

## MINUTES OF THE SENATE AGRICULTURE COMMITTEE

The meeting was called to order by Chairman Mark Taddiken at 8:30 a.m. on January 22, 2008 in Room 423-S of the Capitol.

All members were present except:

Steve Morris- excused  
Derek Schmidt- excused

Committee staff present:

Raney Gilliland, Kansas Legislative Research Department  
Jason Thompson, Office of Revisor of Statutes  
Matt Todd, Office of Revisor of Statutes  
Judy Seitz, Committee Assistant

Conferees appearing before the Committee:

Dr. Fred A. Cholick, Dean, College of Agriculture and Director of K-State Research and Extension  
Dr. Daryl Buchholz, Associate Director, K-State Extension and Applied Research

Others attending:

See attached list.

Chairman Taddiken welcomed the Kansas Livestock Association Leadership Class to the Committee.

A copy of an article (Attachment 1) entitled "More Miles for your Gallon" reporting on research at the University of Minnesota and North Dakota on ethanol and mid-range blends was handed out to the Committee.

Dr. Fred Cholick, Dean, College of Agriculture and Director of K-State Research and Extension, reported on the Kansas Center for Sustainable Agriculture and Alternative Crops (KCSAAC) (Attachment 2) which has provided assistance and training for those who participate in the farmers' markets.

Extension Systems in Agriculture Programs (ESARP) provides funding for K-State Research and Extension. (Attachment 3) which is a partnership in both funding and people.

Proper grassland burning in the Flint Hills grasslands maintains the eco system and supports the \$6 billion beef industry in the state.

Wheat production is very important to the economy of the state; and Kansas is the number one milling state.

Operation: Military Kids is a national support program for military families and children who do not live on a military base.

Another example of a partnership is K-State Research and Extension reaching out to help communities through the Kansas PRIDE Program. Many of these are nutrition based programs.

Another collaborative project with industries is the research which monitors feedlot air. This project will help K-State develop the scientific knowledge so that if and when regulations are passed, they will be able to make wise decisions.

Dr. Daryl Buchholz, Associate Director, K-State Extension and Applied Research, said that 2007 was a unique year because of the coping necessary for the disasters which affected most counties in Kansas. K-State Research and Extension has staffed offices in every county.

K-State Extension provided leadership and support in organizing a series of informational meetings to those affected by the ice storm, snow storm, floods and tornadoes. A forum was held to help understand the programs and opportunities that are available in the disaster recovery process with a focus on the agriculture and rural interest. K-State is part of the Extension Disaster Education Network (EDEN); a collaborative

CONTINUATION SHEET

MINUTES OF THE Senate Agriculture Committee at 8:30 a.m. on January 22, 2008 in Room 423-S of the Capitol.

multistate effort to improve the delivery of services to citizens affected by disasters. Rural families also received emotional and mental support in dealing with these disasters.

Dr. Cholick took questions from the Committee.

There were no bill introductions.

Each member of the Kansas Livestock Leadership Class gave their name and hometown.

Dr. Cholick continued answering questions.

The meeting adjourned.



# SENATE AGRICULTURE COMMITTEE GUEST LIST

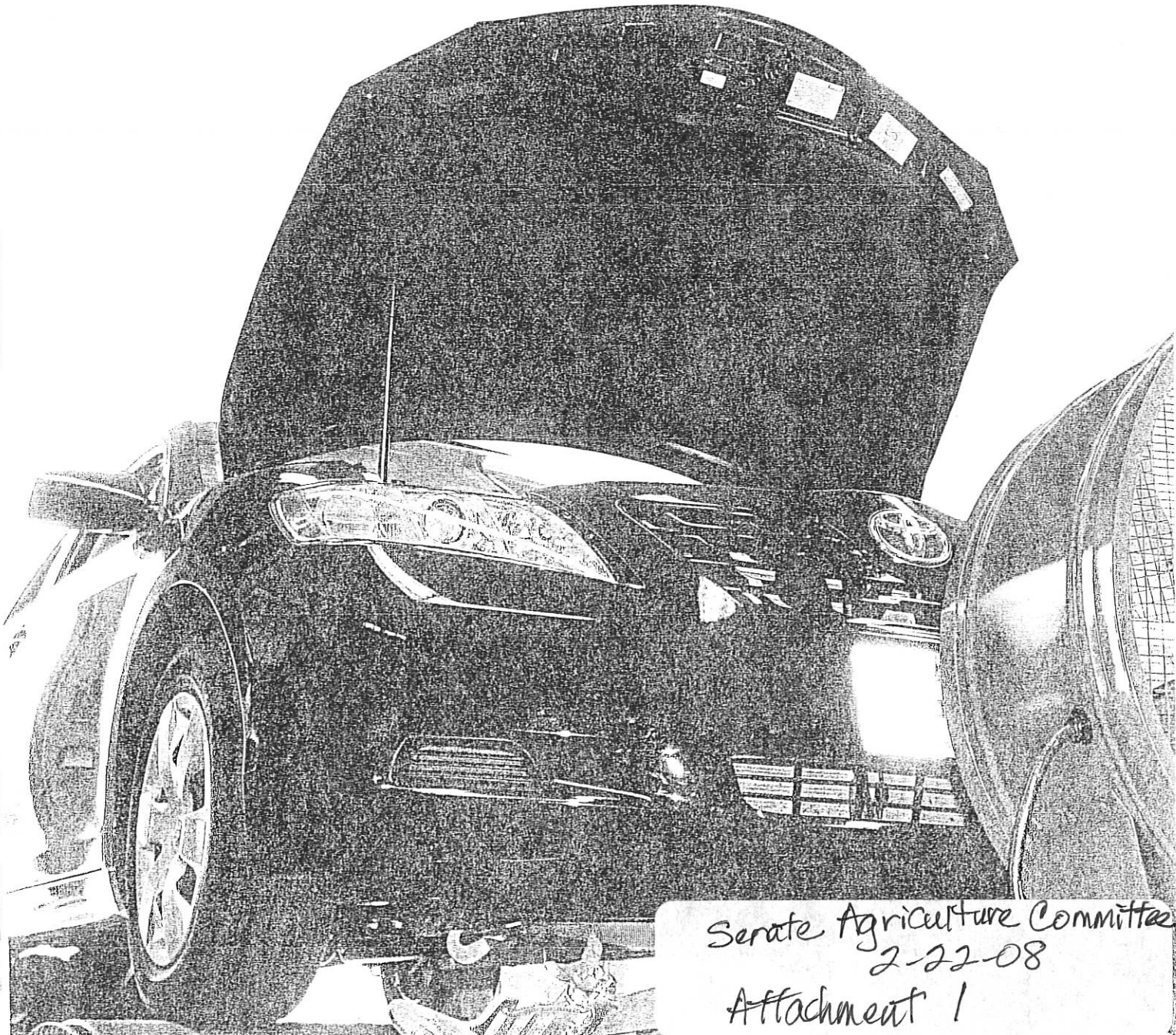
DATE: January 22, 2008

NAME	REPRESENTING
Steve Peterson	KLA
Daniel Miller	KLA
Grady Martin	KLA
Xent Woolfolk	KLA
RAE LUGINSHAND	KLA - Hutchinson, KS
Scott Bollin	KLA
Tom Hopp	KLA
Chris Petty	KLA
Jim Wilson	KLA
Jim Debeer	KLA
Todd Forman	KLA
Eli Ball	KLA
Scott Mills	KLA
Ted JullW	KLA
Lusha Janssen	KLA
Norman Pilger	KLA
Eric Hatcher	KLA
Arlyn Wilke	KLA
Lisa M. Moser	KLA

# more miles for your gallon

with mid-range ethanol blends

New research findings on ethanol's fuel economy have surprised many – even some ethanol supporters.



Senate Agriculture Committee  
2-22-08  
Attachment 1

"We have been doubting the old fuel economy estimates based only on energy content, so we did hope to see better mileage results than those Btu numbers – but these results are surprising, even to us," said Ron Lamberty, Vice President / Market Development for the American Coalition for Ethanol (ACE).

According to results of the "Optimal Ethanol Blend-Level Investigation," less might in fact be more. Less gasoline, more miles for your gallon – especially with mid-range ethanol blends such as E20 and E30.

Conducted by the University of North Dakota Energy & Environmental Research Center (EERC) and the Minnesota Center for Automotive Research (MnCAR) at Minnesota State University – Mankato, the study shows that the fuel economy of ethanol blends is significantly better than suggested by today's standard British Thermal Unit (Btu) estimates.

The good news for ethanol didn't stop there, with the research also finding that some mid-range ethanol blends – 20 percent and 30 percent ethanol, for example – can actually provide fuel economy improvements over straight gasoline, even in standard, non-flex-fuel vehicles.

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“ Less gasoline, more miles for your gallon – especially with mid-range ethanol blends such as E20 and E30. ”

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"The initial findings indicate that we as a nation haven't begun to recognize the value of ethanol," said Brian Jennings, Executive Vice President of ACE. "This is a compelling argument for seriously considering higher blends of ethanol in gasoline."

Co-sponsored by the American Coalition for Ethanol and the U.S. Department of Energy, the research investigated the possible existence

## Optimal Ethanol Blend-Level Investigation Overview

**Researchers:** The University of North Dakota Energy & Environmental Research Center (EERC) & the Minnesota Center for Automotive Research (MnCAR).

**Testing Method:** The Highway Fuel Economy Test (HWFET), a test developed by the U.S. Environmental Protection Agency to determine fuel economy.

**Vehicles Tested:** Toyota Camry (2.4 liter engine), Ford Fusion (2.3 liter engine), non-flex-fuel Chevrolet Impala (3.5 liter engine), flex-fuel Chevrolet Impala (3.5 liter engine).

**Fuels Tested:** Various blends of undenatured ethanol & Tier 2 gasoline, from 0% to 85% ethanol.

**Primary Objective:** To investigate the possible existence of a fuel-economy-based "optimal" ethanol blend level, at which the actual measured miles per gallon is greater than the miles per gallon predicted by the fuel's per-gallon energy content.

**Secondary Objective:** To acquire emission data for all surveyed fuels and determine whether they continued to meet EPA guidelines.

of a fuel economy-based "optimal" ethanol blend level, at which the actual measured miles per gallon is greater than the miles per gallon predicted by the fuel's per-gallon energy content.

### Key Findings:

1. Ethanol's energy content was not found to be a direct predictor of fuel economy.
2. E20 and E30 ethanol blends outperformed gasoline in fuel economy tests for certain autos.
3. Standard, non-flex-fuel vehicles operated well on ethanol blends beyond 10 percent.
4. Vehicle emissions met EPA requirements and were improved in key areas.

Highway Fuel Economy Testing (HWFET) was conducted on four vehicles – a Toyota Camry, a Ford Fusion, a standard (non-flex-fuel) Chevrolet Impala, and a flex-fuel Chevrolet Impala. Various gasoline-ethanol blends were studied, from straight Tier 2 gasoline with no ethanol up to an 85 percent ethanol blend. Undenatured fuel-grade ethanol was used for the research to eliminate any extraneous organic carbon being included in the final fuel blend.

### Results suggest better fuel economy, "optimal" ethanol blends

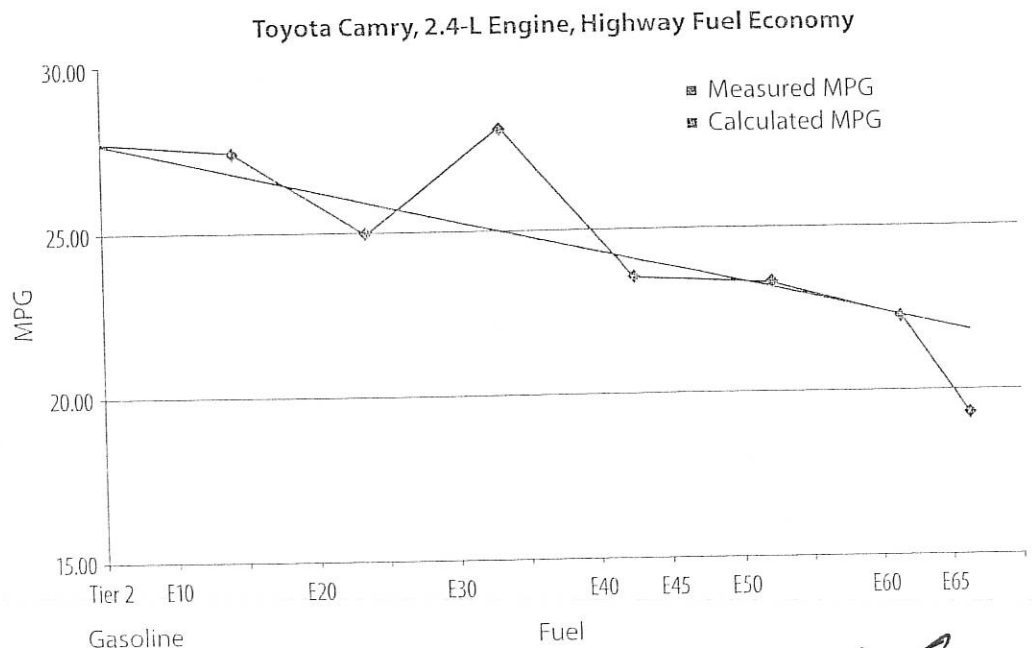
"The fuel economy of ethanol blends is a topic surrounded by much misconception, but until now, not a lot of scientific data," Jennings said. "This research offers a new perspective on the practice of estimating ethanol fuel economy on an energy-content basis, on the fuel economy of higher ethanol blends, and on the ability of standard vehicles to operate on blends of ethanol beyond 10 percent."

#### 1. ETHANOL'S ENERGY CONTENT WAS NOT FOUND TO BE A DIRECT PREDICTOR OF FUEL ECONOMY

Previous assumptions held that ethanol's lower energy content directly correlates with lower fuel economy for drivers, predicting decreased fuel economy in proportion to the percentage of ethanol in the fuel blend.

Those assumptions were found to be incorrect. This research shows, instead, that ethanol's Btu content is not a direct predictor of fuel economy.

*This graph from the research shows the Toyota's performance on the range of ethanol blends resulting in E85. Data on the other three vehicles is available at [EPA.gov/1g](http://EPA.gov/1g)*



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All four vehicles tested exhibited better fuel economy with the ethanol blends than Btu-value estimates predict.

**2. E20 AND E30 ETHANOL BLENDS OUTPERFORMED GASOLINE IN FUEL ECONOMY TESTS FOR CERTAIN AUTOS**

Contrary to Btu-based estimates of fuel economy, three of the four vehicles tested achieved their highest fuel efficiency not on gasoline, but on an ethanol blend. The mid-level blends of ethanol E20 and E30 offered the best fuel economy in these tests.

E30 proved to be the most efficient fuel for both the Toyota Camry and the Ford Fusion, offering a one percent fuel economy increase over the gasoline. The flex-fuel Chevy Impala attained the best fuel economy on E20, a full 15 percent higher than when running on gasoline.

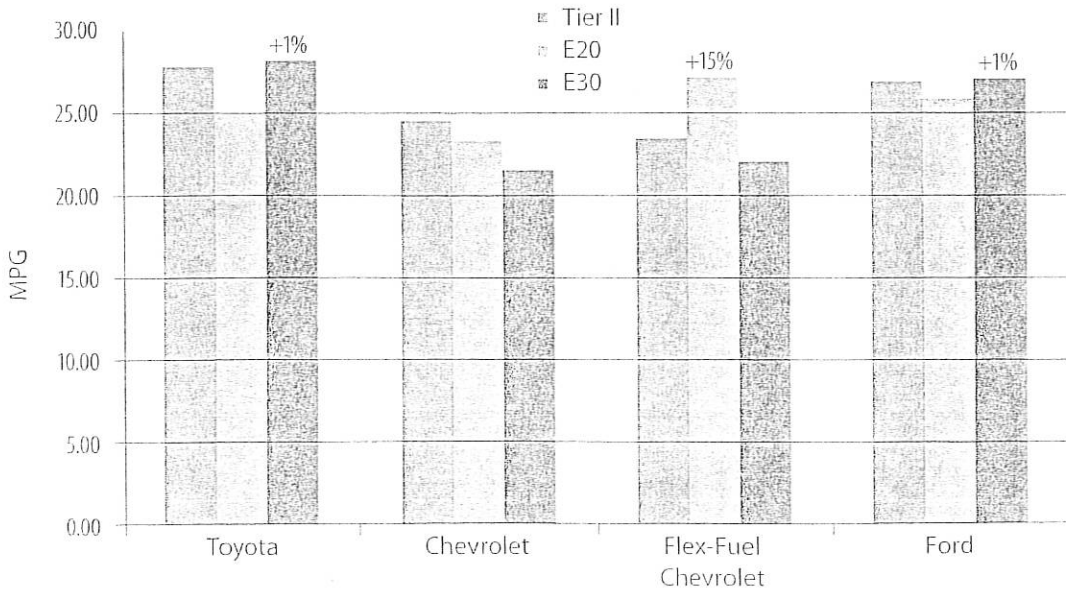
"The research strongly suggests that there's an 'optimal' blend level of ethanol and gasoline, most likely E20 or E30, at which vehicles

will get better mileage than predicted based strictly on the fuel's per-gallon Btu content," Jennings noted.

Fuel economy values for E20 and E30 in the non-flex-fuel Chevy more closely followed the calculated fuel economy, offering slightly lower efficiency with these blends than with gasoline. However, of the ethanol blends tested, there is a definite peak at E40, indicating that this may be the 'optimal' blend of ethanol fuel for this vehicle.

"One reporter asked us what the significance was of the 'only' one percent increase with the E30," Lambertly said. "He had failed to recognize that it's not really the one percent increase that's significant - it's actually a 31 percent increase because you're traveling one percent farther with 30 percent less gas in the tank. This is a definite 'more with less' situation with more ethanol and less gasoline in the blend providing better results for motorists."

**Actual Results: Highway Fuel Economy Improvement Demonstrated with E20, E30 vs. Gasoline**



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### 3. STANDARD, NON-FLEX-FUEL VEHICLES OPERATED WELL ON ETHANOL BLENDS BEYOND 10 PERCENT

Automakers currently cover the use of up to a 10 percent ethanol blend by warranty for standard, non-flex-fuel vehicles. In this preliminary research, the three non-flex-fuel vehicles tested each operated successfully on ethanol blends significantly higher than this 10 percent ethanol level.

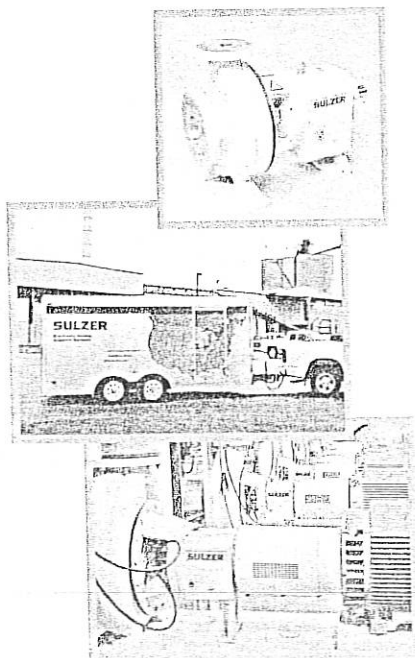
"In addition to the very positive fuel economy results, the research provides strong evidence that standard, non-flex-fuel vehicles can run – and run well – on ethanol blends beyond 10 percent," Lamberty said.

The Ford Fusion operated on E45, the Toyota on E65, and the non-flex-fuel Chevy on E55. No engine fault codes were displayed until these levels were surpassed.

This data on the ability of non-flex-fuel vehicles to run successfully on blends beyond E10 backs up earlier research on the topic. In addition to much anecdotal evidence from motorists who report the successful use of mid- to high-range ethanol blends in their non-flex-fuel vehicles, two preliminary studies have been done.

The 2005 ACE Fuel Economy Study showed three standard vehicles operating successfully on E20 and E30 during the course of mileage tests with 10 to 30 percent ethanol blends. In 2006, the organization commissioned research at Lake Area Technical Institute of Watertown, South Dakota on a 2001 non-flex-fuel Chevy Tahoe that had run for more than 100,000 miles almost exclusively on E85. The engine tear-down found no adverse effects on engine components from the high-alcohol fuel, and in some cases components were in better

## Sulzer: one company



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condition than a comparable vehicle that had run on straight gasoline. In addition, key testing is ongoing in Minnesota as part of the state's look at the 20 percent ethanol level.

#### 4. VEHICLE EMISSIONS MET EPA REQUIREMENTS AND WERE IMPROVED IN KEY AREAS

A secondary objective of the investigation was to acquire HWFET hot-start tailpipe emission data for all surveyed fuels. Cold-start emissions were also determined on the vehicle's optimal blend level and on Tier 2 gasoline using Federal Test Procedure 75 (FTP-75).

The research found that mid-range ethanol blends reduce harmful tailpipe emissions, with the ethanol blends showing favorable emissions results for nitrogen oxides, carbon monoxide, and nonmethane organic gases.

"More rigorous testing will be required, but these results are well within EPA guidelines and provide insight into the potential for these higher ethanol blends to play a role in improving our environment," Jennings added.

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“ An especially significant reduction in CO<sub>2</sub> emissions was found for each vehicle's "optimal" ethanol blend - E20 for the flex-fuel Chevrolet, E30 for the Toyota and the Ford, and E40 for the non-flex-fuel Chevrolet. ”

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Exhaust emission values for nitrogen oxides (NOx) and carbon monoxide (CO) were at or below EPA Tier 2, light-duty vehicle, Bin 5 levels for all vehicles tested. Exhaust emission values for nonmethane organic gases (NMOG) were at or below EPA Tier 2, light-duty vehicle, Bin 5 levels for all vehicles tested with one exception.

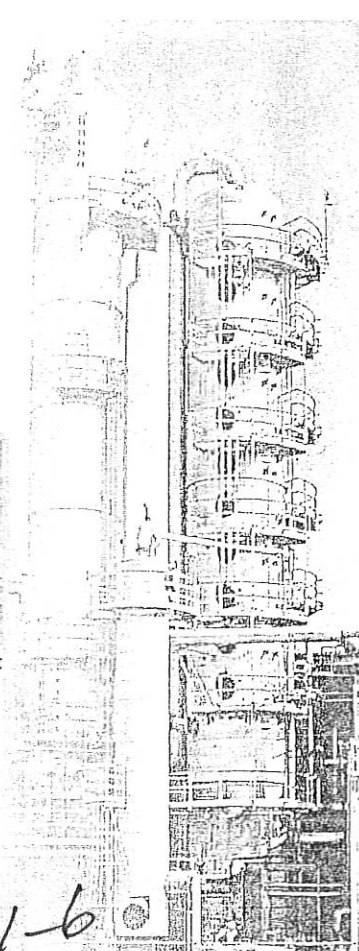
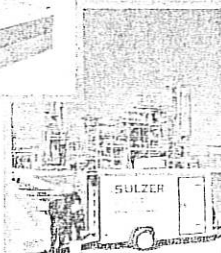
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The one exception, the flex-fuel Chevrolet Impala, exceeded the cold-start emissions standard for NMOG on Tier 2 gasoline and on E20, the E20 exceedance being 21 percent less than that of the gasoline.

*“It’s pretty clear from this study that one of the things we absolutely have to do in the Administration is hasten the intermediate blend wall testing issue and resolve that quickly.”*

*-Tom Dorr  
USDA Under Secretary for  
Rural Development*



An especially significant reduction in CO<sub>2</sub> emissions was found for each vehicle’s “optimal” ethanol blend – E20 for the flex-fuel Chevrolet, E30 for the Toyota and the Ford, and E40 for the non-flex-fuel Chevrolet. “These studies show that moderate 20-30 percent ethanol blends

*“Each of the vehicles achieved better than expected fuel economy when compared to the projected fuel economy.”*

*-Dr. Bruce Jones  
Professor of Automotive Engineering Technology  
Minnesota State University - Mankato*

can reduce air pollution, improve gas mileage, and save drivers money in the most popular cars on the road today,” said Brett Hulse, president of Better Environmental Solutions, an environmental health consulting firm. “Moderate ethanol blends are homegrown in America, can be delivered with existing pumps to current vehicles, and cost less than gasoline. Ethanol lowers CO<sub>2</sub> emissions 20 percent from gasoline, making it one of our most effective greenhouse gas reduction programs currently in place.”

### Research findings unveiled on Capitol Hill

The American Coalition for Ethanol was joined by a distinguished panel of experts for a December 5, 2007 presentation of the “Optimal Ethanol Blend-Level Investigation” results. A

*On December 5, industry leaders unveiled the “optimal blend” research findings to members of the media at a roundtable held in the Dirksen Senate Building*



media roundtable was held on Capitol Hill in the Dirksen Building's Senate Energy & Natural Resources Committee hearing room

Joining ACE's Brian Jennings and Ron Lamberty for the event were U.S. Senators Byron Dorgan (D-ND) and John Thune (R-SD); Thomas C. Dorr, USDA Under Secretary for Rural Development, Andy Karsner, DOE Assistant Secretary, Office of Energy Efficiency and Renewable Energy; Brett Hulsey, President of Better Environmental Solutions; Dr. Mark Cooper, Director of Research for the Consumer Federation of America; and Dr. Bruce Jones, Professor of Automotive Engineering Technology at Minnesota State University – Mankato. Chris Zygarlicke, Deputy Associate Director for Research at the Energy & Environmental Research Center, was also invited to participate but was unable to due to travel delays.

Lead researcher Bruce Jones, Director of MnCAR, presented the study's findings to a crowded room of media representatives and interested individuals, and then each panelist shared his perspective on the results.

During the 17 years Dr. Jones has spent at Minnesota State University, his research has focused on fuel efficiency, vehicle emissions, and alternative transportation fuels.

"We were contacted by the EERC to collaborate on a study designed to investigate fuel economy characteristics of a variety of blends of ethanol in gasoline to try to identify if there were any efficiency gains of some of the blends over others," Jones said. "Each of the vehicles

achieved better than expected fuel economy when compared to the projected fuel economy based on the energy content of the fuel alone."

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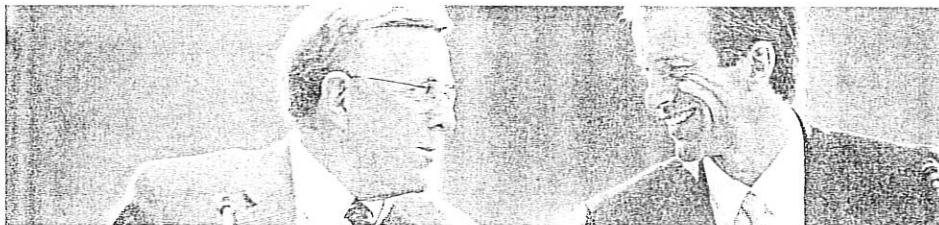
*"It is important that the federal government look at expanding consumer access to ethanol by studying and approving higher blends of ethanol for use in non-flex-fuel vehicles."*

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-Senator John Thune

Under Secretary Dorr stated, "It's pretty clear from this study that one of the things we absolutely have to do in the Administration is hasten the intermediate blend wall testing issue and resolve that quickly. I think the leadership provided by this study goes a long way in facilitating a lot of the dialogue and technological implications."



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*"With blends above 10 percent, we can achieve significant opportunities to reduce air pollution and to increase gas mileage."*

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-Senator Byron Dorgan

Senator Thune, who has spent a considerable amount of time studying the E10 blend wall issue, urged the federal government to move forward to improve access to higher blends of ethanol.

"It is important that the federal government, led by the Department of Energy and the EPA, look at expanding consumer access to ethanol by studying and approving higher blends of ethanol

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such as E20 and E30 for use in non-flex-fuel vehicles," Thune said. "I look forward to working with the folks who are at this table and hope that those studies will be completed very soon. And when they are, we will work as hard as we can to impress upon the Administration the importance of moving to higher blends, because it is a solution for the E10 blend wall, it is a solution to America's growing dependence on foreign energy."



*"This is exactly the kind of long-term, out-of-the-box thinking we need so that we can address the three fundamental issues – consumer pocketbook, national security, and the environment. That will get us a solution quicker and cheaper than the path we're currently on."*

-Dr. Mark Cooper  
Consumer Federation of America

"With blends above 10 percent, we can achieve significant opportunities to reduce air pollution and to increase gas mileage," Senator Dorgan stated. "I hope this has pierced the balloon that's out there that somehow ethanol is not going to be as major a part of our future as we had thought. It is going to be a bigger part of our future than we thought, in my opinion."



Dr. Cooper of the Consumer Federation of America noted the benefits offered to consumers with these fuel efficiencies.

*"Moderate ethanol blends can be delivered to existing vehicles with existing infrastructure, so we can make immediate reductions in carbon dioxide and other emissions without waiting for next generations."*

-Brett Hulsey  
Energy Efficiency and Conservation Authority

"We always talk about how the consumer should drive choices and how the consumer should have choice. It's called consumer sovereignty. I'm a consumer advocate, I think that's the first principle of the marketplace," Cooper said. "From our point of view this is exactly the kind of long-term, out-of-the-box thinking we need so that we can address the three fundamental issues – consumer pocketbook, national security, and the environment. That will get us a solution quicker and cheaper than the path we're currently on." Hulsey noted the importance of ethanol blends to consumers from another angle – health. "Ethanol blends reduce cancer-causing benzene, heart attack-causing soot pollution, and deadly carbon monoxide," Hulsey said.

"Moderate ethanol blends can be delivered to existing vehicles with existing infrastructure, so we can make immediate reductions in carbon dioxide and other emissions without waiting for next generations."

"Our addiction to oil, our access to oil, is not going away, even though our sources are depleting and our possibility of getting at them more economically and with greater security are eroding beneath us," Assistant Secretary Karsner said. "Now is the time to act, and your study brings us into greater focus."

Several media outlets were represented at the event, including *The New York Times*, *Detroit News*, *Platts Commodity News*, *Environment & Energy Daily*, *Energy Washington Week*, *Greenwire*, *The Politico*, and *Kiplinger's Biofuels Market Alert*. The experts also had

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advance one-on-one sit-downs with reporters from *The New York Times* and other key media reporters prior to the event.

While in Washington, Jennings met with key staff in the offices of Senator Tim Johnson (D-SD) and Congresswoman Stephanie Herseth Sandlin (D-SD), and with Tom Buis, President of the National Farmers Union. Jennings and Lamberty also met with Bob Dinneen, President and CEO of the DC-based Renewable Fuels Association.

Hulsey discussed the research findings with various environmental organizations including the American Lung Association, the Sierra Club, the Natural Resources Defense Council, and the Union of Concerned Scientists.

### Moving forward with higher ethanol blends

According to Jennings, the purpose of the study was to identify if intermediate blends of ethanol could have a practice and beneficial application in standard automobiles. If choices such as E20 and E30 were available to consumers today, what effects would these blends of ethanol have on fuel economy and exhaust emissions?



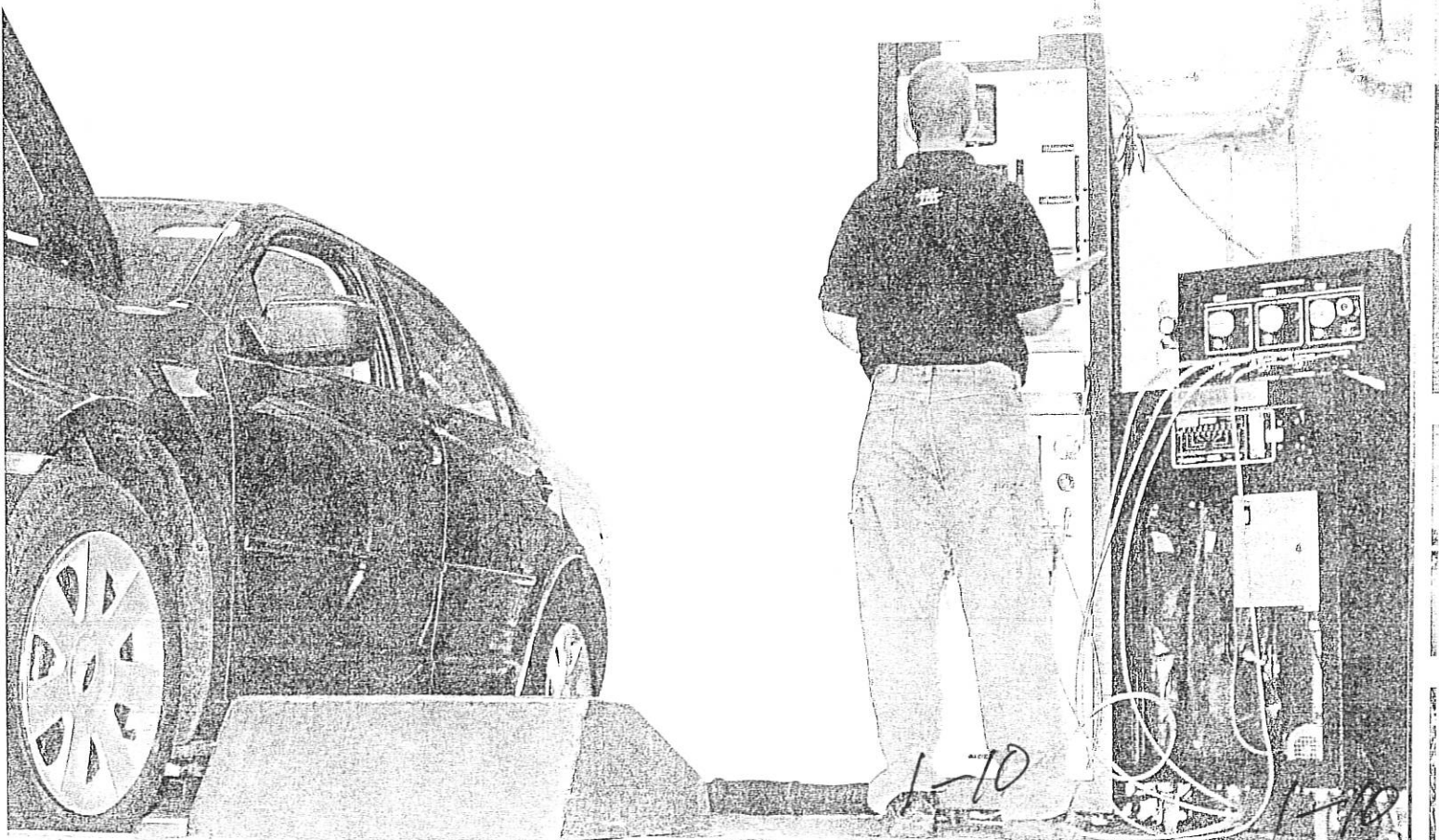
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“ Our addiction to oil, our access to oil, is not going away, even though our sources are depleting and our possibility of getting at them more economically and with greater security are eroding beneath us. ”

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-Andy Karsner  
DCE Assistant Secretary

In short, the research found that E20 and E30 ethanol blends can provide better fuel economy





than gasoline, even in standard cars, with fewer harmful tailpipe emissions to boot," he said. "Even though this is a preliminary study, we are encouraged that higher blends of ethanol could have very positive implications for fuel efficiency, cleaner air, and energy security."

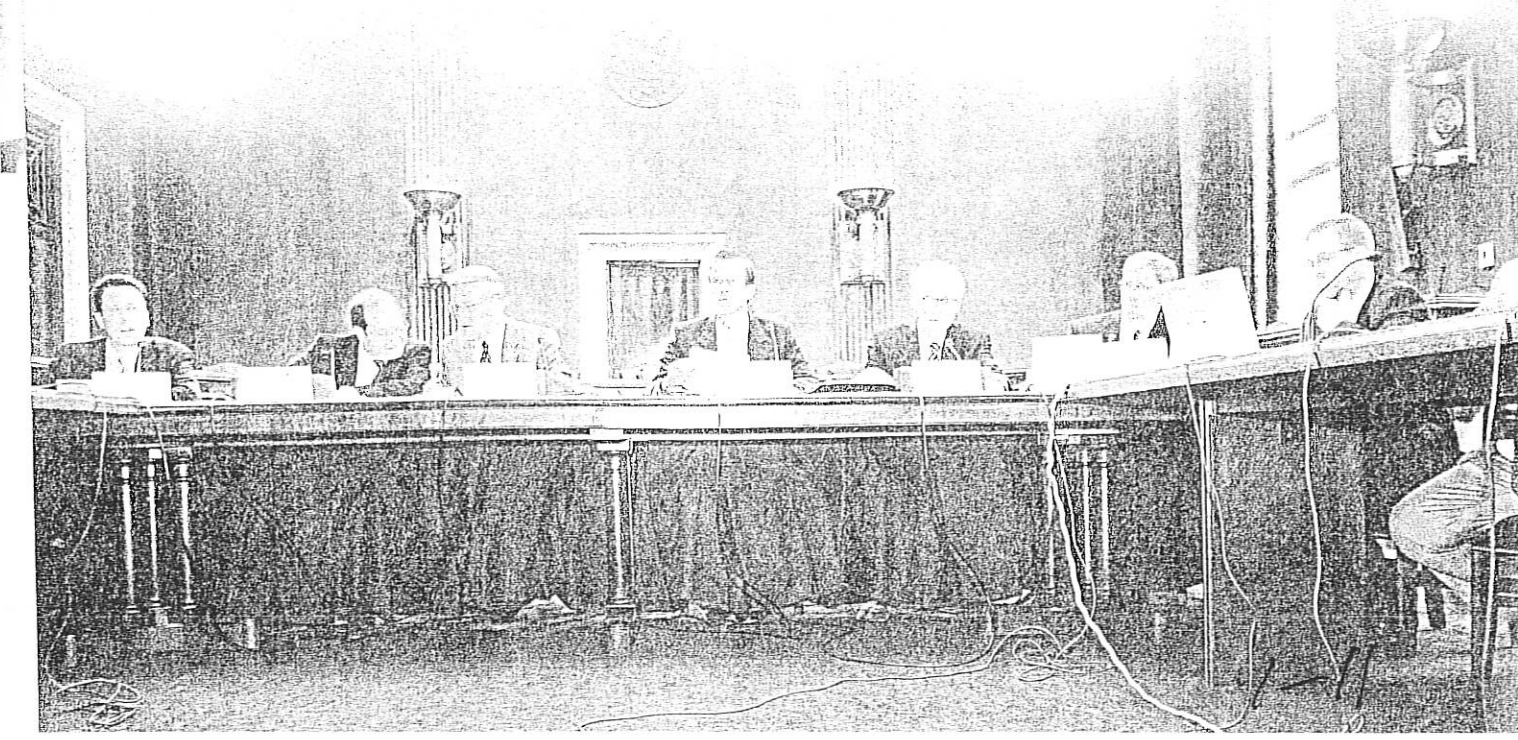
“ It’s in everyone’s best interest to find ways to use more renewable fuel in the vehicles on and the gas stations along America’s roads today. ”

Ron Lamberty  
American Coalition for Ethanol

The American Coalition for Ethanol hopes that the results will provide a catalyst for further analysis and more comprehensive testing, all necessary to convince regulators and automakers that higher ethanol blends should be approved for use in standard vehicles.

Having the infrastructure in place for these renewable fuels of the future is also key. ACE notes. A number of gas stations in South Dakota and Minnesota have installed blender pumps which dispense a range of ethanol blends between E10 and E85. With one underground tank for gasoline and one for E85, the pumps dispense the mid-range ethanol blend – such as E10, E20, E30 or E40 – selected by the consumer.

“High oil prices are creating an urgent situation for the United States to do something now about its expensive oil habit. The new Renewable Fuels Standard is critically important, and so is the increased availability of E85 and flexible fuel vehicles, but it’s also in everyone’s best interest to find ways to use more renewable fuel



in the vehicles on and the gas stations along America's roads today," Lamberty said. "With this new evidence of the great benefits higher ethanol blends have to offer, we hope the federal government will move swiftly to take action to fund the additional, comprehensive research needed on this topic, and will include blender pumps in legislative efforts to roll-out renewable fuels infrastructure," Jennings said. "We need to work together

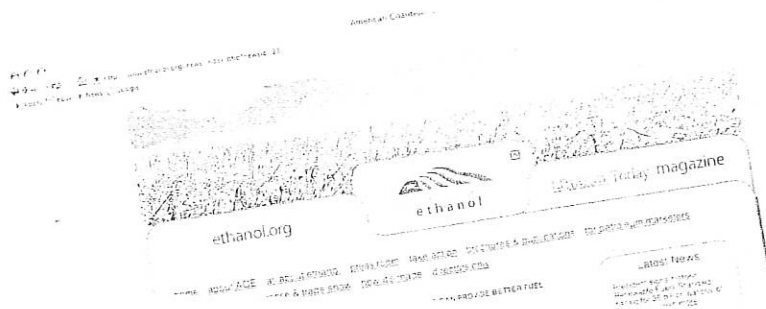
to get this done for American consumers. Higher blends of ethanol will return money to consumers' pocketbooks, conserve energy, and curb our reliance on foreign oil."



“ We hope the federal government will move swiftly to take action to fund the additional, comprehensive research needed on this topic. ”

Brian Jennings

For More Information  
visit [ethanol.org](http://ethanol.org)



Barber found that the one-in-a-million South Dakota license plate change ethanol blends, covering just 1% of a 200 million two-underground parking



1-12





Dean of the College of Agriculture  
Director of K-State Research and  
Extension

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January 14, 2008

TO: Kansas Legislators

FR: Dr. Fred A. Cholick  
Dean, College of Agriculture  
Director, K-State Research and Extension  
Kansas State University

RE: Kansas Center for Sustainable Agriculture and Alternative Crops Annual Report

The Kansas Center for Sustainable Agriculture and Alternative Crops (KCSAAC) was established by Senate Bill 534 and passed by the 2000 Kansas Legislature to enhance the future survival of family farms in Kansas. KCSAAC, a center within Kansas State University Research and Extension, works in partnership with state and federal agencies, nonprofit organizations, and agricultural organizations to assist family farmers and ranchers to increase farm profitability, protect natural resources and enhance rural communities. KCSAAC and its partners have identified needs, designed programs, and sought outside resources to benefit the citizens of Kansas. Partners include Kansas Department of Agriculture, Kansas Department of Commerce, and non-profit organizations, such as the Kansas Rural Center and the Kansas Graziers Association.

KCSAAC is used by producers, professionals and organizations to obtain information about diversifying agricultural production, increasing farm income through value-added products, establishing farmers' markets and other local food delivery systems, and enhancing and conserving natural resources.

The Center is required to provide an annual report to the Senate and House Agriculture Committees. The 2007 annual KCSAAC report is enclosed and we will stand for any questions during our regular agriculture briefing.

Contact the KCSAAC Director or Coordinator if you have questions regarding the Kansas Center for Sustainable Agriculture and Alternative Crops.

KCSAAC Director, Pat Murphy, 785-532-5838 or [jmurphy@ksu.edu](mailto:jmurphy@ksu.edu)  
KCSAAC Coordinator, Jana Beckman, 785-532-1440 or [beckman@ksu.edu](mailto:beckman@ksu.edu)

cc: Sue Peterson, Steven Graham

Kansas State University  
Agricultural Experiment  
Station and Cooperative  
Extension Service

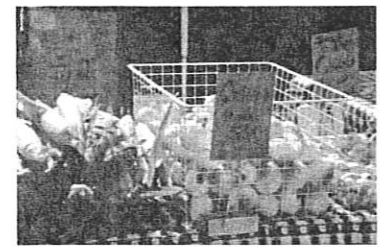
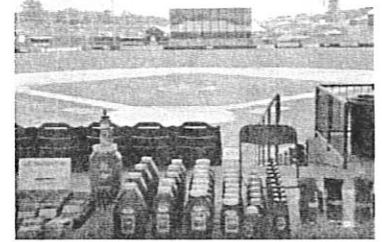
K-State Research and  
Extension is an equal  
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employer.

Senate Agriculture  
Committee  
1-22-08  
Attachment 2  
"Knowledge  
for Life"



### Farmers' Markets Receive Assistance and Training

- The *Grow Your Farmers' Market* project hosted seven conferences. These conferences provided an overview of the research, marketing techniques, regulations and management approaches necessary to develop successful farmers' markets. These conferences directly impacted 494 market leaders, managers and organizers. Thirty-five mentoring partnerships between master marketers and apprentices were coordinated and a business planning curriculum for farmers' market organizers was developed and delivered to 371 leaders in 28 farmers' markets. *Grow Your Farmers' Market* was a joint project with the Kansas Rural Center, funded by the North Central Region Sustainable Agriculture Research and Education (SARE) program.
- After attending a Grow Your Farmers' Market workshop, the T-Bones baseball organization established a farmers' market at the CommunityAmerica Ballpark in Wyandotte County.
- As a result of training and technical assistance, the Emporia Farmers' Market Coordinator assisted two vendors to extend the growing season of fresh vegetables with the use of high tunnels (low-cost fabric covered greenhouses). The addition of early season vegetables resulted in a 20 percent sales increase for the Emporia Farmers' Market and 400 additional shoppers attending the market.
- As a result of technical assistance, the Smith Center Farmers' Market was established in 2006 and increased local producers' market access by 50 percent. In the second year, the product selection increased by 25 percent and 25 percent of Smith County residents learned about the benefits of farmers' markets and local food systems. The market created social and community involvement activities for citizens.



Top to bottom: T-Bones market, peppers and produce at Manhattan market, and vendors at Smith Center market.



### Kansas River Valley Local Foods Web Site

Newly developed in 2007, the Kansas River Valley Local Foods Web site is a joint K-State and Kansas Rural Center initiative designed to connect local farmers and ranchers with institutions, school systems, restaurants, and buying clubs that are looking to purchase larger quantities of local foods in the Kansas River Valley area. <http://www.kansasrivervalley.com>

*The Center collaborates and facilitates with partners to develop multidisciplinary projects and activities directed towards research and outreach needs expressed by Kansas producers and other stakeholders.*

Pat Murphy, Director • Jana Beckman, Coordinator  
3029 Throckmorton Hall, Manhattan KS, 66506  
Phone: 785-532-1440 email: [beckman@ksu.edu](mailto:beckman@ksu.edu) or [jmurphy@ksu.edu](mailto:jmurphy@ksu.edu)



Lee Bigham, Blue Rapids, shows tour participants the regrowth on his eastern gamagrass pasture.

### Successful Grazing Tour Series Reaches 263

- A total of 263 people attended five grazing tours hosted by KCSAAC, K-State Research and Extension, the Kansas Rural Center and the Kansas Graziers Association.
- The tours were aimed at increasing the adoption of practices that reduce over-grazing, improve wildlife habitat and improve water quality.

### 2007 Summer Grazing Tour Series

- June 1** Flint Hills Grazing Tour
- August 11** Marshall County Grazing Tour
- August 24** Washington County Grazing Tour
- September 6** North Central Kansas Grazing Tour
- September 18** Land and Water Stewardship Tour

### Other 2007 Conferences and Workshops

- The Well Being of Rural Kansas: Paths to Healthy People, Healthy Environment and Healthy Economies Conference (approximately 100 people attended)
- Cultivate and Grow Your Farmers' Market Workshop (89 people attended)
- Low Stress Animal Handling Workshop (90 people attended)
- Farmer/Rancher Grant Writing Workshop (9 people attended)

### Upcoming 2008 Conferences and Workshops

- Kansas Graziers Association Winter Grazing Conference - January 19, 2008
- National SARE Conference - Kansas City, MO, March 25-27, 2008. KCSAAC assisted in organizing farm tours for the conference.
- Eastern Kansas Forage School - April 15-16, 2008

### Role of the Center

KCSAAC serves as a resource center for producers, organizations and agricultural professionals in search of information related to sustainable agriculture.

### KCSAAC receives an average of 55 requests for assistance each month.

The most common requests involve livestock/grazing systems, farmers' market and labeling information, grant sources and grant writing resources, and value-added processing. 50 percent of calls and emails are received from producers and 50 percent from non-profit organizations, extension, and state agency staff.

### The KCSAAC web site receives an average of 2089 visitors per month.

The calendar and reference library are the most commonly visited pages.

### Visit the KCSAAC web site

<http://www.kansasustainableag.org>



K-State Research and Extension  
Kansas State University

An Informal Report to the Kansas Legislature  
January 2008

Senate Agriculture  
Committee  
1-22-08  
Attachment 3



K-State Research and Extension  
Kansas State University

# An Informal Report to the Kansas Legislature

## January 2008

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[www.oznet.ksu.edu](http://www.oznet.ksu.edu)

## Director's Introduction



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.

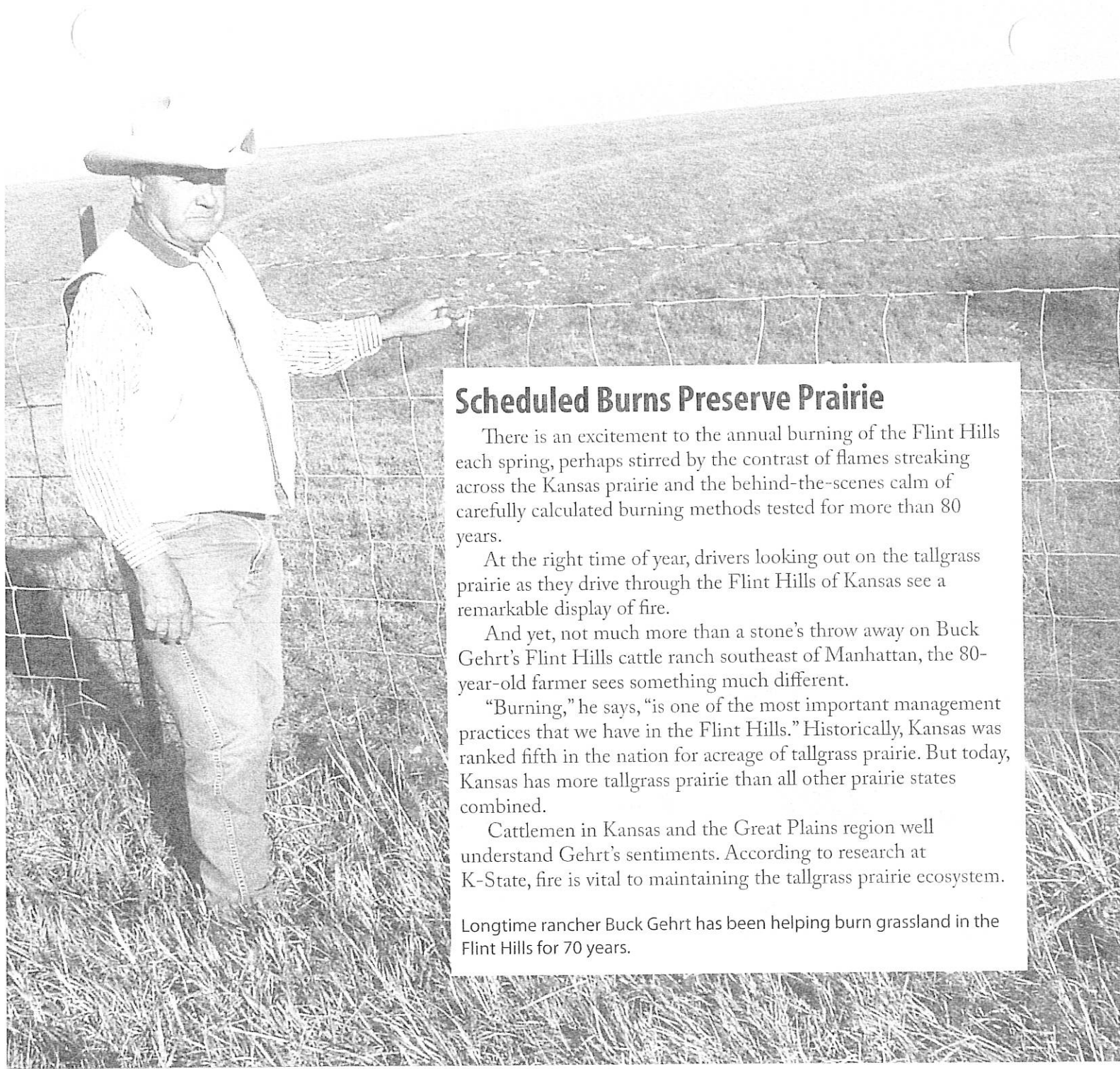
Steve Rome, Hugoton; Dean and Director Fred Cholick; and JoAnn Murray, Atchison, pose for a photo at the centennial celebration of the Southwest Research-Extension Center in Garden City. Rome is a former member of the Kansas State Extension Advisory Council, and Murray is a current council member.

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.

Clenton Owensby

owensby@k-state.edu, 785-532-6101

### 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](http://www.ksuturf.com/Lawn_Problem_Solver_Site/index.html)

Rodney St. John, [rstjohn@k-state.edu](mailto:rstjohn@k-state.edu), 785-532-1442

### Gardening Leads to Healthier Lifestyle

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.

Candice Shoemaker, [cshoemak@k-state.edu](mailto:cshoemak@k-state.edu), 785-532-6170

### 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.

Bob Gillen, [gillen@k-state.edu](mailto:gillen@k-state.edu), 785-625-3425

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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.

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.

Mike Woolverton

mikewool@k-state.edu, 785-532-6702

## 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 Laboratory in 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.

**Chuck Rice**

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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.

*Greg Zolnerowich, gregz@k-state.edu, 785-532-6154*

### **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.

*Megan Kennelly, kennelly@k-state.edu, 785-532-6176*

## Operation: Military Kids



### 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.”

**Ann Domsch**

*adomsch@k-state.edu, 785-532-5833*

### **Agent Shares Resources with School District**

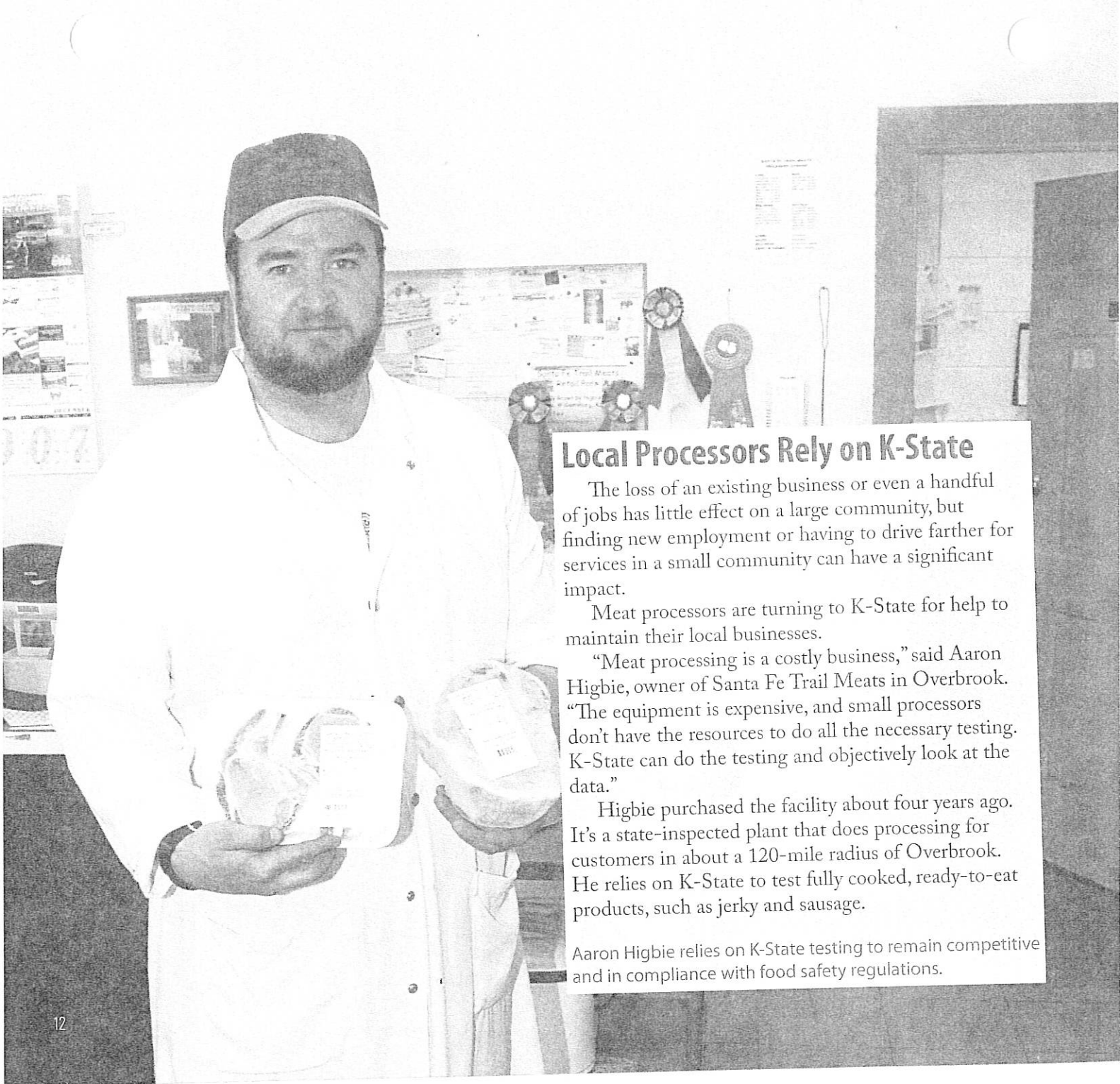
A family and consumer sciences agent provides a fact sheet on important topics such as sibling rivalry, Internet safety, or the importance of water to local school districts to include with their monthly newsletters, which are distributed to about 2,000 households. This cooperative arrangement works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

*Nadine Sigle, nsigle@k-state.edu, 785-346-2521*

### **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.

*Rod Buchele, rbuchele@k-state.edu, 620-275-9164*



### 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

lboyle@k-state.edu, 785-532-6131

### 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.

*Tom Phillips, twp1@k-state.edu, 785-532-6154*

### 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 microorganisms, especially pathogens. When successfully applied, food can have longer shelf-life and be safer from potential food pathogens.

*Daniel Fung, dfung@k-state.edu, 785-532-1208*



## Participants Record Two-Ton Weight Loss

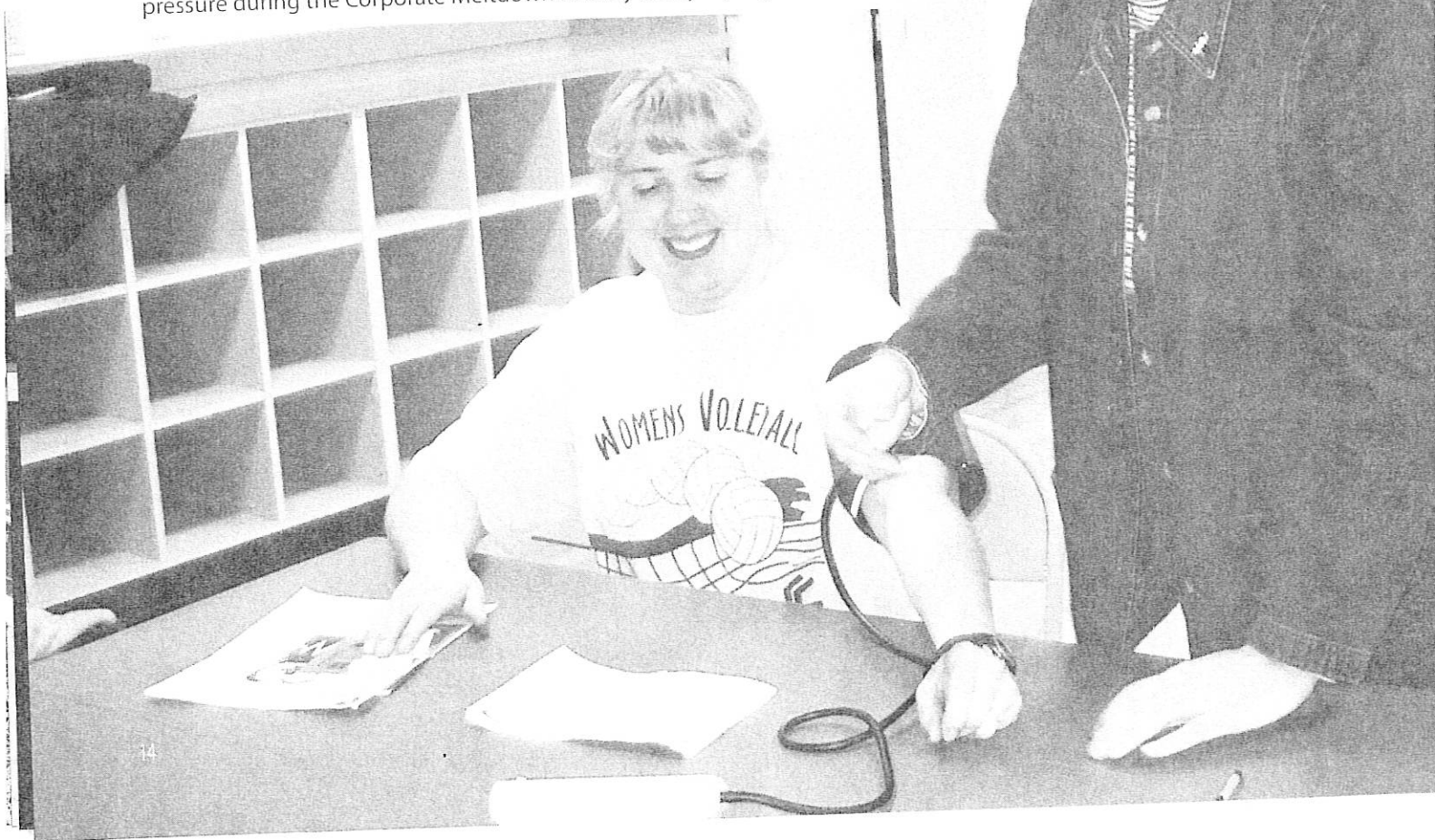
Finney County residents involved with the Corporate Meltdown program over the last seven years have lost a total of 4,426 pounds: That's more than two tons!

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.



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. Linda Walter, lwalter@k-state.edu, 620-272-3670  
Robin Eubank, reubank@k-state.edu, 785-527-5084

### 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.

*Karen Blakeslee, kblakesl@k-state.edu, 785-532-1673*

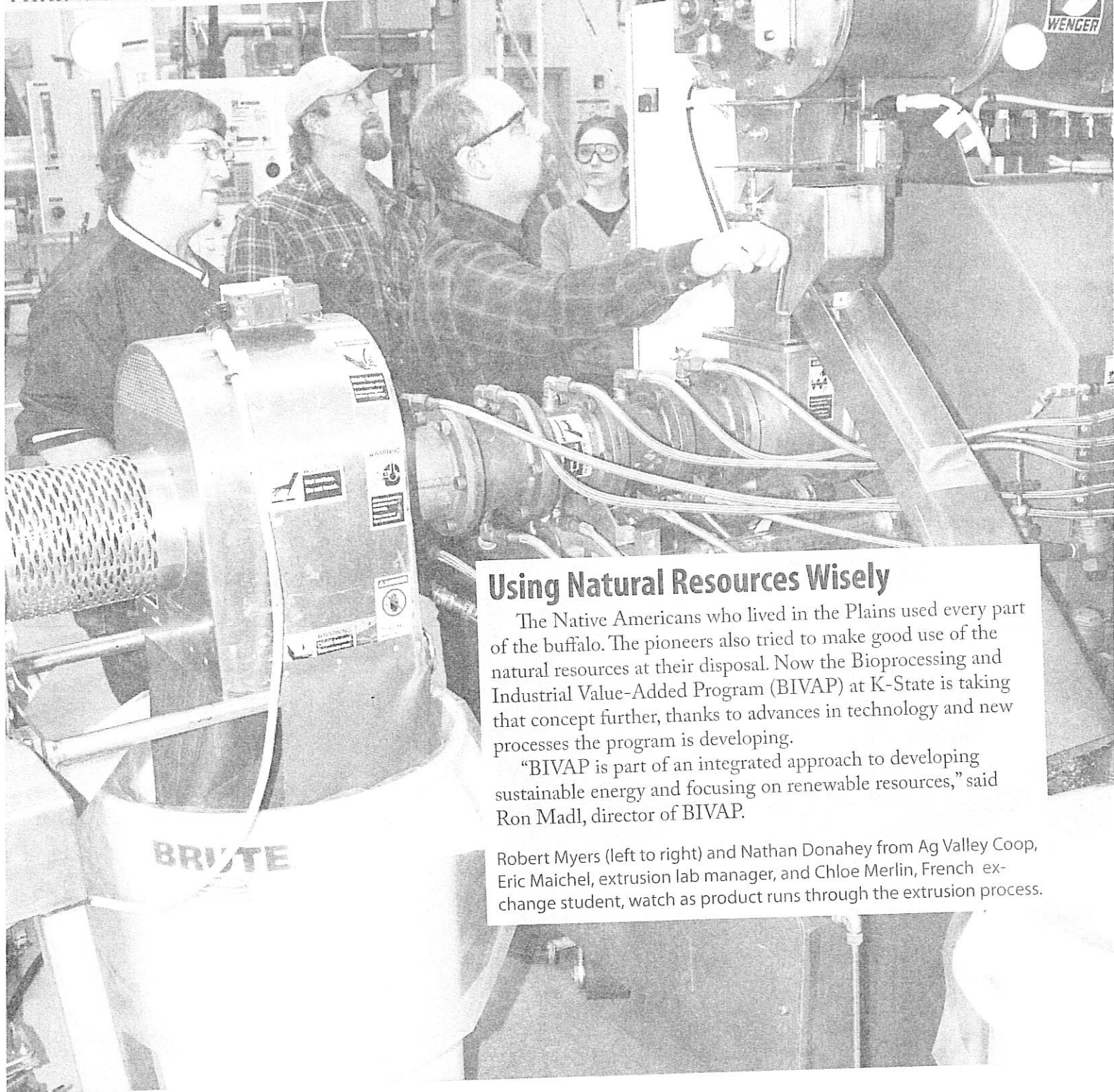
### EFNEP Reports Positive Results

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.

*Sandy Procter, sprocter@k-state.edu, 785-532-1674*

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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.

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.

Lehisia 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.

Lehisia 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 Research 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](http://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 Staugh, 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 Staugh 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.

3-20

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.

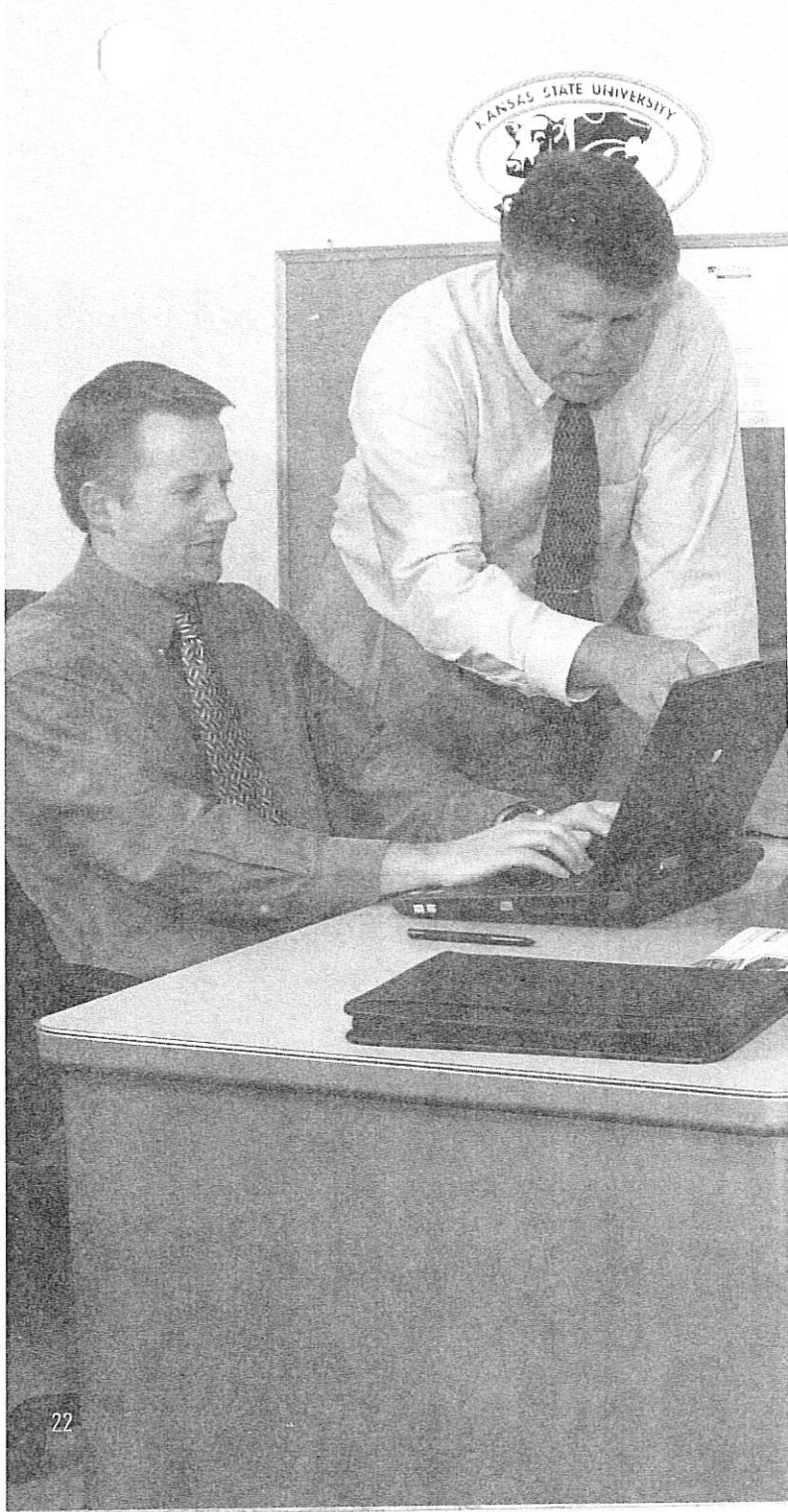
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### Additional Resources

- 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."

Troy Dumler

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## Recent Survey Results

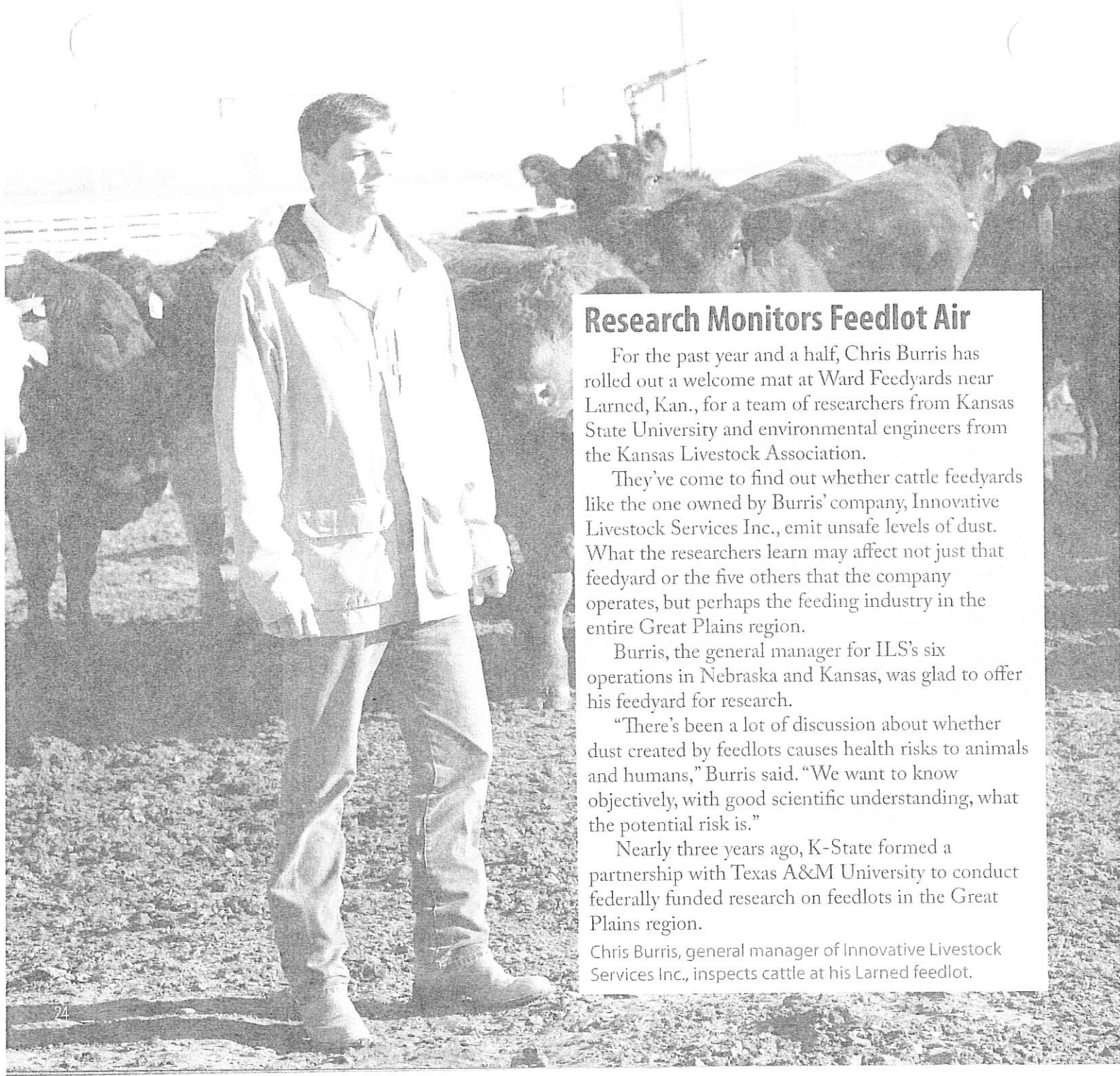
K-State Research and Extension commissioned three telephone surveys (1996, 2000, and 2007) to evaluate how Kansas citizens value its services.

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.

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.”

**Ronaldo Maghirang**

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### **Watershed Specialist Reaches Target Audiences**

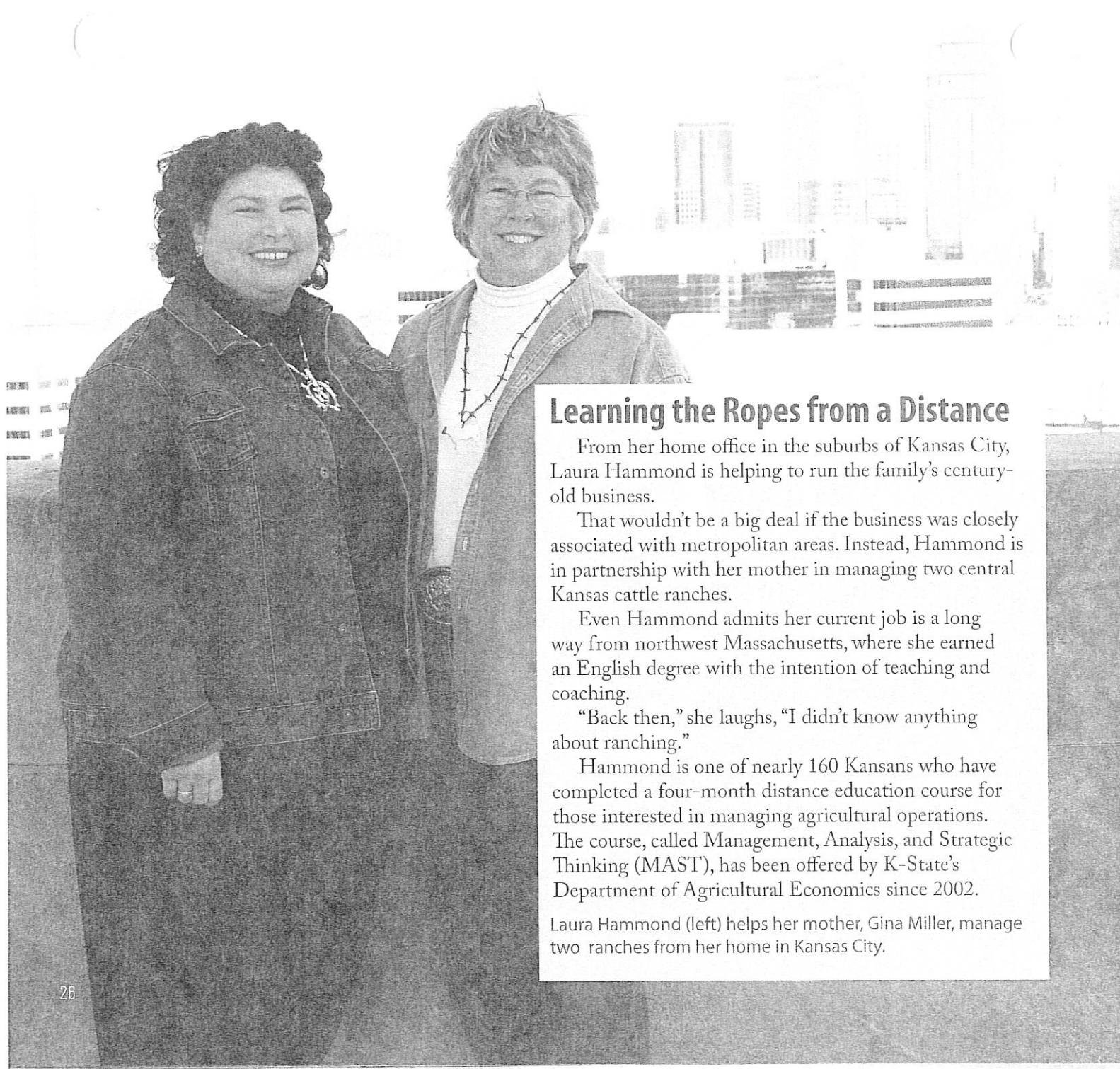
Kansans are concerned with water quality and usage. In 2006, a western Kansas watershed specialist reached nearly a half-million people by recognizing target audiences, providing timely communications, and strategically placing communications in channels that were convenient for target audiences.

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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.

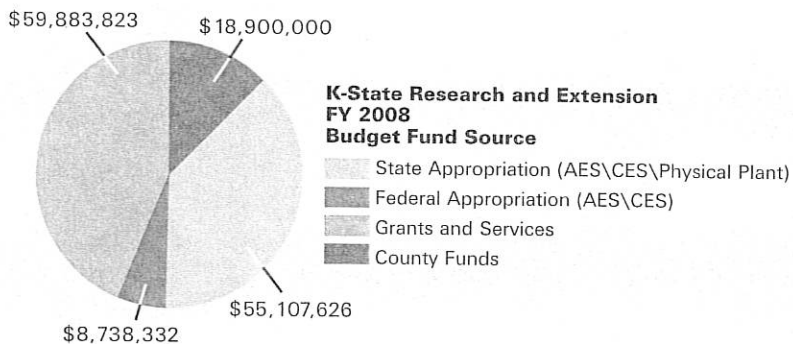
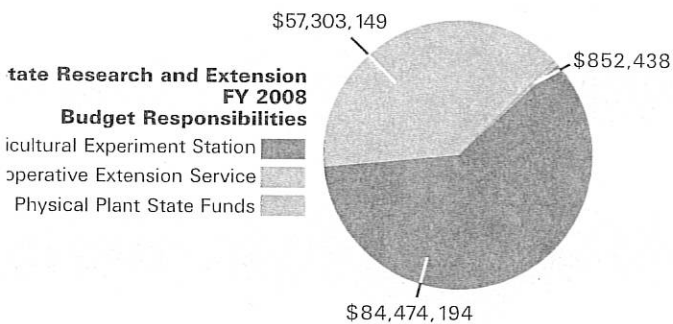
Phillips-Rooks District #5 (2005) – Phillips and Rooks counties.

Sunflower District #6 (2005) – Sherman and Wallace counties; Cheyenne joined in 2006.

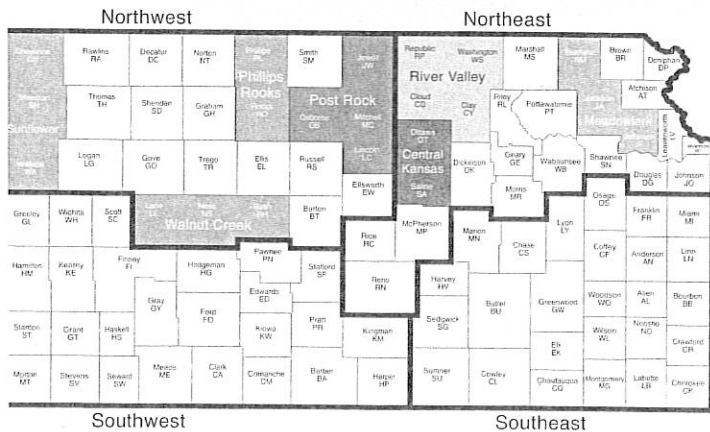
Meadowlark District #7 (2006) – Jackson, Jefferson, and Nemaha counties.

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

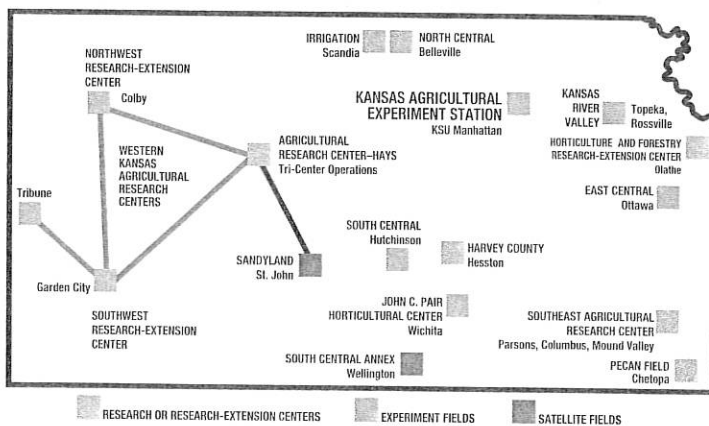
Source: Doug Elcock, Business/Fiscal Officer, 785-532-7139, delcock@k-state.edu



## Statewide Offices



## Research Facilities



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## *"Knowledge for Life"*

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