cooperative Extension, the Oklahoma Cattlemen’s Association, veterinarians, animal health companies, feed businesses, cattle feeders, and livestock marketing organizations.

The primary objective of OQBN is to add value to Oklahoma cattle and capture a part of the added value for Oklahoma beef producers, strengthening operational profit potential and helping to improve the viability of Oklahoma’s overall beef industry.

Beef industry benefits

“OQBN is a win-win deal,” said Steve McKinley, OCA Director of Operations. “The program is now in its third year, and the data being collected by OSU researchers are reaching levels that allow buyers and sellers of cattle to really see whether or not certain management practices are worth the investment in time, energy, and money.”

At its heart, OQBN is a source-and-process-verification system associated with health and management practices around the time of weaning. This verification system is coupled with a marketing effort, designed to capture a part of the added value.

“Extension educators and veterinarians work with producers to certify that calves have been weaned, dehorned, wormed, vaccinated using Beef Quality Assurance guidelines, and generally managed using industry approved practices prior to being shipped and sold,” said Brad Tipton, Canadian County Extension Director.

Through improved animal health, nutrition, and management around the time of weaning, costs associated with sickness can be dramatically reduced, resulting in improved animal performance and quality of beef product.

“OSU research shows that buyers are willing to pay for premium cattle,” said David Lalman, OSU Cooperative Extension Beef Cattle Nutritionist. “The
data indicate quite clearly that there is a $5 to $6 per hundredweight difference in price between pre-conditioned cattle and cattle that have not been certified through OQBN.”

There are, in fact, two sets of data being collected that relate to differences between cattle that have been pre-conditioned and those that have not.

The first is taken at sale time to determine differences in price based on similarities of cattle type, including criteria such as weight gain, body condition, and breed.

The second type of data collected is made by visiting the operations of cattle buyers 60 to 70 days after a sale and examining the performance of cattle bought at the sale.

Real-world research

“We are using science to provide a real-world basis for making informed decisions,” Lalman said. “What is the degree to which best management practices truly make a difference in cattle performance? If there is a difference, what is the dollar value amount that cattle producers should invest to make it worth their while?”

Lalman, Tipton, and McKinley all believe that Oklahoma’s cattle producers, especially those with smaller acreages, do not have the profit margin to waste time with management practices that fail to provide a real-world dollars and cents benefit.

“Through the OQBN program, OSU researchers are helping to take the guesswork out of some common and key business decisions,” McKinley said. “That stands to have a profound effect on individual producers and Oklahoma’s beef industry as a whole.”

Oklahoma Quality Beef Network certification requirements, Beef Quality Assurance guidelines, vaccination options, and enrollment forms are available via the Internet at http://www.ansi.okstate.edu/exten/oqbn/

Beefing up the state economy

At $1.5 billion, cattle and calves represent the number one agricultural commodity in Oklahoma, generating three times more money than any other agricultural product for the past four years. Furthermore, Oklahoma has a significant part of all aspects that make up the U.S. cattle industry, in terms of live animal production. Nationally, Oklahoma ranks third in beef cow production, fourth in all cattle and calves, and eighth in cattle on feed.

That does not even include stocker cattle, which clearly represent a great many dollars to the Oklahoma economy. Analysts are well aware of the national importance of Oklahoma, Kansas, and Texas to this segment of the beef industry. Unfortunately, the national data system is not set up to accurately measure the direct and indirect effect of stocker enterprises. Whenever economists start figuring out dollar amounts, our eyes get really big, which tend to match the numbers being generated.

The bottom line is that there are a significant number of Oklahomans who consider themselves part of the beef industry, whether they run just a few head or thousands of cattle. Oklahoma’s cattle industry is important to them, often as much for the lifestyle as the ability to generate income.
A question answered

In terms of pre-conditioning cattle for sale through OQBN, what happens if cattle prices are high enough so that a number of producers find it more attractive to sell off their cattle than go through OQBN? That was a question we asked ourselves three years ago when the program was getting started.

This past year, the cattle price cycle resulted in that exact scenario. What we’ve seen is that there is still significant interest from sellers and buyers in the program. During times of high cattle prices, there are producers who firmly believe that it is more important than ever to make their investment pay off by having cattle that will perform. The OQBN program gives producers a greater assurance that will happen. Quality always seems to be in demand.

Bob LeValley
OSU Cooperative Extension
Area Extension Livestock Specialist
International Programs in Agriculture...

Experiencing new horizons

By Donald Stotts

Photo by Mary Anne Gularte
For Oklahoma State University students, learning through experience has never been such a treat for the senses.

There is the spicy mix that is northern Mexico, learning how its native cultures and blend of Hispanic and European traditions have interacted with 21st century demands on agricultural production, practices, and trade.

In Italy, artistic masterpieces such as Michelangelo’s David and Leonardo da Vinci’s painting “The Last Supper” combine with visits to a parmigiano-reggiano cheese farm, balsamic vinegar plant, and Boboli Gardens to showcase the connection between historic cultural and agricultural influences on the world — from the Roman Empire through the Renaissance and into the Mediterranean breadbasket of today.

“Shizen,” the Japanese word for nature, embodies how the way in which people and nature coexist influences human health, efficiency at work, inspiration, creativity, and inner strength. OSU students in the Japan Urban Landscape and Historic Design Study course learn how to make the sights, smells, and sounds of physical environments into a more harmonious realization of self and soul.

“More than a third of our agricultural production is marketed overseas, the United States is one of the largest Spanish-speaking nations in the world, and roughly half the cabinet ministers in Egypt were educated in the United States,” said David Henneberry, Assistant Dean of International Programs in Agriculture.

“The world clearly is becoming increasingly interrelated,” he said, “and as a land-grant university, we have a responsibility to ensure that Oklahoma can take full advantage of the opportunities such a relationship represents.”

**Gainful globe-trotting**

The goal of International Programs in Agriculture is to promote international activities in OSU’s Division of Agricultural Sciences and Natural Resources.

“A transformation occurs when a student has the opportunity to visit another culture firsthand,” Henneberry said. “The Division is fortunate to have faculty with a wealth of professional international experience, language ability, and cultural awareness related to their respective fields. They excel in working with our domestic and international students in ways that broaden students’ awareness of the world.”

For Landscape Architecture alumnus Jeff Holba of Meeks Design Group in Richardson, Texas, the international experience he gained as an OSU student gave him a whole new way of looking at things, in both his personal and professional perspectives.

“The study abroad course to Peru was my first experience traveling out of the United States and exposed me to diverse cultures and the way in which people from around the world look at things differently,” said Holba, a 1999 OSU graduate.

Students in the Peru Studio Exchange Program examine how landscape design ranging from the pre-Colombian ruins of Macchu Picchu high in the Andes Mountains to the towering skyscrapers of American cities can create better living environments for people everywhere.

“The design work of Peruvian landscape architects is completely...
different from what we see here, very lively and far less conservative than what is typical in the United States,” Holba said.

The OSU agricultural alumnus classified the opportunity to interact with Peruvian teachers and students at OSU and then to be able to go to Peru and see everything firsthand to be an eye-opening experience.

“It really expanded my professional awareness toward seeking different solutions,” Holba said.

For Animal Science senior Jennifer Walker and 2003 Environmental Science graduate Kristina Klos, their experiences in Honduras touched their very souls.

“How I think about people, my view of Third World countries, and how I value the importance of our natural resources and ecosystems have all changed,” Walker said.

OSU students studying abroad in Honduras experience a wide range of ecosystems: the humid tropical rainforest and mangrove forest of the Caribbean coast; the subtropical deciduous forest, highland pine forest, and cloud forest of the mountainous interior; and the dry tropical forest of the southern Pacific coast.

“Students gain an understanding of the Honduran people by interacting with them, while also obtaining insight into issues such as tropical deforestation, poverty, land tenure, sustainable development, building community capacity, gender roles, and ecotourism,” said Thomas Kuzmic, Professor of Forestry.

The trip helped me to realize that things are not always what they seem, that I will never have all the answers, and that cultural diversity is perhaps the world’s most important resource.

Kristina Klos
Environmental Science Alumna

Klos cited her Honduras experience as being a catalyst for “pursuing newfound passions in life.”

“Perhaps the most important outcome of the trip is that my desire to learn about the world has been ignited,” Klos said. “The trip helped me to realize that things are not always what they seem, that I will never have all the answers, and that cultural diversity is perhaps the world’s most important resource.”

International experiences promote a connection to the world-at-large because events no longer happen “over there,” but in places
that, through a student’s travels, have become as real as the student’s hometown, said Ed Miller, Associate Dean, College of Agricultural Sciences and Natural Resources.

“Exploring new perspectives is a key part of education, and international experiences allow students to learn as much about themselves as the facts, figures, and cultures of countries they visit,” Miller said. “Most students return with greater abilities in learning, problem solving, and in coping with change and new environments.”

**Cultural ‘Cowboys’**

Henneberry pointed out that the educational and cultural benefits to Oklahoma are not limited to state residents traveling abroad. Roughly 150 international students representing 39 countries are enrolled in the College.

“I wish that everyone in Oklahoma could see the cultural enrichment that our international students bring to the OSU campus,” he said. “They form lifelong friendships with their fellow students, become familiar with Oklahoma exports, and distinguish themselves both during their stay on campus and in their professional careers.”

In addition, some of the University’s most successful international projects have been the result of graduates who had learned firsthand the world-class capabilities of OSU faculty and staff members.

“Our scientists need to collaborate with outstanding researchers in other countries, conduct research in unique facilities and settings, and bring back new knowledge and understanding to help us better serve the citizens of Oklahoma,” said D. C. Coston, Associate Director, Oklahoma Agricultural Experiment Station, and Interim Associate Director, Oklahoma Cooperative Extension Service.

Coston pointed out that the majority of the world’s agricultural and related researchers are not in the United States.

“The enhanced knowledge and expertise that comes from our researchers having international experiences not only strengthen Oklahoma’s agricultural and related practices, they also form the basis for improved educational experiences for students and propel the next generation of problem-solvers into new scientific frontiers,” he said.

In short, international experiences benefit everyone.

OSU International Programs in Agriculture participants find themselves awash in historical and cultural awareness while getting around Venice, Italy. (Photo courtesy of Mary Anne Gularte)

As a native of the Philippines, I am proud to be studying at the OSU Department of Animal Science because of its dedicated faculty and the way it pioneers applied and basic research to continuously improve the animal agriculture industry. What surprised me most about OSU is the number of people who care for a student’s well-being. I have been able to do things that I never thought I could, such as working in a laboratory, because my adviser never fails to see the potential in me.

The presence of international scholars at OSU shows that the University is not limited by physical boundaries: it reaches out to a variety of people of different color, religion, and status and promotes learning in a friendly, peaceful environment. Imagine how many international alumni go back to their countries carrying the prestigious name of OSU and making a difference in the lives of so many.

Consuelo Santiago
OSU Fulbright Scholar and Graduate Student

Cowboys forever, no matter the country
Promoting perspective

By Donald Stotts

Strewth! They ride in lorries and up lifts, walk about spraffing with blokes and skirts, and while they may start out as giddy kippers gobsmacked by the whole experience, they ultimately find themselves chuffed as nuts and clued up, which is the entire point.

They are Oklahoma State University students taking advantage of educational opportunities offered through International Programs in Agriculture to study about agricultural policy and economics in England, Scotland, and France.

“Studying abroad gives students a different perspective,” said Marcia Tilley, OSU Professor of Agricultural Economics. “We increasingly live in a global society, yet there are numerous cultural influences—encompassing everything from history to languages—that can lead to different opinions on common issues or keep people from understanding each other’s viewpoints.”

More than half of each student’s grade is based on a research paper detailing some matter of policy or economics between the United States and either the United Kingdom or France. Topics of interest encompass issues related to trade, environmental stewardship, animal health, rural development, and biotechnology.

Students are encouraged to learn as much as they can about the countries they will visit beforehand. Knowledge gained provides three benefits: students become increasingly excited about traveling abroad, they gain a good background that makes it easier to adapt to local conditions, and it provides a reference to see how a student’s perceptions change upon experiencing the new culture firsthand.

“It’s a shock to many students to see how common it is for European restaurants and stores to have public disclaimers about not knowingly serving or selling products that have been genetically modified,” she said. “It’s a big deal in Europe but far less so in the United States.”

Usually, the OSU students spend four to five days in London, the British capital; then travel to northern England to spend one to two days in the city of York before eventually moving on to Scotland for another four to five days; and finally cross the English channel into France to spend two to three days in Paris.

“It’s an empowering experience,” said Dan Tilley, OSU Professor of Agricultural Economics. “The study abroad experience is designed not only to provide students with an international perspective on agricultural policy and economics, but to give them the knowledge and confidence that they can travel internationally and handle any situation thrown at them.”

Students are required to design roughly half of their itinerary, with the other half being provided by the Tilleys, which includes trips to embassies for policy briefings, in-
teraction with personnel from the USDA’s Foreign Agricultural Service, and tours of agricultural-related research, shipping, and production facilities.

**Students must be given the opportunity to design an experience around their specific interests and goals for the future.**

Dan Tilley
Agricultural Economics

“For some of our students, it’s their first time out of Oklahoma, let alone out of the United States,” Dan said. “One of the great joys Marcia and I have is to see these students go from being hesitant to being fully independent in the course of a few days.”

Armed with tube (subway) and bus passes, the intrepid explorers immerse themselves in their cultural and educational experiences.

“There are too many good things to do,” Dan said. “Students must be given the opportunity to design an experience around their specific interests and goals for the future.”

One student on last year’s study abroad trip — Bart Fischer of Frederick — took advantage of the situation to visit the hallowed halls of the University of Cambridge, one of the oldest and most prestigious centers of learning in the world. This year, Fischer is studying at Cambridge, earning a Master of Philosophy degree in Environmental Policy.

The study abroad course to England, Scotland, and France is funded by student fees rather than through state funds, with costs per student generally working out to about $1,800 plus airfare and tuition.

The Tilleys contend that students are willing to invest in their future and receive a positive educational experience that is often life-altering as well.

“Students return to Stillwater with a greater appreciation for the countries visited and themselves,” Dan said. “Even beyond the purely factual discoveries about policy and economic issues, their experiences with the differences in the way English is spoken and getting around in France vividly teach them the importance of good communication and problem-solving skills.”

And OSU graduates who are knowledgeable and adaptable in resolving new, potentially stressful situations represent good news for Oklahoma businesses.

“Look at studies that detail what employers want in a prospective employee and then look at what studying abroad provides students,” Dan said. “They match up nicely.”

Agriculture at OSU 13
New ‘dinner bell’ helps control pesky pests

By Donald Stotts

Mmmmm...good stuff!
Call it “grocery shopping for the newborn,” at least that is what the pregnant mother-to-be thinks. Unfortunately for the female Indian-meal moth, it is all a trick conjured up by master illusionists at Oklahoma State University.

“It’s all about food and sex,” said Tom Phillips, OSU Professor of Entomology, “specifically, using a chemical blend that mimics the odors from the food needed by growing moth larvae to lure pregnant females of the species into a pest control device.”

Discovered and developed by OSU researchers Christian Nansen, Jack Dillwith, Charles Konemann, and Phillips in 2002, the female attractant may help revolutionize pest control methods used to prevent Indian-meal moth infestations, thereby providing benefits for stored-product industry professionals and homeowners alike.

“Indian-meal moths can infest grain bins, food production plants, food warehouses, grocery stores, and homes,” Phillips said. “They’re something of an equal opportunity pest.”

They are also a busy bunch of bugs. The adult Indian-meal moth and other stored product moths only live for a few days. Their main purpose is not to eat but to mate and lay eggs. Adult moths basically exist to have sex and reproduce.

“Pheromones used to lure and kill male moths have been around for decades, but it only takes a single male moth to impregnate up to six females, and a pregnant female can lay 200 to 400 eggs during her short life,” Phillips said. “Once the eggs hatch, it’s the worm-like larvae that do most of the actual damage to food or grain.”

Do the math. One trap designed to catch 200 males might still leave enough males to mate all the female moths. But catch one female that might lay 400 eggs and 400 feeding larvae have effectively been removed from the population. Given that Indian-meal moths have a sex ratio of about 50:50, the larvae removed potentially could reduce the eventual adult moth population by approximately 200 males and 200 females.

“Discovering the attractant for female Indian-meal moths certainly qualifies as an important breakthrough in the field,” Phillips said. “Insects communicate mainly through odors. We call the field ‘chemical ecology.’ In our research, we get the insects to tell us what scents attract them and then use those scents as a means of pest suppression or control.”

In our research, we get the insects to tell us what scents attract them and then use those scents as a means of pest suppression or control.

Tom Phillips
Entomology and Plant Pathology

OSU contacted Insects Limited, Incorporated in late 2002 to discuss possible commercialization of the scientific breakthrough. Insects Limited, Incorporated is an Indiana-based company that develops and distributes pest control devices for stored product protection.

“As scientists, we’re concerned with conducting research that hopefully will make a difference in people’s lives,” Phillips said. “Partnerships with industry are important to universities because they help take scientific discoveries and find a way to package them in a cost-effective manner that provides a usable product to the public.”

On February 16, OSU and Insects Limited, Incorporated formalized a worldwide agreement to go forward with patents and trademarks. The product will carry the trademarked name “Moth Suppression.”

“This new pest management system will be distributed worldwide to help loss of food supplies in developed and developing countries,” said Dave Mueller, President of Insects Limited, Incorporated.

“The closer you get to the end consumer, the more important it becomes to monitor and capture every insect pest,” he said. “Zero tolerance in a package of food is the goal of all food companies.”

Phillips is excited about the possibilities of the product, citing the discovery of the female Indian-meal moth attractant as a good example of OSU research in action and of how scientists work together in the Department of Entomology and Plant Pathology.

“There are a great many things going on at OSU right now in terms of stored-product insect research,” said Phillips, who currently serves as principal investigator on projects totaling approximately $630,000 in grant support.
Biochemist Isaac Asimov, who wrote more than 500 books that enlightened, entertained, and spanned the realm of human knowledge, may have summed it up best: There is a single light of science, and to brighten it anywhere is to brighten it everywhere.

Science and technology are vital to Oklahoma’s future in regard to economic development and improvements in quality of life, said Sam E. Curl, Dean and Director of Oklahoma State University’s Division of Agricultural Sciences and Natural Resources.

“The blueprint for success is to make needed research-based information and technical assistance available to entrepreneurs, inventors, community leaders, and health care professionals,” Curl said.

Created by Senate Bill 1391, the Oklahoma Science and Technology Research and Development (OSTRaD) Board helps ensure scientific advances benefit state residents. The 19-member board governs the Oklahoma Center for the Advancement of Science and Technology (OCAST) and the Oklahoma Institute of Technology. Board members provide insights on and direction for efforts to:

- Upgrade and enhance rural and urban technology to create and attract high technology companies;
- Provide engineering or management assistance to new or existing businesses in bringing improved products or service to market; and
- Collaborate with various agencies and organizations to develop initiatives which foster economic development through technological advancement.

Nominated by Governor Brad Henry to serve on the OSTRaD board, Curl was confirmed by the Oklahoma Senate in 2003 and has been a valued member ever since, said William Sibley, Executive Director of OCAST and Chief Executive Officer of OSTRaD.

“Having as a member the leader of the OSU Division of Agricultural Sciences and Natural Resources is invaluable,” Sibley said. “Agriculture is extremely important to the state, both economically and culturally; yet agriculture is undergoing significant and rapid changes because of numerous technological advances.”

Although Curl served on the governing board for OCAST since he joined OSU in 1997, the recent creation of OSTRaD as an oversight group underscored the important role the Division plays as a partner in promoting progress and prosperity throughout the state.

Sibley believes that a strong Division presence on the board allows OSTRaD to better serve as a catalyst between higher education, commerce, technical training, and the business community.

“The Division is an organization that literally is having an impact in every county of the state,” he said. “It’s one of the best resources we have for determining the current and future needs of agriculture, which is necessary for us to establish where our efforts can best serve Oklahoma.”
OCAST programs include the Oklahoma Health Research Program; Oklahoma Applied Research Support Program (OARS); OARS R&D Faculty and Student Intern Partnerships; Small Business Research Assistance; Oklahoma Alliance for Manufacturing Excellence, Incorporated; Oklahoma Technology Commercialization Center; OCAST Technology Business Finance Program; and Oklahoma Inventors Assistance Service.

The Oklahoma Institute of Technology is designed to increase the economic well-being of rural and urban Oklahoma by building bridges between companies and between companies and education.

“It’s important to recognize that the Division’s successes are always someone else’s successes as well, the fulfillment of our land-grant mission to serve the people of Oklahoma,” Curl said. “Collaboration between OSTRaD and the Division provides numerous and obvious benefits to state residents, whether they live in urban or rural areas.”

Recent Division projects funded by OCAST

- Production of plant abscission agents by pseudomonas - $76,030; Carol Bender, Regents Professor of Plant Pathology
- Characterization of protein secretion in ticks - $45,000; Jack Dillwith, Professor of Entomology
- Structure and function of novel Hsp90 Co-chaperones - $45,000; Robert Matts, Professor of Biochemistry and Molecular Biology
- Analysis of septin protein function in S. cerevisiae - $15,000; Mark Longtine, Assistant Professor of Biochemistry and Molecular Biology
- Transgenic virus resistant wheat seed production - $60,593; Jeanmarie Verchot-Lubicz, Assistant Professor of Plant Pathology
- Antimicrobial peptides as a new class of antibiotics - $45,000; Guolong Zhang, Assistant Professor of Animal Science

They may look like colorful candy, but pills are the end products of scientific research into producing desired chemical reactions inside the body that create beneficial medical results. (Photo by Todd Johnson)
Plains Grains to promote market gains for Oklahoma wheat

By Donald Stotts

From student project to industry reality…

Photo by Todd Johnson
It sounded like a straightforward intellectual enterprise to Oklahoma State University graduate student Shelly Regnier when it was put to her by Rodney Holcomb, her academic adviser and OSU Agricultural Economist: “Research what it would take to create a viable wheat marketing center to help increase market gains for state exports.”

Although she had grown up on a small wheat farm near Balko with her parents John and Retha, Regnier quickly learned that Oklahoma’s wheat industry was both more complex and more important to the state than she had realized.

“I was surprised at first to learn there was so much variability in wheat across the state,” Regnier said, “and to learn the level of science involved in milling and baking processes which, of course, can greatly affect what wheat buyers want from suppliers.”

But Regnier remained undaunted, expanding on wheat quality data gathered by OSU Cereal Chemist Patricia Rayes of the Oklahoma Food and Agricultural Products Center, as well as examining the operations of a wheat marketing center in Oregon, to provide Oklahoma wheat industry professionals with the research-based foundation for turning theory into practical reality.

The 1998 graduate of Balko Public Schools was in attendance when some of the state’s most influential agricultural leaders gathered at OSU on February 18 for the official opening of Plains Grains, Incorporated, a new not-for-profit corporation created to enhance marketing of Oklahoma wheat.

Wheat is incredibly important to the Oklahoma economy, along with the state’s animal agriculture industry and oil and gas production.

Troy Rigel
Plains Grains, Incorporated

Headquartered at the University’s Stillwater campus, Plains Grains has received strong support from the Oklahoma Wheat Commission; Oklahoma Wheat Research Foundation; Oklahoma Department of Agriculture, Food, and Forestry; and the OSU Division of Agricultural Sciences and Natural Resources.

“Wheat is incredibly important to the Oklahoma economy, along with the state’s animal agriculture industry and oil and gas production,” said Troy Rigel, Chairperson for Plains Grains and Vice President of Marketing for W. B. Johnston Grain Company of Enid.

Seeking gold in those amber waves of grain

Seedings for the 2004 Oklahoma wheat crop were projected at 6.4 million acres in January, according to Oklahoma Agricultural Statistics Service data.

Rigel said locating the administrative functions of Plains Grains at the OSU Wes Watkins Center seemed a good fit, given that a significant percentage of Oklahoma’s wheat is exported outside the United States.

One of the Center’s primary responsibilities is to promote...
international trade development of Oklahoma products.

In addition, much of the quality testing of Oklahoma wheat is being performed through contractual agreement with the Oklahoma Food and Agricultural Products Research and Technology Center at OSU.

State Secretary of Agriculture Terry Peach said increasing the value of commodities such as wheat is important to Oklahoma.

“About 80 percent of our annual wheat production leaves the state and about half of that is exported to other countries; it’s easy to understand the importance of maximizing the value of our crop in any way we can,” Peach said. “The creation of Plains Grains will give our producers an edge in the international marketplace that will make a difference.”

Mark Hodges, Executive Director of the Oklahoma Wheat Commission, agreed with the operational goals of Plains Grains, saying that successful marketing begins with understanding what wheat buyers want and then showing how Oklahoma wheat can meet or exceed their needs.

“Wheat buyers are looking for a consistent quality of product, a consistent supply of product, and the ability to buy the product at an affordable price.”

Mark Hodges
Oklahoma Wheat Commission

“Wheat buyers are looking for a consistent quality of product, a consistent supply of product, and the ability to buy the product at an affordable price,” Hodges said. “Even in that framework, though, there are differences: Mexican millers tend to place the greatest emphasis on quality; in other countries millers may be more price conscious.”

Rigel said export market differences make it more important than ever for Oklahoma’s wheat industry to turn out the type of product desired by potential buyers, especially since Oklahoma has a number of distinct ecological regions that create variations in the quality and consistency of the state’s overall wheat crop.

Collaboration, ‘Cowboy’ style

“Oklahoma lends itself to exports, given the state’s proximity to the Gulf of Mexico,” Rigel said. “To take full advantage of potential export markets, though, producers may have to do some things differently than they have in the past. That’s an-

Top photo: Wheat is responsible for contributing 13,000 jobs and $306 million to the state economy, and that does not include Oklahoma stocker cattle operations. Stocker operations are estimated to add another $450 million to the Oklahoma economy.

Shelly Regnier (left) fields questions about the marketing needs of Oklahoma’s wheat industry as part of her duties at Plains Grains, Incorporated. (Photos by Todd Johnson)
For Regnier, who has seen her research efforts go from theory to practical reality in less time than it took her to earn a Master of Science degree, the experience is one she would not trade.

“After the ribbon-cutting ceremonies, when everyone else had left, Dr. Coston and his wife were still there trying to get me interested in going for my doctoral degree and doing more research on behalf of Plains Grains and the wheat industry,” Regnier said.

Others also stepped forward in the days and weeks following the ceremonies.

“It’s nice that so many people believe what I contributed has been an important part of what so many people did to help make Plains Grains a reality,” Regnier said.

Noteworthy from the start

Plains Grains, Incorporated may be a new organization, but it is already being hailed as a preeminent showcase of the power of partnerships. Oklahoma State University System CEO and President David J. Schmidly gave many Oklahomans their first introduction to Plains Grains during the OSU Town Hall Meeting broadcast statewide on February 26. Schmidly spoke about the importance of agriculture and natural resources, and the key roles each plays in OSU’s strategic planning process. He said the wheat marketing center represents the type of collaborative approach between University academic and research efforts and private business and industry that will promote greater prosperity for the state.

“OSU’s emergence as a prominent research and academic institution is crucial to the economic vitality of Oklahoma,” Schmidly said. “Huge challenges face rural America in the 21st century and, as a land-grant institution, OSU can make enormous contributions to rural communities by focusing on the challenges of water, agriculture, health care, and economic revitalization.”
Bermudagrass research, **Cowboy style...**

**Hitting it out of the park**

By Donald Stotts
From Allie P. Reynolds Baseball Stadium at Oklahoma State University to farms, ranches, lawns, and golf courses across Oklahoma, OSU bermudagrass research is paying dividends across the Sooners ... uhh, COWBOY ... State.
This is a linear sport. Something happens, and then something else happens, and then the next man comes up and digs in at the plate. Here’s the pitch, and here, after a pause, is the next. There’s time to write it down in your scorecard or notebook, and then perhaps to look about and reflect on what’s starting to happen out there now.

Roger Angell

“Once More Around the Ballpark”

It is perhaps fitting that the game taking place atop the lush Riviera bermudagrass of Allie P. Reynolds Baseball Stadium reflects, in many ways, the efforts of Oklahoma State University researchers in creating the very turf upon which the players compete.

“There have been relatively few years of scientific inquiry involved in bermudagrass research, with OSU being one of only two or three programs nationwide that has had a concentrated effort given toward bermudagrass development,” said Charles Taliaferro, Regents Professor, Department of Plant and Soil Sciences.

Much like the innings of a baseball game, bermudagrass variety development is a process: A hit here, a hit there, some time for reflection, and researchers eventually score with incremental improvements of breeding selections. These incremental improvements eventually total up like individual runs in a baseball game, leading to a major victory in the development of plants that have desirable traits.

“Grass is important throughout the South because of its uses relative to forage, turf, and soil conservation practices,” Taliaferro said, “and bermudagrass is the most important of the perennial, introduced grasses throughout the southern United States.”

Little wonder then that many industry professionals look at advances in bermudagrass varieties as being the equivalent of winning the big game.

**Going to bat for all of Oklahoma**

“In Oklahoma, we experience both extreme heat and extreme cold,” said John Lamle, Research and Production Agronomist for Johnston Seed Company of Enid. “There are so many grasses out there that just can’t handle Oklahoma growing conditions or which need so much tender loving care that it really tightens the profit-loss margin in terms of managing those grasses. One bad turn and your wallet suffers.”

Bermudagrass is an aggressive, warm-season grass species that spreads rapidly by above-ground (stolons) and below-ground (rhizomes) stems. It is the best adapted grass species for Oklahoma because of its excellent heat and drought tolerance during the summer and its sufficient cold hardiness during the winter. Some cultivars — a plant variety originating and persisting under continuing efforts to improve the species — can be produced from seed. Others must be vegetatively propagated by planting sprigs, plugs, or sod.

**Bermudagrass is the most important of the perennial, introduced grasses throughout the southern United States.**

Charles Taliaferro

Plant and Soil Sciences

“As recent as 15 years ago, the only bermudagrass seed that could be purchased was adapted only for southern states,” Taliaferro said. “It was the unique work performed by the OSU Bermudagrass Breeding and Development Team that led to the creation of seed-propagated bermudagrass varieties that perform well in more northerly climatic conditions.”

Most Oklahoma farms use bermudagrass production for haying, grazing, and erosion control purposes. Bermudagrass makes up roughly 75 percent of lawns in Oklahoma. Sports venues from highly manicured golf courses to city league soccer fields for youth showcase the popular grass as well.

Lamle said the reason for the popularity of OSU-developed varieties is straightforward and obvious: the University varieties are easy to maintain and highly tolerant to Oklahoma’s varied and often extreme weather conditions.
Product quality is a major reason for Johnston Seed Company’s long partnership with the OSU Division of Agricultural Sciences and Natural Resources in making available new, improved varieties of bermudagrass to Oklahoma and beyond.

“Our relationship with OSU is far reaching and historical,” said Gene McVey, President of Johnston Seed Company. “Riviera is the fourth bermudagrass variety developed by OSU that has been licensed to our company, which is about as old as the University.”

It is a partnership that has scored big for all of Oklahoma, time and again.

**Dream team line-up**

“It begins with the research, which leads to variety development, but eventually the plant variety must be made available to the public,” McVey said. “Someone has to take the risk of making production of the variety economically viable. Universities typically don’t have the resources to do that; it takes a company with the same commitment as the researchers.”

Historically, bermudagrass development undertaken in Arizona and California received the lion’s share of national accolades and acceptance. Thanks to research at OSU, that is changing.

“Starting with the Guymon variety developed at OSU in the 1980s and continuing with Wrangler, another OSU-developed variety, we became the industry rebel,” Lamle said. “Now the relationship between OSU and Johnston is making available Riviera, the elite turf bermudagrass variety in the world today.”

Riviera underwent rigorous testing from 1997 to 2001 in the National Turfgrass Evaluation Program, conducted at 20 sites across the United States, and finished first overall, making Riviera the MVP (Most Valuable Plant) amongst bermudagrass varieties.

“Riviera tested extremely well in areas where bermudagrass was not thought to be a viable turf alternative, as well as areas where bermudagrass is more easily established,” said Dennis Martin, OSU Cooperative Extension Turfgrass Specialist. “This should open up new markets for the variety.”

Given that Riviera bermudagrass is licensed exclusively to Johnston Seed Company for production and distribution, new markets mean new profits for the Oklahoma business, more tax revenues for the state, and an alternative crop for contract producers — which is true not only for Riviera but for the other seeded bermudagrass varieties developed by OSU.

A seed-propagated plant variety, Riviera exhibits superior turf quality; excellent winter hardiness; drought tolerance; excellent color, spring green-up, and wear tolerance; improved dead spot resistance; and an excellent divot recovery rate. Riviera can be quickly established from seed. In short, the turfgrass performs extraordinarily well and looks good while doing it.

“Riviera is a fantastic opportunity to reach new markets, not only domestically but in other nations as well,” McVey said. “We are currently in talks with foreign companies to grow and distribute Riviera. Our partnership with OSU is certainly paying dividends.”

Playing to win

It was the decision of the Bermuda-grass Breeding and Development Team to patent the Riviera variety and then work with a company known for its commitment to ensuring product quality and effective distribution.

“You have to pick a partner that you know will maintain the highest standards and safeguard the plant variety from contamination so that it remains viable and performs to expectations,” Martin said. “Johnston Seed Company provides that assurance. They may choose to sell wholesale or retail to other vendors, and vendors know they are getting a top-quality product that has the reputations of both OSU and Johnston Seed Company firmly behind it.”

It’s lush, it’s hardy, it’s Riviera, the best of the best. (Photo by Todd Johnson)
Scientists, educators, and students from Oklahoma State University’s Division of Agricultural Sciences and Natural Resources continue to fulfill the University’s land-grant mission of taking research-based knowledge and turning it into practical applications that improve the quality of life for Oklahomans.

“Nobody else came to my front door and told me they were there to help,” said Kingfisher Mayor Richard Reynolds. “OSU stepped up to the plate 10 years ago and fulfilled that promise to Bermuda King.”

The Kingfisher-based Bermuda King is a small but internationally leading company that manufactures equipment to harvest and plant bermudagrass sprigs.

“From the breeding and development of new bermudagrass varieties to agricultural engineering students who designed a new sprigger specifically for Bermuda King as part of their senior design course, OSU has been there for us,” Reynolds said. “The value of OSU turning research into technology or products can’t be overstated.”

Reynolds, who has remained active in Bermuda King’s grass-related operations even after he sold the business to Brian Henderson, said that most small businesses do not have sufficient money to hire specialists to perform extensive research and development of new product lines.

Brian Henderson, Manager of Bermuda King, classified the Division’s assistance as “invaluable.”

“It’s really community development, when you think about it,” Henderson said. “Agricultural producers often earn their primary income off the farm, usually in small businesses such as Bermuda King. Without strong small businesses, there would have been a more rapid decline in rural areas than has been seen in the past few decades.”

Both Henderson and Reynolds believe that small businesses need to stay current with technological advances if they are to be competitive and capture niche markets, and that partnerships with OSU can play a large role in fulfilling that need.

“Our elected leaders need to understand that in a rural state such as Oklahoma, our agricultural production is critical to the state, country, and even the world.” Reynolds said. “Every year, visitors from places such as Russia, Poland, Germany, Japan, and many other nations travel to Oklahoma with the primary purpose of seeing how our agricultural community does things.”

Reynolds confessed it saddens him that some Oklahomans fail to realize the importance of the assistance Division researchers and specialists continuously provide to small business operators, agricultural producers, and community leaders.

“There would be a lot of ghost towns across Oklahoma if it were not for the timely assistance provided by OSU faculty and staff,” Reynolds said. “Of that I have no doubt.”
Bermudagrass is a valuable forage for many livestock operations because the grass species offers a wide range of management options. It responds well to nitrogen fertilization and produces an abundant amount of dry matter for either grazing or hay production.

There are several alternatives for grazing bermudagrass, and typically a producer may use several different grazing systems.

“OSU Cooperative Extension specialists and educators work with producers to develop grazing systems that provide an optimum balance of harvest efficiency, individual animal performance, resource conservation, and economic return for a producer’s investment,” said Bob Woods, OSU Cooperative Extension Area Agronomist and Extension Educator for Haskell County.

A number of Oklahoma producers stockpile bermudagrass, allowing the forage to accumulate in a pasture to be grazed at a later time when forage growth is limited. Stockpiled bermudagrass is used for incoming livestock, in drought management situations, and as dry standing forage during the fall and early winter.

Bermudagrass pastures also lend themselves well to overseeding with cool-season annual forages. These forages are drilled directly into the bermudagrass sod during mid to late September. They can provide excellent fall, winter, and spring grazing and reduce the amount of supplemental feed required to carry livestock through cold winter months, at a savings to producers. The practice is commonly seen in western Oklahoma.

“While bermudagrass is not a magic plant, many producers find it provides the warm-season perennial grass base for a profitable cattle production system when a proper fertility program and other inputs are used,” Woods said.

It is all eyes front and center as OSU Cooperative Extension Area Agronomist Bob Woods (foreground) demonstrates the proper management techniques needed to maximize forage resources to cattle producers. (Photo by Todd Johnson)

Charles Taliaferro demonstrates bermuda-grass growth rates under different growing conditions. (Photo by Todd Johnson)

MVP

It was a first for Oklahoma State University, the nation, and everyone else when Regents Professor Charles Taliaferro received the First Annual Breeder's Cup from the Turfgrass Breeders Association in November 2003.

The Breeder's Cup award honors the plant breeder and cultivar together that best exemplify originality in the development of a turfgrass variety. The purpose of the award is to encourage breeders to "think outside the box."

Riviera is being hailed by university, USDA, and commercial turfgrass breeders as a breakthrough in cold tolerance, quality, and seed yield among bermudagrass varieties.

In addition to being a Regents Professor at OSU, Taliaferro also holds the Melvin and Mary E. Jones Distinguished Professorship in the Division of Agricultural Sciences and Natural Resources. He held the OSU Warth Distinguished Professorship from 1991-99.
‘All’ star team

The Bermudagrass Breeding and Development Program at OSU is an interdisciplinary team effort among scientists in plant breeding, stress physiology, molecular biology, genetics, turfgrass management, and forage management who work to develop superior, cold-tolerant, seed- and vegetatively propagated species. Faculty members include:

Department of Plant and Soil Sciences
• Charles Taliaferro, Melvin and Mary E. Jones Endowed Distinguished Professor and Regents Professor of Plant Breeding/Genetics
• Michael Anderson, Associate Professor of Molecular Genetics
• Arron Guenzi, Associate Professor of Cell Culture/Molecular Genetics

Department of Horticulture and Landscape Architecture
• Dennis Martin, Associate Professor of Horticulture and OSU Cooperative Extension Turfgrass Specialist
• Jeffrey Anderson, Professor of Stress Physiology

Golf provides key links in creation of a better grass

‘Links’ may refer to a golf course in the slang of the sport, but the United States Golf Association was not playing around when the organization decided to provide very real links between research dollars and bermudagrass development.

“Development of the cold hardy, improved seeded and vegetative bermudagrasses would not have been possible without continuous long-term funding support from the USGA,” said Dennis Martin, Oklahoma State University Cooperative Extension Turfgrass Specialist. “The USGA has invested in the OSU Bermudagrass Development Program for the better part of two decades.”

Martin said the association has funded investigations in bermudagrass breeding and development, cultivar testing, laboratory screenings of bermudagrass cold hardiness, field screenings of spring dead spot resistance, and laboratory examinations into molecular mechanisms of both cold hardiness and spring dead spot resistance.

In addition, USGA Greens Section agronomists have been vocal advocates in getting the word out to golf course superintendents as outstanding bermudagrass materials have been developed and proven to be excellent performers through National Turfgrass Evaluation Program testing cycles.

“USGA agronomists are excellent advisers as to the suitability of grasses such as Riviera for use on golf course fairways, tees, surrounds, and general clubhouse grounds in the southern United States,” Martin said.

Martin said that Riviera is truly a unique seeded bermudagrass, offering visual and functional quality that equals and exceeds that of traditional sterile hybrid bermudagrasses. Additionally, new research findings and licensing in sod production will mean that Riviera also will be available in limited quantities as sod.

“The emphasis with Riviera is its availability as seed,” Martin said. “Unlicensed sod producers will not be able to produce Riviera sod, as that would represent piracy, a violation of Federal Patent Law.”

Seed production yields of Riviera have been excellent, allowing for prices of this grass to become more affordable to the end-user in a very rapid fashion.

“It’s one thing to release a great performer to the marketplace; it’s another matter to have it catch hold,” Martin said. “Riviera is now beginning to take its place on golf course fairways, athletic fields, and lawns throughout its appropriate region of adaptation.”
Developing a ‘taste’ for new products

By Mandy Gross

Sliced bacon, jumbo franks, bologna, hickory smoked ham, and Polish sausage; taste-tempting treats one and all, each a popular item produced by Bar-S Foods Company.

With the help of the Oklahoma Food and Agricultural Products Research and Technology Center (FAPC) at Oklahoma State University, consumers may be seeing new products branded with the well-known Bar-S logo. FAPC researchers are helping Bar-S develop new product ideas and concepts to add to their already extensive line of food items.

“Companies such as Bar-S are always looking for new things to help expand their businesses,” said David Moe, FAPC Pilot Plant Manager. “We can help do that.”

About Bar-S

Bar-S ranks among the top 40 largest meat-processing companies in the United States. The company markets more than 100 products under brands such as Bar-S®, Extra Lean®, President’s Pride®, and Chuck Wagon®.

Bar-S products are marketed in all 50 states, as well as in foreign countries, and are designed specifically to serve the retail, service deli, warehouse club, military, and export market segments.

Bar-S production plants are located in Clinton, Altus, and Lawton. The 120,000-square-foot plant in Clinton produces franks, sliced luncheon meat, and specialty sausage at a weekly capacity of 2 million pounds. The Altus plant is a 145,000-square-foot facility that produces 3.6 million pounds of franks and sliced bacon weekly. Franks and smoked sausage are produced at the Lawton plant. This 85,000-square-foot facility produces a weekly capacity of 2.2 million pounds.

A 145,000-square-foot facility in Elk City serves as a warehousing and distribution facility. It also includes space for dry storage, spice blending, a laundry, and a central laboratory.

Working with Bar-S

“Working with FAPC has benefited Bar-S because we do not have in-house facilities to make small product runs, and we do not want to interrupt the operation in each plant in order to develop new products,” said Rasool Rabbani, Vice President of Co-Pack Operations and Technical Services for Bar-S.

As Bar-S continues to expand, the company is searching for market segments where the consumer desires value. Bar-S wants to add new products that can be produced with existing high-volume hot dog equipment.

Before FAPC researchers begin working on new product concepts for Bar-S, Rabbani provides initial trial formulations and objectives of sample products to formulate. Moe reviews the formulation and suggests any needed changes. After formulation, the product is scaled to FAPC equipment, and Moe then schedules and coordinates producing the product. The sample products are packaged and labeled as appropriate, then they are packed and shipped. Bar-S officials evaluate the results and determine the next step.

“The next step may be to revise and retest, evaluate with a specific customer, approve and set up a sequence to produce and market the product, or table the product as failing to meet marketing objectives,” Moe said.

The partnership

Rabbani said that Bar-S has always been associated with OSU.

“Bar-S plans to keep working closely with FAPC’s well-trained, professional staff, as well as other departments within the University,” he said.

With three Bar-S production plants and one distribution center in Oklahoma, Moe said working on this project with Bar-S validates FAPC’s purpose.

“FAPC was designed to help develop successful value-added enterprises in Oklahoma and to bring products, jobs, and dollars once being exported back home,” Moe said. “That is exactly what we are doing.”

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Sowing the seeds of agriculture’s next generation

By Katie Reim

I believe in the future of agriculture with a faith born not of words but of deeds, achievements won by the present and past generations of agriculturalists, in the promise of better days through better ways...

E.M. Tiffany
Author, FFA Creed

Tiffany’s heartfelt statement has proven to be more than just a collection of words to those affiliated with Oklahoma State University’s agricultural education program; they give voice to a commitment to making a difference in the lives of Oklahomans of all ages.

Curiously, the way in which their commitment affects Oklahomans is, in many ways, a “secret” performed in full public view.

To many young people in local school systems across the state, an agricultural student teacher is just an “educator-in-training” who somehow mysteriously appears for a time to help out with classroom instruction.

In reality, the state’s agricultural education program is a success story sung in three-part harmony: OSU’s Department of Agricultural Education, Communications, and 4-H Youth Development; Oklahoma Department of Career and Technology Education (CareerTech); and agricultural instructors in school systems across the state.

It is a three-way partnership that embodies not only the words of Tiffany’s FFA creed but also the organization’s guiding motto: Learning to Do, Doing to Learn, Earning to Live, and Living to Serve.

Learning to Do

Partnerships with local schools and cooperating teachers provide students in their last semester of school an opportunity for pre-service instruction with local schools.

Without such a partnership, it would not be possible to place student teachers statewide and have common learning criteria, said Jim Leising, Department Head of Agricultural Education, Communications, and 4-H Youth Development.

Leising touted pre-service instruction as adding value to agricultural education, both for the knowledge gained and the way in which it promotes cooperation and a sense of teamwork.

“It really benefits everyone in the long run,” Leising said. “We are grateful to our partners because they provide, in essence, a free training center to 40 students each year. In addition, student teachers bring in new technology ideas and transfer this knowledge to the classroom.”

CareerTech takes the first step in the student placement process.

“Their staff has more direct contact with schools on a regular basis, and so we rely on them to guide us in the right direction in sending students to a cooperating center,” said Jon Ramsey, Lecturer/Resident Teacher, Department of Agricultural Education, Communications, and 4-H Youth Development.

Student teacher Jeremy Schmidt (right) shows how agricultural mechanics makes use of mathematics to a student at Frontier Public Schools. (Photo by Todd Johnson)
Leising said education expansion is the reason for support given to a study that will benefit agricultural education teachers and their students. Agriculture at OSU 31

Education, Communications, and 4-H Youth Development; CareerTech; and agricultural education instructors are partnering in a project focusing on the course work of agricultural mechanics and the numerous math skills that it entails.

As part of a nationwide study, agricultural education teachers from across the state filled out applications and were randomly selected to the control group or the experimental group.

“Studies of this type don’t just happen, you have to have people who will help you and who have high credibility as they interface with teachers,” said Craig Edwards, Associate Professor, Department of Agricultural Education, Communications, and 4-H Youth Development.

Edwards and graduate student Brian Parr are working with 38 agricultural education teachers and 18 math teachers statewide on the study.

“This is a great project for the benefit of agricultural education and is a good example of how this partnership works to achieve a common goal,” Edwards said.

Ramsey believes that Oklahoma is fortunate to have such an active CareerTech system that devotes a significant amount of resources to agricultural education.

“We take the concept of partners very seriously.” Ramsey said. “We seek each other’s input and try to be good stewards of the latest in-service training that will help agricultural educators in their profession.”

Earning to Live

First-year teachers are faced with many challenges, including learning the culture of the school system, developing course syllabi, and managing the local FFA chapter.

We address the needs of first-year teachers by coordinating a mentoring network that provides these teachers with resources to answer their questions.

Jon Ramsey
Agricultural Education, Communications, and 4-H Youth Development

Research has shown that students learn better if taught in context. OSU’s Department of Agricultural Education, Communications, and 4-H Youth Development

Doing to Learn

The partnership not only covers the basis of college enrichment programs, it also branches toward secondary education expansion.

Once OSU students are placed in a cooperating center, they begin to hone their teaching skills through handling of in-class responsibilities as assigned by their mentoring teachers.

Jeremy Schmidt, student teacher at Frontier Public Schools, believes that student teaching is the ultimate capstone experience.

“Student teaching allows you to work with a mentor and receive insight on lesson plans, application forms, and additional activities,” Schmidt said. “Having the opportunity to teach different class subjects has definitely prepared me for what is in store down the road.”
“We address the needs of first-year teachers by coordinating a mentoring network that provides these teachers with resources to answer their questions,” Ramsey said.

Studies show that if teachers have a successful first year, then they tend to stay in the profession for an extended period of time.

CareerTech provides state and federal funds to make the partnership work. They put on professional workshops for first-year teachers and also for those who have experience in the teaching profession.

“There are not very many statewide connections that compare to the extent of what is seen in agriculture,” Leising said. “The system works because of the dedication that agricultural teachers have to their students.”

Living to Serve

Eddie Smith, CareerTech, Agricultural Education State Program Administrator and State FFA Advisor, said the long-standing cooperation between OSU, CareerTech, and school systems has been a key reason why Oklahoma’s agricultural education efforts stand out as being particularly noteworthy when compared to similar programs across the nation.

“It has been great to work together to build a successful program with our partners,” Smith said. “When you look at other states and compare their success rates to ours, there is no comparison. I truly believe it is because of the relationship that the combined staffs share that make Oklahoma so successful.”

Department at a glance

Where message and media meet

The Agricultural Communications academic program in the Department of Agricultural Education, Communications, and 4-H Youth Development is a source of pride for Oklahoma State University, and not just because the three faculty members who teach and advise OSU Agricultural Communications students are alumni of the program. With 150 undergraduates enrolled during spring semester 2004, the Agricultural Communications program is one of the largest in the nation.

“Students are attracted to the Agricultural Communications major because of the diversity within the major,” said Julie Cox, Lecturer/Outreach and Recruitment Coordinator for Agricultural Communications. “Students aren’t limited to one career area; they learn about writing, broadcasting, layout and design, web design, and public relations, which makes them very marketable after graduation.”

Such inherent diversity continues to propel OSU Agricultural Communications in new directions. A Master of Science program began this fall, with the graduate program emphasizing research and application of communications theory in the context of agriculture.

On the ‘leading’ edge

The Department of Agricultural Education, Communications, and 4-H Youth Development continues to grow and is currently in the process of adding two tenure-track faculty positions: one in the field of agricultural communications/leadership, the other in leadership/teacher education.

Many people believe leaders are born, and that belief is false, said Penny Pennington, Assistant Professor of Agricultural Education, who teaches department courses on leadership.

“Leadership is learned,” Pennington said. “A program in leadership helps prepare students — regardless of their chosen profession — to make extraordinary differences when called upon. Each of us has the potential to serve in a leadership role during our lifetime.”

Information about departmental activities and academic programs is available via the Internet at http://agweb.okstate.edu/agedcm4h/
Congress acknowledged that society’s accumulated myths and fears about disability and disease are as handicapping as are the physical limitations that flow from actual impairment.

William J. Brennan  
Associate Justice  
U.S. Supreme Court

Go ahead. Smear Vaseline on a pair of glasses and put them on. Look at the world in a new way, through the eyes of the visually impaired.

Place a chair next to a kitchen cabinet. Sit down. Now try to retrieve a glass from a shelf — any shelf, without leaving the seat. Picture, if you will, wheels on the chair, for indeed there are many people who have to get around in chairs with wheels.

Try to hammer a nail using only one hand, listen for the cries of children in the next room while wearing earplugs, or go a week without picking up anything that weighs more than 10 pounds. “The majority of people with disabilities who work or live in agricultural settings want to continue farming or ranching because, for them, it’s not just a livelihood, it’s a way of life, even if they suffer from a disability,” said Ray Huhnke, Oklahoma State University Cooperative Extension Agricultural Engineer and Co-Director of the Oklahoma AgrAbility program.

Unfortunately, farming and ranching can be labor-intensive, back-breaking work. But, as the saying goes, where there is a will there is often a way. The Roman philosopher Virgil may have summed it up best in words that continue to ring true through the centuries: They are able because they think they are able.

“Quite often, being able to work on the farm with a disability comes down to two things: a ‘can-do’ attitude and knowing how to go about getting the assistance that is sometimes needed,” said Carla Wilhite, Oklahoma AgrAbility Occupational Therapist.

Who can you call?

“Got ghosts? Call Ghostbusters,” is the line from the 1984 feature film Ghostbusters. However, those are not the professionals to contact when dealing with the often haunting specters of fear, worry, and doubt in regard to having a disability and living a lifestyle of choice on a farm or ranch.
OSU was one of 24 universities that received a four-year grant from USDA’s Cooperative State Research, Education, and Extension Service (CSREES) to create and manage an AgrAbility program in their respective states.

AgrAbility provides education, assistance, and support to farmers, ranchers, and their families who have experienced injuries or other disabilities that limit the ability to perform essential farm tasks.

At the heart of the Oklahoma program is a three-way partnership through OSU Cooperative Extension, Langston University’s Center for Outreach Programs, and the nonprofit Oklahoma Assistive Technology Foundation, with services provided through Oklahoma ABLE Tech.

The lead agency, OSU Cooperative Extension, directs information dissemination efforts and coordinates educational outreach activities. On-farm technical assistance is coordinated by ABLE Tech.

“Oklahoma agricultural families affected by disabilities need to be aware of services and appropriate low-cost modifications that can be made to their farm, home, equipment, or work-site operations,” said Rachael Kircher, OSU AgrAbility Coordinator. “Oklahoma AgrAbility is the place to start.”

Disability defined

For the AgrAbility program, a person with a disability is defined as an individual with a physical or mental impairment that substantially limits one or more major life activities.

Disability examples include difficulty with mobility, sight, or speech that impair work, daily living, or education.

“Unlike many workers who retire in their mid-60s, people involved in agricultural production tend to continue working well into their 70s,” Huhnke said. “Think about something as commonplace as arthritis in regard to all the bending, twisting, and heavy lifting associated with many farm and ranch activities.”

Oklahoma AgrAbility’s definition of disability includes but is not limited to: amputation, arthritis, back injury, blindness, chronic pain, deafness, health conditions, hearing impairments, heart conditions, respiratory diseases, spinal cord injuries, traumatic brain injuries, and visual impairments.

Wilhite said some people may not think they qualify even when they do, while others may be hesitant out of a sense of pride.

“Let’s be clear: we don’t do charity,” Wilhite said. “We provide information and a number of services that are free of charge because Oklahoma AgrAbility is funded through a CSREES grant. I’ve not yet worked with anyone who hasn’t learned fairly quickly that we’re working alongside them as consultants and partners.”

Huhnke agreed wholeheartedly with Wilhite’s assessment.

“We’re enthusiastic supporters of helping agricultural producers and families live the lifestyle they want to live,” he said. “Agriculture is not just a job to them. It’s who they are, and often can be seen in their leisure activities as well, such as showing livestock or participating in 4-H and FFA activities.”

Becoming more ‘ABLE’

One of the strengths of the Oklahoma AgrAbility program is its network of information resources. In addition to community based experts such as OSU Cooperative Extension specialists, rehabilitation specialists, and independent-living specialists, the program promotes shared research, experiences, and insights from individuals and organizations at the state and national levels.

“It’s not unusual for a person to ask to try out a piece of assistive technology

The majority of people with disabilities who work or live in agricultural settings want to continue farming or ranching because, for them, it’s not just a livelihood, it’s a way of life, even if they suffer from a disability.

Ray Huhnke
Biosystems and Agricultural Engineering
before they invest in buying it,” Wilhite said.

Oklahoma ABLE Tech has a library of information on adaptive equipment for this very purpose.

“My area of expertise is to look at things differently, which includes a lot of listening,” Wilhite said. “Farmers and ranchers generally are the experts concerning their specific operations. My role is to help make the environment fit the person and not the person fit the environment.”

In some cases, the solution may be a change in management style, such as letting readily available machinery do any “heavy lifting” whenever possible.

Sometimes, though, Oklahoma AgrAbility and those it serves have to operate outside the box.

“There may be a situation where the solution, perhaps a particular piece of adaptive technology, must be customized,” Huhnke said. “The solution may be to take a piece of existing equipment and alter the controls or add a lift so that a person does not have to climb stairs.”

Statistics show agricultural production potentially can be hazardous. The National Safety Council has estimated that more than 100,000 farmers, ranchers, and other agricultural workers experience occupational-related injuries or illnesses every year. A significant percentage of the injuries or illnesses are serious and persistent.

**Collaborative partners**

In a recent survey of Oklahoma farmers and ranchers, 26 percent of the respondents reported a disability. That translates to more than 17,000 persons involved in agriculture who have a disability that limits their ability to perform certain work-related skills, as well as difficulties with many tasks associated with normal daily living.

Yet for all the statistics, it is the number “one” that provides the foundation for Oklahoma AgrAbility efforts.

“People with disabilities are individuals, just like everyone else,” Kircher said. “They have their own particular temperaments, goals, interests, and beliefs. Yes, Oklahoma AgrAbility is responsible for serving all 69,903 square miles of the state. But eventually it comes down to us working with the individual producer and his or her specific situation.”

Mother Nature meets mechanics when artificial fingers have to do the work of those of flesh and blood. Oklahoma AgrAbility partners with disabled farmers, ranchers, and families to help identify opportunities that enable producers to continue enjoying an agricultural-based lifestyle. (Photo by Todd Johnson)
Oklahoma’s one-stop shop for tree information

By Trisha Gedon
Consumers who are looking for information regarding the planting of trees need look no further. Answers are available at the touch of a button via a new Internet site developed through the Department of Horticulture and Landscape Architecture at Oklahoma State University, working in partnership with many other state agencies and organizations.

Funded by a grant from the Oklahoma Urban and Community Forestry Council, the Internet site, www.okplanttrees.org, is geared toward the general public, tree boards, and communities that are interested in forming tree boards.

“The site took about a year to develop,” said Lou Anella, OSU Associate Professor of Horticulture. “We created partnerships with smaller organizations to use their resources, as well as our own. The site contains everything from various tree organizations, consultants, and maps to informational video clips and links to other educational Internet resources.”

Horticulture student Kristina Lewis played a key role in the development of the site, as did Anella.

City of Edmond Urban Forester Carrie Tomlinson said the Internet site is quickly becoming a statewide online urban forestry clearing house.

“Grant providers, project coordinators, and many organizations are beginning to pool information on the site, which then can be accessed by anyone seeking information about urban forestry in Oklahoma,” she said.

Tomlinson believes being online is a necessity for any organization hoping to be successful.

One-stop shopping

A popular site link is the Stillwater Selection Guide, which is published by the Stillwater Tree Board.

In addition, there is a link to OKPLANTid, a searchable database of Oklahoma plants, including photographs; descriptions of seeds, seedlings, leaves, flowers, forms, buds, barks, and fruits; and cultural information.

Another informational link will take consumers to the Oklahoma Proven site. Each year, Oklahoma Proven selects an annual, perennial, tree, and shrub that grow well in Oklahoma. Selections are insect and disease resistant and are able to survive in Oklahoma’s varied climate with minimal care.

Putting Down Roots is another link that provides general knowledge, with details and guidelines for selecting, planting, and caring for trees. This site is geared toward home and property owners as well as developers.

“Often, communities that have an established tree board are looking for funding to help with local projects,” Anella said. “Our site offers a link to a tutorial and introduction to the world of fund raising and can help parties secure grant money provided by private foundations, corporate grant makers, and government sources. Securing grant money can help communities fund projects that will have a positive effect on the area.”

Not only are grants available to provide funding to plant trees, but money also can be secured for urban community forestry projects, educational endeavors, and environmental projects.

Fred Rother, a volunteer with Up With Trees®, an organization based in Tulsa, said the Internet site is helping raise awareness of the importance and value of trees, and hopefully will encourage people to plant more trees.

“We want the public to know that, as a private organization, Up With Trees® cares about our city’s urban forest and that we can work with city and state departments to beautify our environment,” Rother said. “Partnering with OSU on the site will give us more exposure.”

The Morrison Arboretum is still another link on the site. Jan McSwain said the arboretum began in 1999 when she requested permission from the town council of Morrison to use a parcel of “unsightly, neglected land in the center of town to develop an arboretum.”

After she was granted permission, McSwain wrote to the Oklahoma Department of Tourism and Recreation for funds to develop a bridge over the draw.

The Chinese pistache tree provides Oklahoma with a touch of the Orient. This tree was one of the Oklahoma Proven selections in 1999.
a gazebo, parking lots, walkways, and lights throughout the arboretum. She also wrote a grant to develop an Internet site.

“The benefits of the Morrison Arboretum site becoming a part of www.okplanttrees.org include increased exposure for the arboretum and the town of Morrison, as well as the opportunity to provide educational tools for our school,” McSwain said.

“The arboretum is a great source of pride for the community,” she said. “Teachers use the arboretum as a living laboratory and community residents can often be found taking walks, riding bikes, or skating on the walkways.”

McSwain added that community members are impressed that the Morrison Arboretum is accessible via the Internet and enjoy browsing through the site.

**Questions answered**

OSU’s www.okplanttrees.org site also features a link to “The Great Trees of Oklahoma.” The Oklahoma Forestry Association, in conjunction with the Oklahoma Department of Agriculture, Food, and Forestry, has searched out and recorded the largest trees of each species growing in the state. Since the project began in the early 1960s, the list has been updated periodically.

“Many homeowners take pride in the fact that they have the largest specimen of a particular tree in their yard,” Anella said.

All of the Oklahoma Champions are submitted to the American Forestry Association to be recorded nationally. In some cases, the Oklahoma Champion is recognized as the largest tree of its species in the entire United States.

“Our Internet site features a map that indicates where champions are located in the state,” Anella said.

Another interesting feature is the link to informational and educational video clips. There are clips from the Oklahoma Forestry Services, Tree Bank, and Oklahoma Gardening, the nationally renowned, award-winning television program produced by OSU’s Division of Agricultural Sciences and Natural Resources, which airs on the Oklahoma Educational Television Authority (OETA).

Consumers who visit the site can view information regarding pruning, proper tree harvesting, choosing a good tree, tree planting, wrapping trees, tree staking, and selecting trees for fall color.

“We are very excited about the Internet site and are confident that the information provided will be of great benefit to the people of Oklahoma,” Anella said.

![The Morrison Arboretum is a popular gathering place, for local residents to walk, ride bikes, or improve their skateboarding skills.](image)
By Trisha Gedon

State gardeners who follow Oklahoma Proven guidelines will be getting a very green “thumbs up” from their neighbors, thanks to recommendations based on horticultural research.

“Each year the Oklahoma Proven program selects four types of plants that are known to grow well in Oklahoma’s climate and soil types,” said Lou Anella, Associate Professor of Horticulture. “In previous years we selected more general plants, but this year’s selection are a bit more bold, and in some cases, new to the horticulture industry in Oklahoma.”

This year’s Oklahoma Proven selections include the Shantung maple, winter jasmine, autumn sage, and firebush. Selections from previous years can be found on the Oklahoma Proven website at http://oklahomaproven.org.

All of the selections are available at local nurseries. The four plants have signs indicating they are the 2004 Oklahoma Proven selections.

Planting proven picks

2004 Plants

Tree selection

The Shantung maple is a drought tolerant, small- to medium-sized tree that is great for growing under power lines or in residential landscapes where there is insufficient room for a large tree. It grows quickly, but typically only to about 30 feet in height. The leaves are star-shaped and usually emerge with an attractive purple tinge. This Asian native can have excellent fall color ranging from yellow to orange or red.

Shrub selection

Winter jasmine requires very little care and is easily rejuvenated by cutting it to the ground every three to five years. Often mistaken for forsythia, winter jasmine flowers as early as December before its glossy green leaves are formed. It can be pruned and used as a hedge. If it is not trimmed it will arch gracefully, forming a four-foot-high mound spreading up to seven feet.

Perennial selection

Native to Oklahoma, autumn sage is a heat and drought tolerant perennial that starts blooming in the spring, but blooms most in the autumn as other flowers in the garden begin to fade. It forms a two- to three-foot mound and attracts hummingbirds and butterflies to the garden.

Annual selection

Firebush is native to Central and South America. While it is actually a tropical tree when grown in the Deep South, it is used as a heat tolerant annual in Oklahoma. The lush green foliage produces a dense mound more than three feet high in full sun. Interesting orange-red flowers and the reddish tinge on the leaf petioles add even more appeal.
Waste not, want not...for energy

By Mandy Gross

Just as Thomas Edison harnessed electricity and Isaac Newton discovered the Laws of Motion, researchers at Oklahoma State University’s Food and Agricultural Products Research and Technology Center (FAPC) are closing in on their own scientific advances.

The latest discovery involves finding energy sources from waste products produced by food processing plants.

“I have visited food plants all over the world, and without a doubt, one of the most common handicaps I’ve noticed is waste handling,” said Tim Bowser, FAPC Process Engineer. “Often, food plants could produce more products and expand production if they had an affordable means to dispose of waste by-products.”

An application expanded

The idea for the project came from research being conducted as part of OSU’s “grassohol” project, which uses gasification as part of the process to convert biomass, such as grass, to ethanol.

Gasification is the production of combustible gases from solid, organic material by the application of heat or “pyrolysis.” It is accomplished by burning the feedstock material with limited air to produce an exhaust gas, which contains enough carbon monoxide, hydrogen, acetylene, and other hydrocarbons to be combustible.

Bowser and other OSU researchers designed a low-cost, laboratory scale gasifier with an updraft, batch configuration to test the feasibility of gasification of food-processing by-products.

With the help of Bar-S Foods Company, the Center is experimenting with waste by-products from the Bar-S Foods Company production plant in Altus. The University researchers and company officials hope to recover energy from these by-products.

By-product bonanza

The 145,000-square-foot Bar-S facility produces 3.6 million pounds of frankfurter and sliced bacon products weekly, as well as large amounts of fats, oils, and greases that go down the drain, said Michael Taylor, Bar-S Maintenance Supervisor for the Altus plant.

As a result, the fats, oils, and greases must be removed from the wastewater before it can be transferred to treatment facilities operated by the city of Altus.

“This is due to the fact that food-processing by-products can require complex handling and feeding equipment; may contain a high proportion of volatile material, which could vaporize rapidly, causing excess smoke; and may contain silica, which produces an ash that can fuse into a sticky slag when heated to temperatures greater than 800 degrees Celsius,” Bowser said. “Often, food-processing by-products have higher moisture content than other gasifier feedstocks and require drying before use.”

Bowser and other OSU researchers designed a low-cost, laboratory scale gasifier with an updraft, batch configuration to test the feasibility of gasification of food-processing by-products.

The product that is removed from the water is called sludge. Bar-S Foods Company is not able to landfill the product, so the company hauls it to a rendering plant in Amarillo, Texas. Consequently, hauling the sludge is expensive.

“Tim and OSU have been really helpful in finding a potential use for our waste products,” Taylor said, “reducing our cost related to hauling the material away.”

Officials at the Altus plant donated sludge from their Dissolved Air Flotation units to be tested in the project.

The Dissolved Air Flotation system is used in the plant to remove suspended particulates, primarily pork fat, from the wastewater.

Bowser said the pH (acidity level) of the wastewater is adjusted and a polymer

Adapted from a biomass project at OSU, gasifier technology is providing potential new options for food companies to achieve greater benefits from their waste management systems. (Photo by Tim Bowser)
Agriculture at OSU

is added to assist with the flotation process. One portion of the polymer molecule attaches to the suspended waste particle, while another part attaches to fine air bubbles, which are introduced into the wastewater. The attached air bubbles help to float the particulates, along with the polymer, to the surface where they are skimmed off the water.

“Bar-S considered the sludge to be one of the most difficult and expensive waste streams in terms of handling and disposal,” Bowser said. “Scrap-wood pallets were plentiful at the plant, and when taken in combination with the sludge, we thought they would help to compensate for the excess moisture of the sludge.”

The sludge was air dried on trays to approximately 10 percent moisture content. The process made the sludge shelf stable and improved handling characteristics. Hardwood pellets were substituted for the scrap wood.

Three experiments were performed to assess the design of the gasifier and the feasibility of gasifying food-processing by-products. Gas samples were taken during each experiment, and ashes were removed and weighed after each by-product was gasified.

“The pilot-scale gasifier designed, constructed, and tested for gasification of food-processing by-products worked successfully and demonstrated capability to quickly evaluate feasibility of gasification of food-processing by-products at a very low cost,” Bowser said. “Waste products from a commercial food processor were gasified into a valuable producer gas, which could potentially be used to fire an on-site boiler to make steam for direct use or to generate electricity.”

**Future studies**

FAPC professionals also have been in contact with Advance Foods Company of Enid and are interested in working with the manufacturer on the food-process waste-recovery project.

Advance Foods Company manufactures pre-portioned, ready-to-cook and fully cooked beef, pork, veal, chicken, and turkey products.

“We’re interested in strengthening our relationship with FAPC through this project,” said David Schram, Asset Management Director for Advance Foods Company. “We’re always looking for ways to reduce cost.”

Bowser said by-product disposal from food processing is a problem that is continually increasing. Food waste is a key element in all agricultural processing, and companies are striving to create products with minimal waste.

“Despite their best efforts, it’s given that food-processing plants are going to produce waste products. Conversion of food-process waste into energy is a logical and economical way to handle some food-processing by-products,” Bowser said.

It’s a battle of by-products as Division researchers are testing whether dried, raw sludge (left) or hardwood pellets provides a better source of energy. (Photo by Tim Bowser)
On the cutting EDGE

By Janet Varnum
When Oklahoma’s governor called on approximately 200 state leaders in education, industry, business, and government to recommend specific ways the state can prepare for economic growth, OSU stepped up to the challenge.

Known as Economic Development Generating Excellence (EDGE), the project initiated by Governor Brad Henry last August brought together experts from the public and private sectors to exchange ideas on how the state can leverage its assets and expertise to create new technologies, attract new businesses, and spur new growth.

OSU faculty, alumni, and administrators participated in and led many of the 23 teams of statewide experts focused on everything from agriculture to aerospace and biotechnology to international markets.

David J. Schmidly, OSU System CEO and President, who chaired EDGE’s education of the workforce committee, said, “OSU is ready and eager to begin work on education, research, and economic development initiatives announced by Governor Henry and the special EDGE Advisory Commission.”

The action plan lists three major recommendations: transform Oklahoma into the “Research Capital of the Plains,” update the state’s public education system, and reverse the state’s negative health trends. It also places high priority on improving Oklahoma’s business climate.

The plan asks state leaders to identify mechanisms for funding a $1 billion endowment that could generate $35 million to $40 million annually to purchase equipment, build research facilities, create centers to benefit Oklahoma industries, and serve as investment capital to take ideas beyond the prototype stage to attract venture capitalists.

Oklahoma’s ‘Cowboy’ connection

Agriculture, one of Oklahoma’s largest and most important industries, is certain to benefit from research breakthroughs and technological advances that will lead to new job opportunities, especially for rural Oklahomans, said D.C. Coston, Associate Director of the Oklahoma Agricultural Experiment Station and Interim Associate Director of the Oklahoma Cooperative Extension Service.

Coston, who participated on the EDGE research and development team, said states that have invested in research and development and supported relationships between education and industry are the ones generally recognized as thriving today.

“The evidence is clear that the comparative advantage of the United States is the ability to innovate, create new things, and find new solutions,” Coston said. “The ideas represented in the EDGE action plan show that we as a state understand and want to take the necessary steps to help Oklahoma prosper, both now and in the future.”

The action plan acknowledges the importance of agriculture and energy as the bedrock of the state’s economy.

“Oklahoma needs to extend research and education efforts related to improved production practices, as well as increased efficiency in agricultural production, market evaluation, value-added agribusiness development, and alternative crops,” said Sam Curl, Dean and Director of OSU’s Division of Agricultural Sciences and Natural Resources.

Curl, who served as chair of the EDGE agriculture committee, contends that the Oklahoma Food and Agricultural Products Research and Technology Center (FAPC) at OSU is one of the best examples of how education can serve as a link between technical development and the creation of enterprises capable of keeping college graduates in the state.

Wheat production is among Oklahoma’s most visible agricultural endeavors. However, it is only one of many traditional and non-traditional agricultural enterprises that combine to bring hundreds of millions of dollars annually into the state economy. (Photo by Todd Johnson)
FAPC has assisted more than 600 different Oklahoma entrepreneurs and more than 100 start-up companies by providing technical assistance and expertise that helps them convert raw products to processed goods,” Curl said.

Many of the EDGE agricultural committee recommendations for new tax legislation and policy changes are included in the final report. These include reducing the state estate tax while ensuring that future tax credits and incentives concentrate on knowledge-based businesses and are tied to higher-paying jobs.

“I really think the EDGE action plan can make a difference in Oklahoma,” Curl said.

Poised for success
Schmidly said the EDGE action plan provides Oklahoma with an excellent blueprint for a brighter economic future. Besides the participation of expert panels, the plan includes input from 15,000 people who participated in public forums and online discussions.

“I am proud of the many OSU leaders and alumni, as well as others throughout the state, who joined in this effort to strengthen the quality of our educational system at all levels and create an internationally known and respected research environment that will improve the quality of life for all Oklahomans,” Schmidly said.

To read the entire EDGE report, visit http://www.okedge.org/
Members of Oklahoma State University’s Ag Alumni Association have been finding something new in their mailboxes lately.

Beginning in the fall of 2003, the Ag Alum Newsletter has been mailed to all OSU agriculture graduates. This newsletter is published bi-annually — once in the early spring and again near the beginning of the fall semester. Individuals who are members of the Ag Alumni Association also have been receiving a copy of the publication The Cowboy Journal. The Ag Alum Newsletter features stories about graduates, information regarding upcoming College events, and class notes, which are short tidbits about graduates.

The Cowboy Journal is a publication completely produced by Agricultural Communications students as part of their senior-level capstone course. The students apparently know what they are doing. The Cowboy Journal has been selected as the National Agricultural Communicators in Education’s “Best Magazine” for three out of the last five years. In addition, it has been named “Best Overall Publication” for two of the last five years.

OSU graduates who are not members of the Ag Alumni Association are encouraged to fill out the membership form inside the newsletter so that they, too, will receive The Cowboy Journal along with the Ag Alum Newsletter.

Oklahoma State University’s Noble Research Center

A familiar sight to visitors of OSU’s Stillwater campus, the Center houses classrooms and laboratories where some of the nation’s foremost, cutting-edge research and practices in agricultural-related technology are shared and developed. (Photo by Todd Johnson)
Teaching, research, and extension activities in the OSU Division of Agricultural Sciences and Natural Resources are a window into Oklahoma’s future.