K-State Research and Extension
Kansas State University

An Informal Report to the Kansas Legislature
January 2008

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Director's Introduction

Steve Rome, Hugoton; Dean and Director Fred Cholick; and JoAnn Murray, Atchison, pose for a photo at the centennial celebration of the Southwest Research-Extension Center in Garden City. Rome is a former member of the Kansas State Extension Advisory Council, and Murray is a current council member.

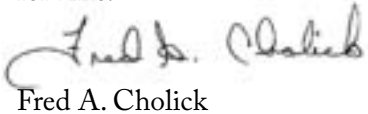
I appreciate the opportunity to share a sampling of the activities and accomplishments of the dedicated faculty and staff of K-State Research and Extension and the College of Agriculture. They are truly impacting the lives of ranchers, farmers, youth, families, and communities within Kansas.

Scott Peters, an associate professor from Cornell, spoke to our faculty and staff recently. He said, "Stories communicate more effectively than numbers." We have taken that approach – using stories about real people – to share with you how our programs are addressing issues in all parts of Kansas.

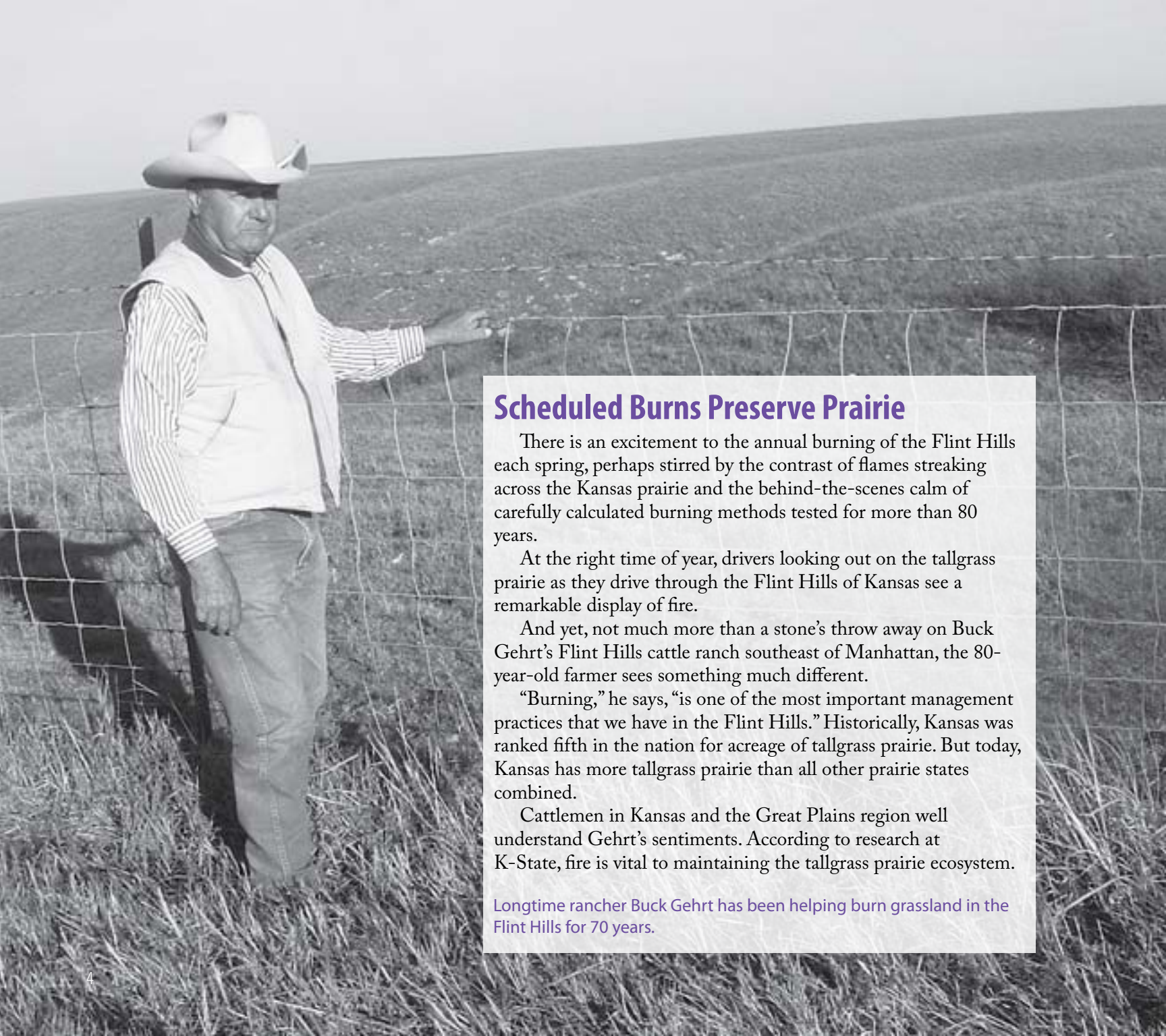
Last summer, we commissioned a telephone survey to get feedback on how K-State Research and Extension services are perceived and the value of those services. Of those surveyed, more than 96 percent rated the information we provide as somewhat or very credible. More than 97 percent of the respondents said that it is somewhat or very important for the state of Kansas to have the type of services we provide. I see these numbers as positive reinforcement that K-State Research and Extension is serving the people of Kansas.

The credibility statement brings to mind a comment by Gale Buchanan, USDA under secretary for research education, and economics, "Research not only has to be good, but good for something." I am confident that K-State Research and Extension is conducting quality research that benefits Kansans. We also are fulfilling the three-part mission of the land-grant university system by bringing research and extension faculty and their research results into the classroom.

We have established valuable partnerships around the state, the nation, and the world. With an office in each county, K-State Research and Extension has a unique opportunity to share research-based information related to the environment, families, communities, and production agriculture. We are providing "Knowledge for Life."



Fred A. Cholick
Dean and Director



Scheduled Burns Preserve Prairie

There is an excitement to the annual burning of the Flint Hills each spring, perhaps stirred by the contrast of flames streaking across the Kansas prairie and the behind-the-scenes calm of carefully calculated burning methods tested for more than 80 years.

At the right time of year, drivers looking out on the tallgrass prairie as they drive through the Flint Hills of Kansas see a remarkable display of fire.

And yet, not much more than a stone's throw away on Buck Gehrt's Flint Hills cattle ranch southeast of Manhattan, the 80-year-old farmer sees something much different.

"Burning," he says, "is one of the most important management practices that we have in the Flint Hills." Historically, Kansas was ranked fifth in the nation for acreage of tallgrass prairie. But today, Kansas has more tallgrass prairie than all other prairie states combined.

Cattlemen in Kansas and the Great Plains region well understand Gehrt's sentiments. According to research at K-State, fire is vital to maintaining the tallgrass prairie ecosystem.

Longtime rancher Buck Gehrt has been helping burn grassland in the Flint Hills for 70 years.

Without that management tool this natural ecosystem would not exist.

K-State agronomist Clenton Owensby said that grassland burning adds more than $28 million to local Kansas economies every year.

"There are more than 3 million acres of Flint Hills prairie in Kansas that have steer operations," Owensby said. "We've shown that, on average, steers grazing burned range gain 32 pounds more than if they are grazing on range that hasn't been burned," an increase that often translates into more pounds per animal, which means ranchers earn more money they can spend in their local communities.

"I've been burning pasture since I was a kid, probably 10 years old," Gehrt said. "But controlled burning wasn't always so scientific."

The American Indians noticed a difference in the grassland after lightning strikes burned the prairie, and found that bison were attracted to the fresh regrowth of burned areas. And the old-time ranchers knew that you had to burn the prairie to maintain it, said Gehrt.

He credits K-State with helping define the right time to burn prairie – in the spring and about 15-20 days before putting cattle out to graze.

"Burning at the same time as the beginning of growth of the dominant grasses gives the best weed and brush control," Owensby said.

Owensby added that K-State research helped to establish the strategy of intensive early stocking, where a rancher stocks a grazing area with twice the number of cattle typical for the acreage, but for just half the normal grazing period.

K-State's rangeland burning research program has been in place since 1923. Owensby said the research program is the "longest term burning research work in the world." In addition to publishing economic studies, K-State has helped to prove that burning preserves the prairie's ecosystem.

Current work is also looking at minimizing the risk of airborne pollution. K-State has established partnerships with many agencies and organizations, including the U.S. Environmental Protection Agency, Natural Resources Conservation Service, Kansas Department of Health and Environment, Kansas Department of Agriculture, Kansas Livestock Association, and others.

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Solving Lawn Problems

Lawn Problem Solver is available on a Web site hosted at K-State. The site includes: 1) problem conditions being observed, 2) recommended general lawn maintenance, and 3) integrated lawn-pest management. It is a cooperative project of the USDA and horticulturists in USDA's north central region. The URL is: *http://www.ksuturf.com/Lawn_Problem_Solver_Site/index.html*

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Gardening Leads to Healthier Lifestlyle

A horticulturist has received a $1.04 million grant from the USDA National Research Institute to study whether gardening can promote a healthier lifestyle among youth. Project PLANTS (Promoting Lifelong Activity and Nutrition Through Schools) will encourage elementary school students to grow their own fruits, vegetables, and flowers in after-school programs and at home.

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100 Years of Service to Western Kansas

The Southwest Research-Extension Center celebrated 100 years of conducting research and sharing results with producers in the Garden City and Tribune areas.

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Agriculture Adds Billions to Kansas Economy

To motorists traversing Kansas' highways, wheat fields may look like grass as far as the eye can see. To Paul Shields they look like business – big business.

Shields, who has a degree in feed science and management from K-State, worked for years in the flour milling industry before coming home to farm near Oberlin nine years ago. He and his wife Kelly enjoyed seeing different parts of the country in their early married life, but once their family began to grow, a more stable way of life seemed in order.

In some ways Shields is now a typical Kansas farmer, devoting his 2,100 acres in northwest Kansas to wheat, corn, and alfalfa production.

Paul Shields (right), Oberlin producer, and Vernon Schaffer, agronomy farm manager, look at seed wheat at the K-State agronomy farm north of Bill Snyder Family Stadium.

He and other wheat growers have pumped billions of dollars into the Kansas economy – to the tune of about $1.3 billion in 2006 alone, according to the Kansas Agricultural Statistics Service.

With stronger prices being paid for wheat this year, the average tally for 2007 is likely to be significantly higher.

"At $6 per bushel, the USDA estimate for the national average farm price, Kansas producers will bring about $1.7 billion into the Kansas economy this year," said K-State agricultural economist Mike Woolverton.

As in many years past, Kansas was the No. 1 wheat-producing state in 2006. In 2007, however, a spring freeze and drought in some areas cut yields, allowing North Dakota to supplant Kansas as the top producer.

This fall's USDA 2007 small grains summary showed Kansas producing 283 million bushels of hard red winter wheat, compared to North Dakota's 300.1 million bushels of wheat – which includes spring, winter, and durum wheat, said Woolverton.

Kansas corn production in 2006 came in at 345 million bushels, which was worth about $1.104 billion to the state's economy. Those numbers – both acreage and receipts – are expected to be surpassed this year as growers responded to strong demand from overseas buyers, the ethanol industry, and livestock producers.

Shields said he has considered growing alternative crops, but with prices in 2007 jumping to record and near-record highs on the crops he grows, this is not the time to fiddle with success.

"Years ago, when the price of wheat was around $2 a bushel, I considered growing other crops. But with wheat prices up around $8 this fall (2007), I'm staying with my crop lineup for now."

Kansas has long been the No. 1 grain sorghum producer in the nation, accounting for nearly half of the annual U.S. crop. In turn, the United States is the world's largest producer of grain sorghum with about 300 million bushels per year.

Beef production is another mainstay in Kansas agriculture, with the state leading the way in commercial cattle processing in 2006, at 7.5 million head. As of Jan. 1, 2007, Kansas ranked No. 3 nationally, with 6.4 million cattle on ranches and in feedlots.

All totaled, cattle generated $6.25 billion in cash receipts during 2006, which represented about 60 percent of the state's 2006 agricultural cash receipts.

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Kansas Agriculture by the Numbers

In 2006 Kansas produced:

- 291.2 million bushels of wheat at an average price of $4.60 a bushel, which generated a value of production of $1.34 billion;
- 345 million bushels of corn at an average price of $3.20 per bushel, which generated a value of production of $1.104 billion;
- 145 million bushels of sorghum (milo) at an average price of $3.36 per bushel, which generated a value of production of $487.2 million; and
- 98.6 million bushels of soybeans at an average price of $6.10 per bushel, which generated a value of production of $601.2 million.

In addition, the number of cattle and calves on Kansas farms as of Jan. 1, 2007, totaled 6.4 million head. Cash receipts for the sale of cattle set a record high of $6.25 billion, up 3 percent from the 2005 record of $6.09 billion.

As of Dec. 1, 2006, the number of hogs in Kansas totaled 1.84 million head. Total cash receipts from hogs were $374.3 million.

Source: Kansas Agricultural Statistics Service

K-State Helps Fight Climate Change

Saving the planet sounds like a job for a superhero with a catchy name and a colorful, flowing cape. A K-State scientist is doing his part to save the planet in his lab coat and blue jeans.

Agronomist Charles Rice collaborated with climate change experts from across the world to prepare a report for the Intergovernmental Panel on Climate Change (IPCC) that garnered the Nobel Peace Prize that was shared with Al Gore.

"Dr. Charles Rice, is a highly recognized national leader in soil carbon sequestration research," said Gary Peterson, president of the Soil Science Society of America. "He is especially noted for his work to enhance soil carbon sequestration through improved soil and crop management systems. He is highly respected in both the science and agricultural communities and currently serves on the National Academies' U.S. National Soil Science Committee and the U.S. Department of Agriculture's Agricultural Air Quality Task Force."

Charles "Chuck" Rice examines a soil sample in native grassland.

Rice collaborated with more than 2,000 other climate change experts from around the globe to prepare the IPCC report.

"This was a tremendous responsibility and honor," said Rice. "Research over the past several years has proven that agriculture can become a key player in helping to alleviate global warming and climate change.

"With proper management, such as no-till, organic carbon levels in soils can be increased. Increasing soil carbon levels through a process called 'soil carbon sequestration' helps reduce carbon dioxide levels in the atmosphere. Soil carbon sequestration is one of the most cost-effective ways available now of reducing greenhouse gases.

"Across all sectors, agriculture could provide as much as 15 percent of the reduction needed to mitigate climate change," Rice said.

In addition to work with the IPCC, Rice is director of the Consortium for Agricultural Soils Mitigation of Greenhouse Gases (CASMGS), a group of scientists from nine universities and one national laboratory that investigates the potential of agricultural soils to mitigate greenhouse gases. The K-State Department of Agronomy received a one-year, $1 million grant in December 2006 from the Robertson Foundation in New York. The grant funds the ongoing efforts of CASMGS.

K-State and the consortium also work with Los Alamos National Laboratory in New Mexico, Veris Technologies in Salina, and the Brookhaven National Laboratoryin New York on new methods of testing carbon levels. But soil carbon is just one part of the picture, Rice said. Nitrogen fertilizers contribute nitrous oxide, another greenhouse gas.

K-State is using a USDA grant to collaborate with the University of New Hampshire to measure nitrous oxide released from no-till fields.

"It becomes extremely important to provide solid, scientific information for policymakers," Rice said.

Another area for further research will be examining how the increased use of biofuels will affect agricultural efforts to mitigate greenhouse gases said Rice. With cellulosic ethanol, the plant residue that keeps carbon in the soil will be removed. Researchers will have to find out how much can be removed without negatively affecting soil quality and how much additional water will be needed for processing and producing crops for cellulosic ethanol.

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Insect Collection Helps with Future Predictions

Entomologists are collaborating with biologists and librarians on a digital prairie plant and insect collection. Because of the age of the collection, they can literally see into the past based on the specimens collected in the 1880s, which helps make meaningful predictions regarding effects of climate change, invasive species, conservation, etc. The database includes 835,000 specimens (collection locality and date) and digital images.

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Training Offered on Disease Management

In 2006, stakeholders in nearly all the horticultural commodities were educated on current and emerging disease issues as well as the best management strategies for those problems. Those stakeholders are now better equipped to make informed, rational decisions for integrated disease management. Hundreds of people earned disease management credits for their annual pesticide applicator training, an important contributor to integrated pest management (IPM) in Kansas.

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Military Families Get Help

Since November 2005, Ann Domsch has driven thousands of miles with a dual mission – helping kids and encouraging communities to help kids.

Domsch is the state project coordinator for Operation: Military Kids, a national support network that provides help for military children in civilian communities. It acknowledges the strengths and sacrifices of military kids and families of the National Guard, Army Reserve, and other military parents in geographically dispersed areas.

Domsch said National Guard and Army Reserve families do not have the same support network as military families living on a base. Operation: Military Kids, often referred to as OMK, provides the support families need when a parent is deployed.

Ann Domsch, second from left, rides on a parade float with families promoting OMK.

K-State Research and Extension – through 4-H Youth Development and the School of Family Studies and Human Services – and Kansas youth and civic organizations have formed partnerships with OMK. The organizations – which include Army National Guard, Air National Guard, Army Reserve, American Legion, Boys and Girls Club, military chaplains and the Kansas State Department of Education – volunteer their time and resources to provide support for the families.

"There are approximately 2,600 Army Reserve dependents in Kansas," said Sarah Jones, outreach liaison specialist with the Army Reserve Child and Youth Services. According to Dezaree Harding, Kansas National Guard state youth coordinator, as of October 2007, Kansas had 1,100 guardsmen deployed, which affects nearly 1,000 children.

Marsha Weaver, Dickinson County agent with K-State Research and Extension, said these families are not always recognized as "military kids" because their parents are part-time military.

"OMK brought an increased awareness to our county about the 'invisible' military kids," she said.

Day camps for military kids are part of Domsch's itinerary when she travels across the state. With the help of camp leaders, campers use computers to make "zoom albums" that hold 12 pictures. Domsch said at one day camp, a young camper said the album made him feel closer to his dad.

"That made the day for all of us," Domsch said.

Another OMK activity is called Ready, Set, Go. These training sessions are designed to offer insight into military culture and the deployment cycle. They suggest ways to understand the needs of the military kids and their families and to provide support by bringing local community resources together. RSG training has been held in Pittsburg, Holton, Abilene, Clay Center, Wakefield, Hays, Salina, and Wichita.

The wife of a longtime National Guardsman in Mayetta said, "Deployment is a challenging event for the soldiers and their families. When a traditional soldier deploys, his family is left on a military installation where everything is geared toward their support during the mission. For Guard and Reserve families scattered in communities, there isn't a huge net of pre-existing resources for their support."

She attended OMK training and noted that since her husband's deployments, people have commented that "they didn't realize we were a military family."

"Most of our neighbors are not aware of the challenges or what they can do to help," the guardsman's wife said. "OMK can fill some of the voids."

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Agent Shares Resources with School District

A family and consumer sciences agent provides a fact sheet on important topics such as sibling rivalry, Internet safety, or the importance of water to local school districts to include with their monthly newsletters, which are distributed to about 2,000 households. This cooperative arrangement works well because the school districts appreciate the additional information and K-State Research and Extension reaches families.

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VIP Process Available Online

The Kansas 4-H Youth Development Program depends on more than 10,000 adult volunteers. To ensure the safety of 4-H members, volunteers must complete the volunteer information profile (VIP) process. The VIP orientation process is now being offered through K-State Online. To date 138 volunteers have enrolled in the online course.

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Local Processors Rely on K-State

The loss of an existing business or even a handful of jobs has little effect on a large community, but finding new employment or having to drive farther for services in a small community can have a significant impact.

Meat processors are turning to K-State for help to maintain their local businesses.

"Meat processing is a costly business," said Aaron Higbie, owner of Santa Fe Trail Meats in Overbrook. "The equipment is expensive, and small processors don't have the resources to do all the necessary testing. K-State can do the testing and objectively look at the data."

Higbie purchased the facility about four years ago. It's a state-inspected plant that does processing for customers in about a 120-mile radius of Overbrook. He relies on K-State to test fully cooked, ready-to-eat products, such as jerky and sausage.

Aaron Higbie relies on K-State testing to remain competitive and in compliance with food safety regulations.

Elizabeth Boyle, professor and extension specialist, helps Kansas meat processors meet or exceed state and federally mandated meat and poultry requirements through Hazard Analysis and Critical Control Point (HACCP) training.

HACCP is used in the meat and food industry to identify potential food safety hazards so key actions, known as critical control points, can be taken to minimize, reduce, or eliminate the risk of hazards from occurring.

The standards for the meat industry were established in 1996. Boyle helped develop the training materials so Kansas meat processors could comply with these food safety regulations. She continues to offer reassessment and implementation training and workshops for large and small Kansas meat processors.

Kansas had 164 state-inspected and custom plants in 1996, said Boyle. Now there are 96.

Rick Hitchcock from the Kiowa Locker System (or Chieftain Brand Meats) in Kiowa, Kansas, went through the HACCP training in January 1998. He has been in partnership with his father since 1975.

"My father started the business in 1942 – which is now the oldest business in the community under a continuous family ownership," said Hitchcock. His daughter, Wreath, is following the family tradition.

The Kiowa business is classified as a small federal plant, which means it has more than 10 employees. Most of their customers are from south-central Kansas and northern Oklahoma.

"The rules are constantly changing," said Hitchcock. "Every time there is an outbreak of *E. coli* or *Salmonella*, they rebuild the protocols. K-State has been a big part of our program development. We send our plan to K-State; they check it and send it on to USDA. K-State's help has been invaluable."

Hitchcock and many other processors call Boyle directly if they have a question.

"The training K-State offers is affordable," said Boyle. "Many of the processors take advantage of the reasonably priced training and complimentary one-on-one training that we provide."

Higbie, who earned a bachelor's degree in animal science from K-State, has attended workshops at K-State and found them beneficial.

"The workshops are an excellent outreach for processors," said Higbie. "They also offer an opportunity for processors from around the state to get together and bounce ideas off each other. We're all working together to produce a safe, wholesome product for consumers."

Elizabeth Boyle
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USDA Grant Funds Food Pest Research

A K-State entomologist is collaborating with researchers at two other universities to improve food and environmental safety. They are using a $612,199 grant from USDA to examine options other than methyl bromide fumigation to keep pests out of the food supply, specifically cured hams and aged cheeses. Of the grant award, $222,290 is coming to K-State.

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Researcher Looks for Ways to Control Spoilage

Food scientists are always searching for compounds to effectively control spoilage and pathogenic organisms in foods. Approved chemical compounds and naturally occurring compounds are attractive means to add to food systems to control micro-organisms, especially pathogens. When successfully applied, food can have longer shelf-life and be safer from potential food pathogens.

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Participants Record Two-Ton Weight Loss

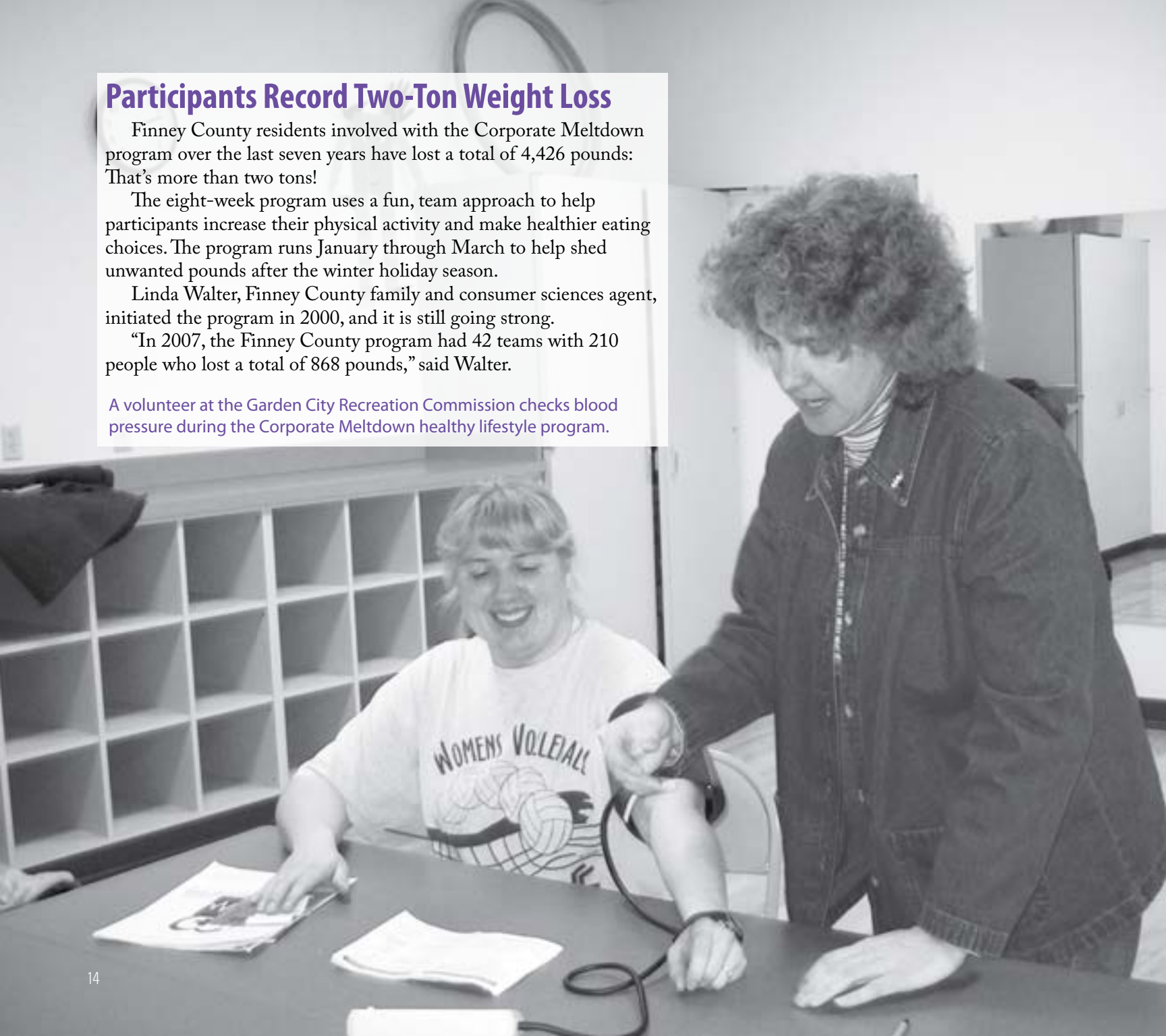
Finney County residents involved with the Corporate Meltdown program over the last seven years have lost a total of 4,426 pounds: That's more than two tons!

The eight-week program uses a fun, team approach to help participants increase their physical activity and make healthier eating choices. The program runs January through March to help shed unwanted pounds after the winter holiday season.

Linda Walter, Finney County family and consumer sciences agent, initiated the program in 2000, and it is still going strong.

"In 2007, the Finney County program had 42 teams with 210 people who lost a total of 868 pounds," said Walter.

A volunteer at the Garden City Recreation Commission checks blood pressure during the Corporate Meltdown healthy lifestyle program.



She shared some comments from participants:

"I liked the team approach. The sessions gave great information, and I began working out regularly."

"This program made me take a hard look at my lifestyle and helped me change."

"It helped me eat more healthy and to exercise more and just all around feel better!"

"This program teaches you things that can carry over for the rest of your life."

"This program motivates you to get healthy and fit. It is up to us to maintain the progress."

Walter's colleagues in Seward, Grant, Wichita, Barber, and Comanche counties adapted the program to their communities under the title of Community Meltdown. The program includes: weigh-in and weigh-out, pre- and post-health screening tests, weekly educational sessions, and exercise opportunities. Participants pay a small fee for a blood test.

Robin Eubank, a Seward County agent, used data from the multicounty program for her master's project.

"Community Meltdown attracted a good representation of the population in southwest Kansas," said Eubank. "The combined population of the six counties is 24 percent Hispanic, and 14 percent of our participants were Hispanic."

Eubank found that the community partners varied from county to county but often included recreation commissions, community colleges, county health departments, hospital/medical clinic staff, dietitians, exercise physiologists, fitness centers/personal trainers, human resource personnel, chambers of commerce, and local diabetes control programs.

The educational sessions included such topics as how to understand your blood test results, how stress affects your health, and information on vitamins and weight-loss supplements, said Eubank.

"It was gratifying to see how the participants answered the pre- and post-lifestyle survey," said Eubank. "They showed marked improvement in both eating and exercise habits. Education is the key to the success of this program. They learn how to adjust what they eat and their physical activity to maintain a healthy weight."

Eubank recently transferred from Seward County to the River Valley District office in Belleville, and she is investigating the potential for the program in that area.

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Food Safety Program Wins Award

The ServSafe Food Safety Education Program – available in 35 counties – received the 2007 Allied Member of the Year Award from the Kansas Restaurant and Hospitality Association for the training that agents do at the county/community level. In 2006, 650 employees and 300 foodservice managers received ServSafe training.

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EFNEP Reports Positive Results

The Expanded Food and Nutrition Education Program is available in six counties and reported these results for 2006:

- 96 percent of clients who completed the program showed improvement in one or more nutrition practices such as plans meals, makes healthy food choices, prepares food without adding salt, reads nutrition labels, or has children eat breakfast;
- 85 percent showed improvement in two or more nutrition practices;
- 77 percent showed improvement in one or more food safety practices; and
- 71 percent said they always ate meals with family members – up from 31 percent before the program.

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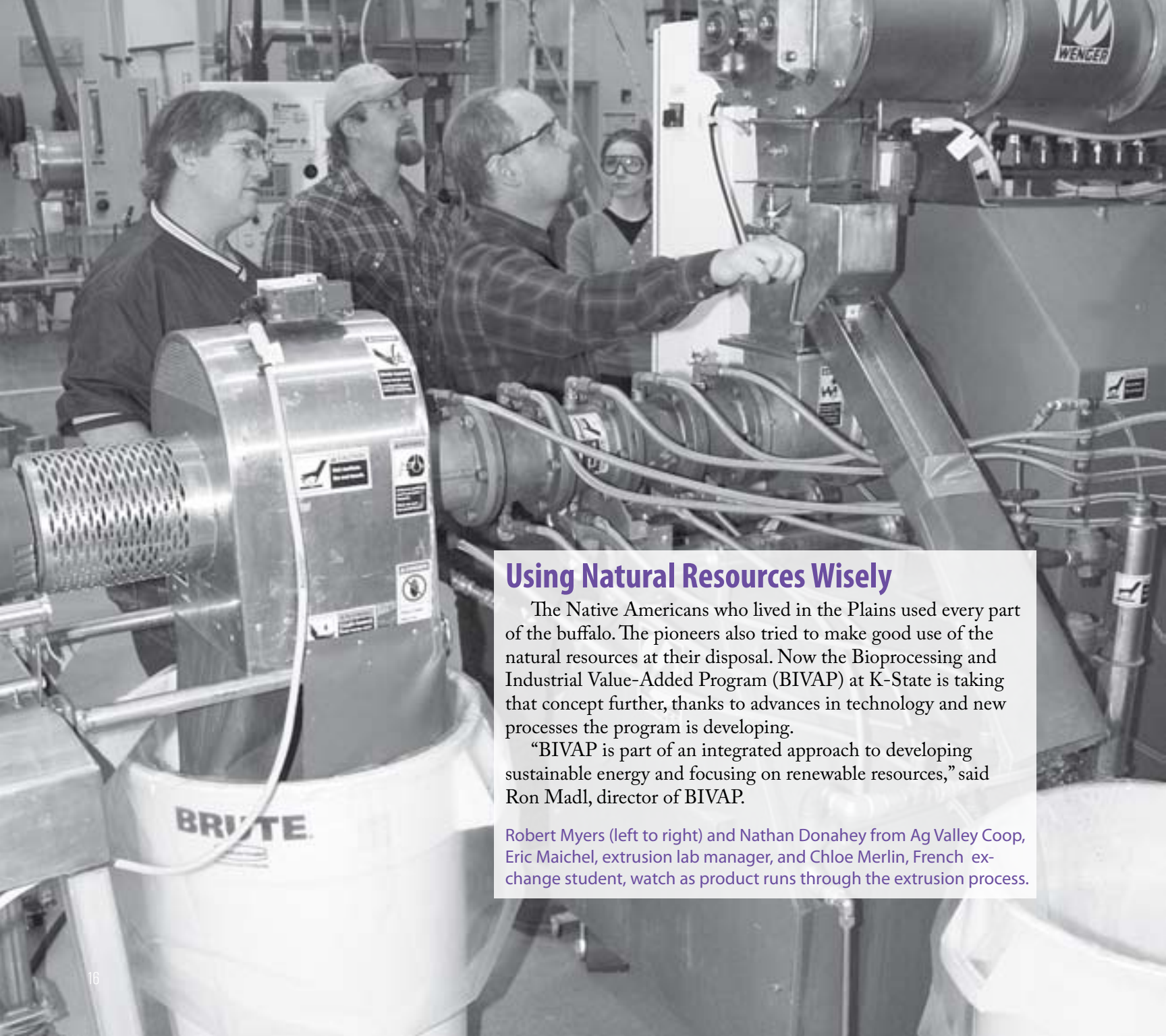

Using Natural Resources Wisely

The Native Americans who lived in the Plains used every part of the buffalo. The pioneers also tried to make good use of the natural resources at their disposal. Now the Bioprocessing and Industrial Value-Added Program (BIVAP) at K-State is taking that concept further, thanks to advances in technology and new processes the program is developing.

"BIVAP is part of an integrated approach to developing sustainable energy and focusing on renewable resources," said Ron Madl, director of BIVAP.

Robert Myers (left to right) and Nathan Donahey from Ag Valley Coop, Eric Maichel, extrusion lab manager, and Chloe Merlin, French exchange student, watch as product runs through the extrusion process.

"From the plant geneticists who are designing plants that can be converted more efficiently into energy, to the agronomists who are working on optimized growth patterns to improve sustainability and efficiency, to the scientists in BIVAP who are developing chemical processes to make better use of the co-products of ethanol production – all are finding ways to use every part of the plant fiber."

BIVAP houses research in the areas of extrusion, fermentation, and biomaterials, and leases space to industry for research and development of products that could result in new Kansas businesses.

"My team works with both private industry and academic researchers to develop continuous processing for different kinds of products, including snack foods, pet foods, and industrial products," said Eric Maichel, operations manager for the extrusion lab. "Producers can test new formulas and processes in the lab under carefully controlled conditions. About 30 companies have used the extrusion lab, with about 90 percent being repeat customers."

Robert Myers, feed division manager for Ag Valley Coop, Edison, Neb., and K-State milling science alumnus Nathan Donahey, mill manager for Ag Valley Coop in Norton, Kan., recently processed wet distiller's grains at the extrusion center. They had conducted a test run several weeks earlier.

Fermentation research is a key component of making full use of the distiller's grain (DG) co-products from ethanol production. DG is currently used as animal feed; however, continued expansion of the ethanol industry will produce more DG than needed for feed. Research is being conducted to find alternative uses. Also, new fermentation organisms are being developed to produce other biofuels to replace products currently made from petroleum.

The Bio-Material and Technology Lab, under the direction of Susan Sun, has done research in adhesives and composites that is paying off in new products such as BioBarrels – an edible, biodegradable container for livestock supplements. Sun said another product that will soon be available is an agricultural mulch film to replace the more common black plastic. Other research is devoted to developing adhesives for a wide variety of applications – from stamps to construction, from wood veneer glue to children's paste and art paints.

BIVAP is part of the Grain Science and Industry Complex. The 33,000-square-foot facility, built using state and K-State Research and Extension funds, was dedicated in 2005.

Ron Madl
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Researchers Map Wheat Genome

A team is mapping the wheat genome, so breeders can create new varieties of wheat with specific desirable characteristics. They received a $700,000 grant from the U.S. departments of Agriculture and Energy to look at a sources once discarded by farmers – the leaves and stem of wheat plants – for ways to produce ethanol for biofuels.

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K-State Named Change Agent State for Diversity

K-State Research and Extension now is part of a national initiative that will allow K-State to partner with other land-grant universities working to bridge cultural differences. Changes in demographics – an increase in the Hispanic population and increases in the percent of population living below the poverty line and percent of Kansans now 65 or older – underscore the need to develop educational programs to serve a wide range of interests, values, beliefs, and needs.

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Reaching Out to Help Communities

The scent of delicious homemade food fills the air at La Familia Senior/Community Center on West 21st Street in Wichita. And the good news is that the traditional Mexican recipes are being prepared using lower-calorie options.

Lehisa Fornoza, the bilingual nutrition assistant with the K-State Research and Extension Sedgwick County office, teaches a nutrition class in Spanish to a roomful of local seniors every Tuesday morning.

Lehisa Fornoza (standing second from left), nutrition assistant, teaches weekly nutrition classes at a Wichita senior/community center.

Fornoza shares recipes and nutrition information in English and Spanish. She encourages participants to take what they have learned and share with their friends and family.

The center offers English classes, presentations on topics important to seniors, such as Medicare coverage, and exercise classes. A licensed practical nurse conducts a clinic several days a week to help monitor blood pressure and diabetes. It also offers summer youth programs, and a garden project started two years ago.

Chris Alonzo has been the director of La Familia for about two and a half years.

"The center offers seniors a place to come to socialize and to learn – you're never too old to learn," said Alonzo. "The Sedgwick County Department on Aging helps sponsor LaFamilia, and they have asked to use it as a model for other centers in the area. Gov. Sebelius visited the center in 2006 during Hispanic Heritage Month."

Alonzo held Fornoza's position before accepting the directorship. She continues her involvement with the K-State Resarch and Extension office by serving on the executive board and the family and consumer sciences program development committee.

In addition to projects like the one at La Familia, K-State Research and Extension is reaching out to help communities through the Kansas PRIDE Program.

"Sustaining a healthy community requires investment," said Dan Kahl, PRIDE coordinator. "Communities may wish to focus on economic development; natural resource protection; physical structure improvements; human services; or enhance their arts, culture, or leadership opportunities.

"While the priorities for community enhancement vary with the community, the role of K-State Research and Extension is clear: to convene groups, initiate projects, involve citizens, and deliver important information to community groups as they organize, plan, and collaboratively invest in community improvement."

Last year, in partnership with the Community Development Division of the Kansas Department of Commerce, the program assisted more than 60 volunteer PRIDE groups in communities across the state with organization, planning, resource identification, evaluation, and recognition. Through their combined work, volunteers recorded more than 101,000 hours of service to community improvement projects. This is more than $1.5 million worth of time invested into Kansas community improvement, according to The Independent Sector, a leadership forum that establishes the national value of volunteer hours.

"Investment in communities takes many forms, from creating swimming pools to food banks to fire stations," Kahl said. "The consistent action is the building of partnerships and the facilitation of collaborative planning and inclusive participation. That is how K-State Research and Extension builds community."

During the last year, community PRIDE groups reported partnering with 583 other community organizations to reach collaborative goals.

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New Center Links Community Resources

The Center for Engagement and Community Development was established in 2006. It promotes engagement across campus and connects the resources of K-State to the significant issues of public need facing Kansas and communities worldwide. The center links campus and extension resources to important community issues, including business development through technology transfer, rural grocery store sustainability, and community disaster recovery.

Visit *www.ksu.edu/cecd* for more information.

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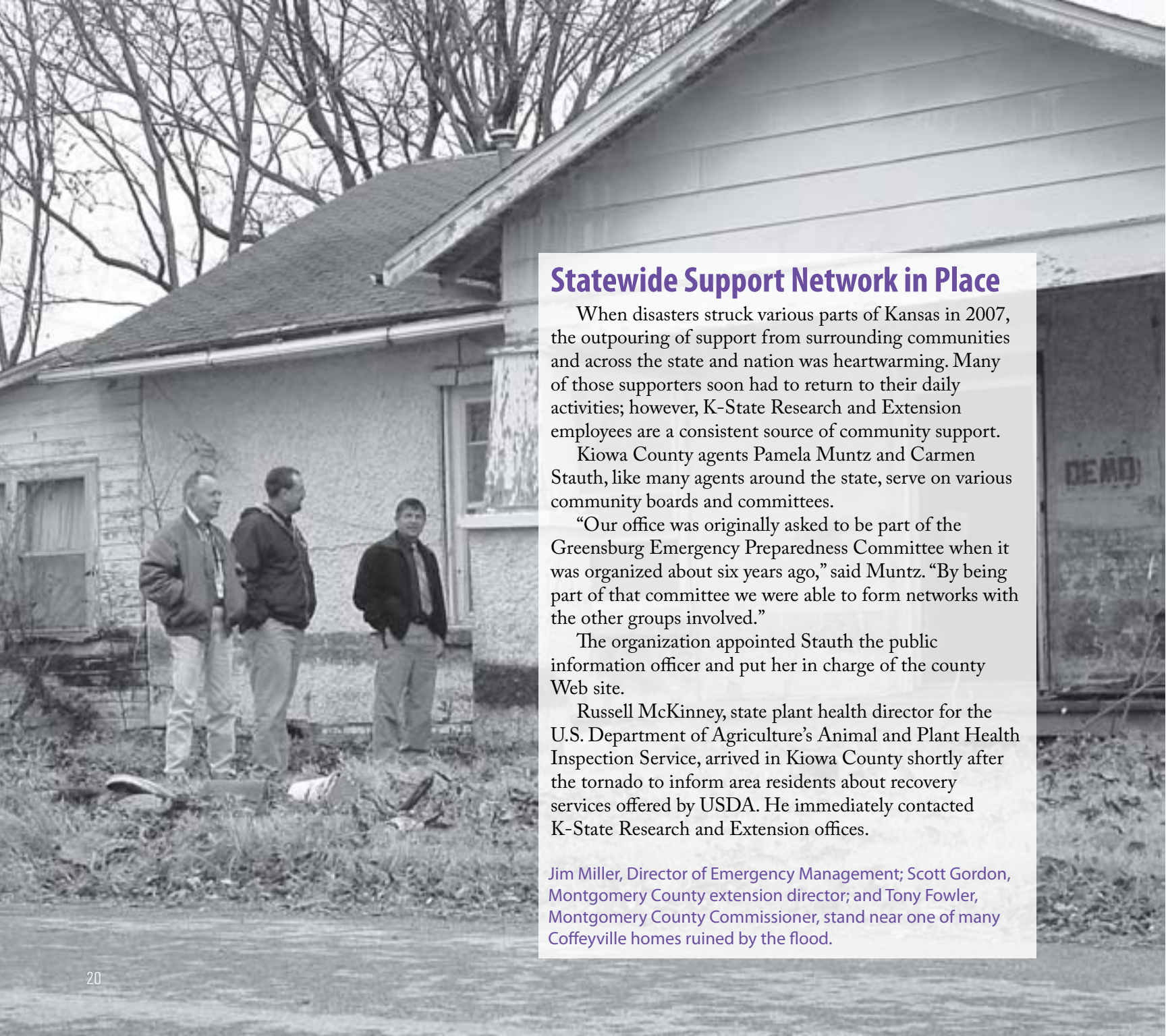

Statewide Support Network in Place

When disasters struck various parts of Kansas in 2007, the outpouring of support from surrounding communities and across the state and nation was heartwarming. Many of those supporters soon had to return to their daily activities; however, K-State Research and Extension employees are a consistent source of community support.

Kiowa County agents Pamela Muntz and Carmen Stauth, like many agents around the state, serve on various community boards and committees.

"Our office was originally asked to be part of the Greensburg Emergency Preparedness Committee when it was organized about six years ago," said Muntz. "By being part of that committee we were able to form networks with the other groups involved."

The organization appointed Stauth the public information officer and put her in charge of the county Web site.

Russell McKinney, state plant health director for the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, arrived in Kiowa County shortly after the tornado to inform area residents about recovery services offered by USDA. He immediately contacted K-State Research and Extension offices.

Jim Miller, Director of Emergency Management; Scott Gordon, Montgomery County extension director; and Tony Fowler, Montgomery County Commissioner, stand near one of many Coffeyville homes ruined by the flood.

"They organized meetings over two days in four counties – Kiowa, Pratt, Edwards, and Stafford," said McKinney. "They just jumped in and made it happen."

With 90 percent of Greensburg destroyed and surrounding areas facing downed fences, mangled irrigation systems, and debris in fields, McKinney often had to work out of his pickup truck. "Having a network in place was a tremendous help," he said

McKinney was quite familiar with the extension system, having served as an extension entomology specialist in South Dakota for three and a half years.

"Working for extension provided me with many of the skills – communication, public speaking, and the ability to deal with all kinds of people – that I use in my job today," said McKinney.

When heavy spring rains caused flooding in southeastern Kansas, Coffeyville residents had to deal with flooding and oil residue from the local refinery. Montgomery County agents took an active role in recovery efforts.

"We put together packets of flood-related materials and distributed them to county commissioners, county environmental health and zoning, other county and city offices, and various recovery agencies," said Scott Gordon, agriculture and natural resources agent. "The Red Cross ordered 900 copies of 20 different publications to aid with cleanup and safety issues."

Agents worked with ag producers on how to deal with oil on the land and soil remediation. They also provided information to local media on various topics including how to find reliable contractors for rebuilding.

"We coordinated with various agencies such as the Fellowship of Christian Farmers for aid on fence repair," said Gordon. "We also worked with the Kansas Department of Health and Environment in conjunction with the Centers for Disease Control on a study to monitor mosquitoes and West Nile Virus."

With an office in every Kansas county, K-State Research and Extension is an ongoing presence to provide information, contacts, and support to their friends and neighbors.

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Additional Resources

- K-State is part of the Extension Disaster Education Network (EDEN), a collaborative multistate effort to improve the delivery of services to citizens affected by disasters.
- Agronomists produce a weekly electronic newsletter (Agronomy e-Update) that covers timely topics, including flooding, drought, freeze and ice damage, heat stress, and insect damage – whatever is affecting producers.
- The Kansas Agricultural Mediation Services – funded through USDA and administered by K-State Research and Extension – provides initial information and guidance at no cost through a toll-free hotline.
- The Kansas Forest Service provided emergency personnel to assist with the clean up and secured $230,725 in federal grant funds to help reforest Greensburg.
- The K-State Rapid Response Center provides information via e-mail and Web sites to help consumers determine the safety of food affected by floods or power outages.
- Farm analysts made presentations at regional meetings to help individual farmers analyze options about whether to rebuild their operations.
- The Kansas Master Gardeners and faculty at the horticultural research centers are valuable resources for planning and replanting with appropriate plants for the environment.

Economist and Producer Supply Farm Bill Analysis

It is with a guarded enthusiasm that Hugoton, Kan., farmer Steve Rome celebrates those years when the family's 12,000-acre farm turns a profit.

That's the wise thing to do in farming, a business where the balance between profit and loss often hinges on the uncertainties of weather, prices, and politics.

Farmers growing grain and oilseed crops – especially corn and soybeans – have had good prices for a few years. The growth of the ethanol industry has meant strong prices for those commodities.

But, it also has increased pressure for livestock producers. Higher forage costs – caused by drought in Kansas and an increase in feed grain prices in fall 2006 – are thought to have had a negative effect on cattle returns that year.

"Those factors are not the only ones to make the last five years interesting," said Troy Dumler, a K-State agricultural economist.

"Rising energy costs and increasing demand for crop and livestock commodities also have had a significant impact on agricultural production in Kansas. Currently, a variety of forces are aligning to shape the future of Kansas and the United States."

Ag economist Troy Dumler (seated) and producer Steve Rome review data relevant to the farm bill.

Dumler and Rome testified before the U.S. House of Representatives Committee on Agriculture in June 2007, stating farmers' case for the next farm bill. Dumler, in particular, has reached hundreds of people throughout the state with his analysis of what proposals in the new farm bill mean.

"Variability of income is an issue in agriculture and probably the best economic argument for farm programs," Dumler said. "This is especially the case in Kansas, where farmers face more production challenges due to weather than some other parts of the country. A wheat farmer in Kansas will face different risks than a corn farmer in Illinois or a cotton farmer in Georgia. As a result, farm bill provisions will affect producers in different ways.

"Our role," he added, "is to inform people of policy alternatives and discuss the consequences of those alternatives. If I can do that, then I have done my job."

Weather and fluctuating production costs have hurt U.S. and Kansas farmers the past two years. According to the Kansas Farm Management Association, the net farm income for Kansas farmers in 2006 was $46,593 – about $16,000 less than 2004. Government payments have helped to reduce that income variability, accounting for 60 percent of net farm income from 2002-2006.

Rome, who is in partnership with two brothers, has certainly felt the effect. In 2006, his family farm's corn harvest was 20 percent under what they expected. Crop insurance can help a farm recover some losses, he says, but relying solely on insurance is not a good risk management strategy.

It's why he's been vocal in advocating for provisions of the next farm bill that he thinks will help farmers. In particular, Rome favors a revenue plan that accounts for commodities prices and crop yields – and he gets to tell people about it.

"Extension is important from that standpoint," he said. "Not all states have an extension system set up the way Kansas does, where we have local involvement in developing policy. I think we are very fortunate where we can be a part of the process and be able to voice our opinions to those who develop policy."

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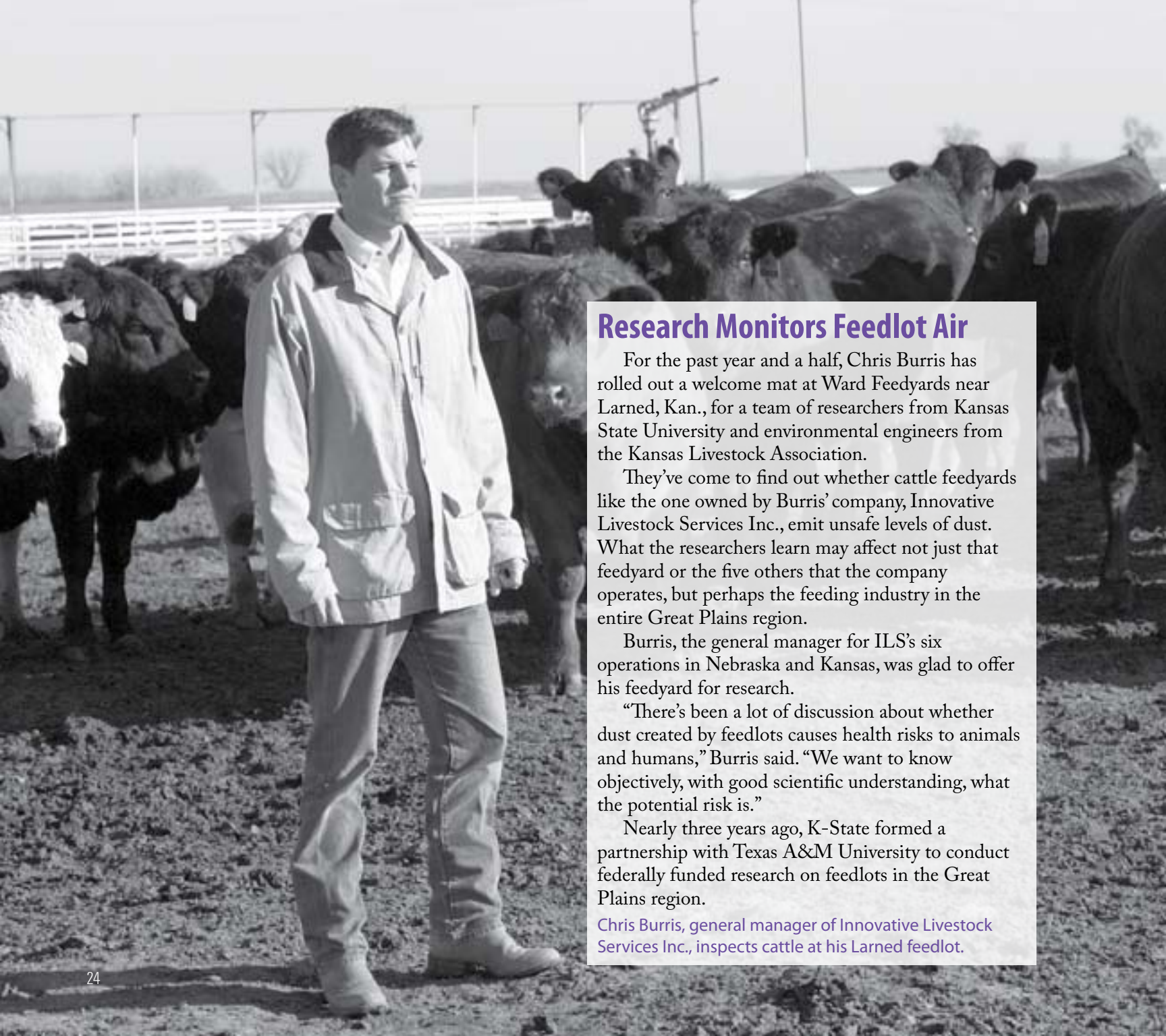
Recent Survey Results

K-State Research and Extension commissioned three telephone surveys (1996, 2000, and 2007) to evaluate how Kansas citizens value its services. An independent research group conducted the randomized, digital-dial phone surveys throughout Kansas.

The most recent survey showed that, 96.6 percent of those surveyed rated the information provided by K-State Research and Extension as somewhat or very credible. In that same survey:

- 97.5 percent of the respondents said that it is somewhat or very important for the state of Kansas to have the type of service provided to citizens of Kansas by K-State Research and Extension.
- 81.7 percent of Kansans said they approve or strongly approve of using public funds to support this program.
- 94 percent of those who have used K-State Research and Extension's services in the past rate their experience as "good" or "excellent."
- Among those who have never directly used K-State Research and Extension's services or attended a program, 97 percent said the service was still important for the state of Kansas.

Source: Summer 2007 telephone survey conducted by the Survey Research Center of the Institute for Policy and Social Research, University of Kansas. The margin of error in this survey was +/- 4 percent.



Research Monitors Feedlot Air

For the past year and a half, Chris Burris has rolled out a welcome mat at Ward Feedyards near Larned, Kan., for a team of researchers from Kansas State University and environmental engineers from the Kansas Livestock Association.

They've come to find out whether cattle feedyards like the one owned by Burris' company, Innovative Livestock Services Inc., emit unsafe levels of dust. What the researchers learn may affect not just that feedyard or the five others that the company operates, but perhaps the feeding industry in the entire Great Plains region.

Burris, the general manager for ILS's six operations in Nebraska and Kansas, was glad to offer his feedyard for research.

"There's been a lot of discussion about whether dust created by feedlots causes health risks to animals and humans," Burris said. "We want to know objectively, with good scientific understanding, what the potential risk is."

Nearly three years ago, K-State formed a partnership with Texas A&M University to conduct federally funded research on feedlots in the Great Plains region.

Chris Burris, general manager of Innovative Livestock Services Inc., inspects cattle at his Larned feedlot.

Texas researchers are looking more closely at odor; K-State Research and Extension is working on questions surrounding the dangers of dust. Both projects are critical for finding objective, scientific information that would assure regulations – if enacted – are fair.

"The Environmental Protection Agency has currently targeted ammonia and particulates (such as dust), which are associated with livestock agriculture," said Frank Mercurio, an engineer with KLA Environmental Services, an engineering and consulting firm.

"The initial approach by EPA was to extend data collected from 'smokestack' industries to livestock facilities and develop regulations from there. Those familiar with the livestock industry could tell immediately this held the potential for disaster. The research being conducted by K-State provides site-specific, real-world data that will hopefully lead to a better understanding of the processes that produce emissions, and the practices that mitigate them."

More than 40 percent of the nation's fed beef supply (approximately 11 million animals in 2006) is produced, harvested, and processed in the Southern Great Plains. Kansas feeders processed approximately 2.45 million cattle and calves in 2006 – second only to Texas.

"We anticipate that the project will establish a scientific basis for selecting cost-effective systems in mitigating air pollutant emissions from cattle feedyards," said Ronaldo Maghirang, a K-State agricultural engineer who is heading the project. When completed, "the project would benefit the long-term sustainability of open-lot, animal-feeding operations in the region."

Maghirang is collecting research data from two feedyards in Kansas, and Texas researchers have provided data from feedyards in that state. To date, researchers have determined that concentrations of particulate matter tend to peak a few hours after sunset, and may vary based on daytime moisture evaporation, cattle behavior in the evening, and atmospheric conditions.

Knowing this, Maghirang said, "it may be possible to target abatement strategies (such as water sprinkling) to mitigate the 3- to 4-hour peak dust episodes." Other strategies being studied further include feeding animals at dusk to reduce aggressive behavior; and paving feed alleys to reduce dust from truck traffic during the day.

Researchers are making recommendations to producers; however, research is ongoing. Implementation of findings and potential new technologies is at least three years down the line, said Maghirang.

Burris hopes researchers find that dust in feedyards is not a significant risk to animal and human health. If it is, though, he's ready to do what's right.

"The basic thing we are concerned with," he said, "is that regulations, if enacted, are science-based."

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Watershed Specialist Reaches Target Audiences

Kansans are concerned with water quality and usage. In 2006, a western Kansas watershed specialist reached nearly a half-million people by recognizing target audiences, providing timely communications, and strategically placing communications in channels that were convenient for target audiences.

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KELP Project Demonstrates New Practices

Participants in the Kansas Environmental Leadership Program constructed the rock channel crossing in Russell County. It will be used as a demonstration site to show livestock producers an alternative method of limiting the access of cattle to the water and riparian area, while maximizing stream bank stability and ultimately improving and protecting water quality.

Judy Willingham, kelp@k-state.edu, 785-532-5813

Learning the Ropes from a Distance

From her home office in the suburbs of Kansas City, Laura Hammond is helping to run the family's century-old business.

That wouldn't be a big deal if the business was closely associated with metropolitan areas. Instead, Hammond is in partnership with her mother in managing two central Kansas cattle ranches.

Even Hammond admits her current job is a long way from northwest Massachusetts, where she earned an English degree with the intention of teaching and coaching.

"Back then," she laughs, "I didn't know anything about ranching."

Hammond is one of nearly 160 Kansans who have completed a four-month distance education course for those interested in managing agricultural operations. The course, called Management, Analysis, and Strategic Thinking (MAST), has been offered by K-State's Department of Agricultural Economics since 2002.

Laura Hammond (left) helps her mother, Gina Miller, manage two ranches from her home in Kansas City.

"The goal of MAST is to have a very comprehensive educational program that goes beyond the traditional two-hour or half-day workshop," said agricultural economist Kevin Dhuyvetter. "However, to do that, we felt it needed to be distance-based so producers could work on their own time."

With an active young daughter (Sophie) and a husband who travels for his work, Hammond says, "I'm just not very mobile." Taking distance classes was the perfect fit for her – and the family's business.

"I have a much better picture of our industry and where the family's business fits into it because of the classes," said Hammond, who finished the course in spring 2007. "I'd love to take the MAST class again."

Over five years, many participants feel the same way. Evaluation data indicate that 95 percent of past participants say they would recommend MAST to their peers in the agricultural industry, and 100 percent of them believe that what they learned through MAST will have a positive effect on their company's profits.

Terry Kastens, a K-State ag economist, said that providing value to real life economics is a key to MAST's success.

"Busy people in the business world don't always have time to participate in a degree program. Moreover, they sometimes wish to acquire some education that may not even generally be acquired or available in a traditional degree-based program. In that sense, some distance educational programs may be said to 'go beyond' traditional on-campus, degree-based programs."

MAST students initially meet on the K-State campus for two days and again near the end of the program. Otherwise, students complete course modules, including such topics as land leasing, tax planning, financial management, and more – on their own time.

In 1999, Hammond's mother took over as manager of the two ranches – the Mashed O Ranch near Council Grove, and the Cottonwood Ranch near Cottonwood Falls – from her father. The family runs about 1,200 cows and 50 bulls between the two operations.

Hammond is the company's bookkeeper and office manager. She and her mom are the fourth and fifth generations to run the business. Hammond hopes that Sophie may some day become the sixth generation to run the operation.

Even though she had not initially intended to get into the ranching business, Hammond says, "I do love the ranch, and it doesn't surprise me that I got involved. I love the tradition in my family, and I don't want that to stop after my mom."

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Internet Usage by Kansans

- 55.3 percent of adults ages 18 and older say they use the Internet daily. 68.6 percent say they use the Internet at least weekly.
- 60.7 percent of adults ages 18 and older say they have used a personal computer at home, at work, or elsewhere on a daily basis. 71.9 percent say they use a computer at least weekly.
- 69.4 percent of adults rate the Internet as an "effective" or "very effective" way to get information.
- 87.7 percent of Kansans between the ages of 24-44 rate the Internet as an "effective" or "very effective" way to get information.
- 84.2 percent living in metro areas rated the Internet as "effective" or "very effective", slightly ahead of radio (83.5 percent) and direct access with specialists by telephone (83.6 percent).

Source: Summer 2007 telephone survey conducted by the Survey Research Center of the Institute for Policy and Social Research, University of Kansas. The margin of error in this survey was +/- 4 percent.

Want to Know More? K-Staters who can provide more information on topics in this report.

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The Role of K-State Research and Extension

K-State Research and Extension is a short name for the Kansas State University Agricultural Experiment Station and Cooperative Extension Service, a partner in the nationwide land-grant system of universities that was created in the 1860s to educate people from all walks of life and to generate and distribute useful public knowledge. K-State scientists and extension faculty can draw on the expertise and accumulated studies and discoveries of the land-grant system, other universities, state and federal agencies, and industry.

Mission –

K-State Research and Extension is dedicated to a safe, sustainable, competitive food and fiber system and to strong, healthy communities, families, and youth through integrated research, analysis, and education.

In order to accomplish this, K-State Research and Extension is focusing its efforts on five core mission themes:
Natural Resources and Environmental Management;
Healthy Communities: Youth, Adults, and Families;
Safe Food and Human Nutrition;
Competitive Agricultural Systems; and
Economic Development through Value-Added Products.

Facilities Across the State

Headquartered on campus in Manhattan, K-State Research and Extension includes statewide county and district extension offices, research centers, and experiment fields supported by county, state, federal, and private funds. K-State Research and Extension supports faculty in 23 academic departments across five K-State colleges. Research conducted on campus and at off-campus research facilities is shared with Kansas citizens through meetings, field days, publications, Web sites, news releases, radio, and television.

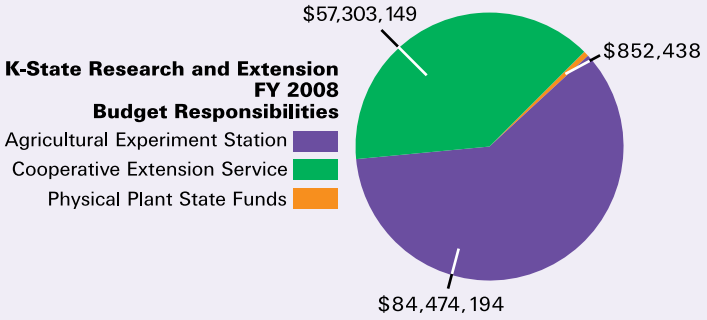
Districting – Finding new ways to work together to serve Kansans

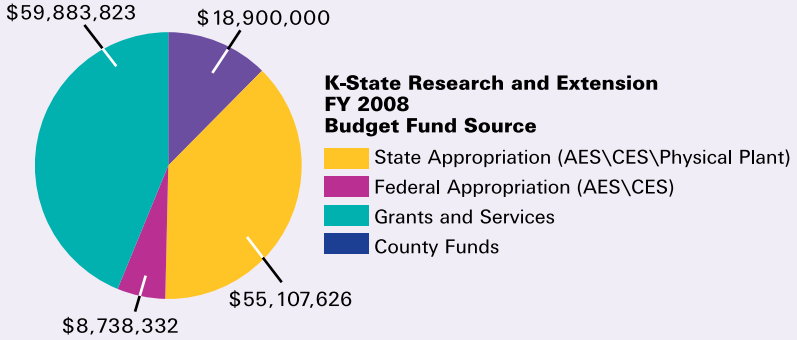
Since 1991, any two or more Kansas counties can legally work together to form an extension district. In an effort to increase efficiency and effectiveness, 21 counties have formed seven districts.

Post Rock District #1 (1994) – Mitchell and Lincoln counties; Jewell and Osborne counties joined in 2005.
Walnut Creek District #2 (1997) – Lane, Ness, and Rush counties.
Central Kansas District #3 (2004) – Saline and Ottawa counties.
River Valley District #4 (2005) – Clay, Cloud, Republic, and Washington counties.
Phillips-Rooks District #5 (2005) – Phillips and Rooks counties.
Sunflower District #6 (2005) – Sherman and Wallace counties; Cheyenne joined in 2006.
Meadowlark District #7 (2006) – Jackson, Jefferson, and Nemaha counties.

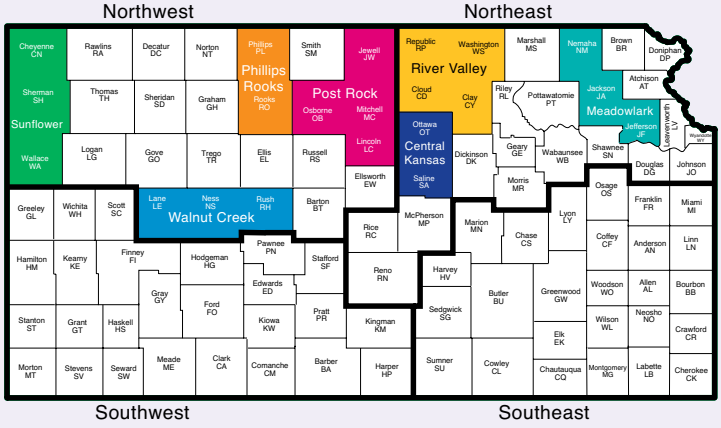
K-State Research and Extension Budget Data for Fiscal Year 2008

Source: Doug Elcock, Business/Fiscal Officer, 785-532-7139, delcock@k-state.edu

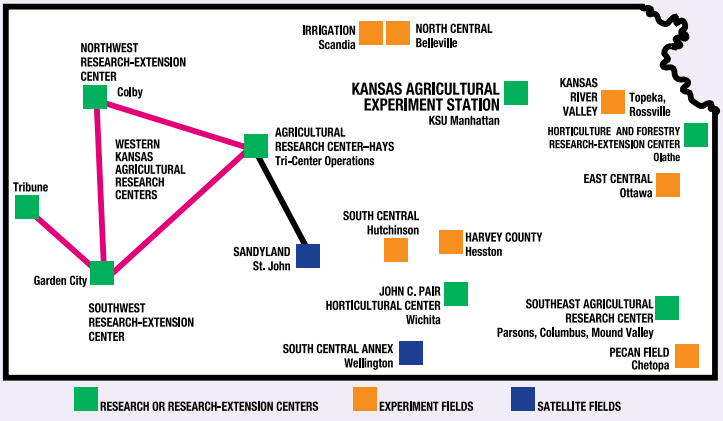




Statewide Offices



Research Facilities



"Knowledge for Life"

This publication is produced by the Department of Communications.
Publications from K-State Research and Extension are available on the Internet at:
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UNN 22