



K-STATE
Research and Extension

Making a Difference for Kansans

January 2015

From the Dean and Director



2014 saw the celebration of the 100th anniversary of the Cooperative Extension Service, which is our partnership with the national government, all state and territorial land-grant universities, and local county governments. The Cooperative Extension Service uses an exemplary system to share new research and knowledge with the citizens of Kansas, the United States, and the world. Extension activities are conducted by dedicated faculty, staff, and volunteers in local offices across our great state and nation. K-State Research and Extension is a success story we must continue to celebrate for the next 100 years.

2015 sees us moving forward to address five grand challenges that directly or indirectly affect all Kansans: global food systems, water, health, developing tomorrow's leaders, and community vitality.

We aren't going to solve these challenges alone. By developing partnerships within Kansas, across the United States, and internationally, we are educating and working with the next generation of students, scientists, and extension educators. The new ideas and knowledge developed through research and

shared by extension will be used to solve the five grand challenges.

Our statewide system trains several thousand volunteers in 4-H, Master Gardeners, Master Food Volunteers, lawn and crop consultants, and community leaders. We impact the lives of Kansas citizens — young and old and in many walks of life — each and every year.

As you read our 2015 report, please reflect on our accomplishments and join us as we look toward building a successful tomorrow for Kansas. I am sure it will be a challenging but productive journey.

I encourage you to visit www.ksu.edu/challenges, which provides short videos about the five grand challenges and additional information about our programs.

John D. Floros, Dean, College of Agriculture, and Director, K-State Research and Extension

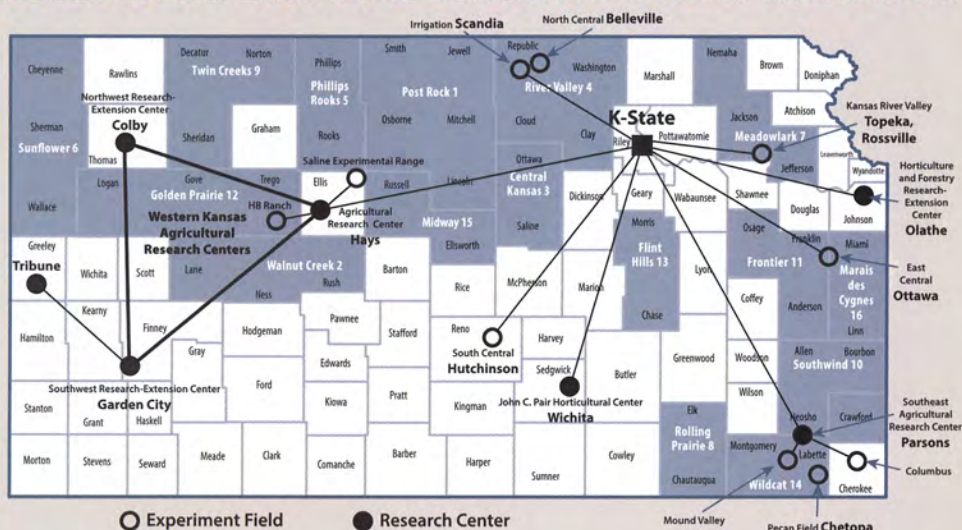
Our Mission

We are dedicated to a safe, sustainable, competitive food and fiber system and to strong healthy communities, families, and youth through integrated research, analysis, and education.

Our Vision

By 2025, K-State Research and Extension will be one of the world's top destinations for education, research, and extension.

K-State Research and Extension Statewide Offices and Research Facilities



Districting Offers Kansas Counties New Partnership Opportunities

Since 1991, Kansas counties have had the opportunity to create extension district partnerships that have demonstrated greater specialized expertise of agents; excellent support for local offices; and efficient, effective use of human and financial resources. At this time, 45 counties have formed 16 districts.

Research and Extension Facilities Across the State

Headquartered in Manhattan, K-State Research and Extension includes statewide county and district offices, research centers, and experiment fields supported by county, state, federal, and private funds. K-State Research and Extension supports faculty in more than 20 academic departments across five K-State colleges in Manhattan plus the K-State Olathe campus.

Why K-State Research and Extension is a trusted source to help find solutions for these five grand challenges

We have

- a statewide network to share unbiased information,
- expertise on topics important to Kansas, and
- established local, state, regional, national, and international partnerships.

Knowledge for Life



As the state's largest employer, agriculture drives the Kansas economy. In 2013, the agricultural industry contributed \$53 billion and 37 percent of the state's gross regional product. Farmers and agribusinesses exported \$2.6 billion worth of goods making agriculture the No. 1 Kansas export category in 2013. We are improving food and agricultural systems to feed the world's growing population, which will economically benefit Kansas.

What We Are Doing

- Developing and testing new crop, vegetable, and tree varieties that are suited to the Kansas climate.
- Reducing food waste caused by insects, poor storage, and processing techniques.
- Creating sustainable agricultural systems that intensify productivity.
- Identifying ways to maintain cattle rangeland threatened by variations in climate.
- Leading national and international teams to solve global food issues.
- Helping families stretch their food dollars.

Results

- Provided technical expertise to 532 contacts with 142 different companies and 86 additional entrepreneurs in 2013 through the Kansas Value-Added Foods Laboratory.
- Developed Everest wheat, which was planted on more Kansas acres in fall 2013 than any other variety.
- Used forage supplies and supplemental ingredients to develop beef cattle feed rations that potentially saved Kansas ranchers on average \$1,000 each.

Results Are in the Numbers



532

Number of contacts provided by the Kansas Value-Added Foods Laboratory



#1

Ranking for Everest, a K-State wheat variety, planted to Kansas acreage in fall 2013



Water quality in central and eastern Kansas and water quantity in western Kansas are important issues. Current irrigation trends could deplete 69 percent of the groundwater in the Ogallala Aquifer within 50 years, drastically affecting the Kansas economy. Sediment and silt are washing into large reservoirs that supply drinking water and recreation to many Kansans. Researchers and extension specialists are tackling these very important issues.

What We Are Doing

- Breeding new drought-tolerant crop varieties that can be used for human and pet food, livestock feed, and fuel.
- Developing more efficient irrigation and water-monitoring systems for home and farm use.
- Reducing runoff and sedimentation into reservoirs.
- Improving livestock genetics to increase feeding efficiency, which reduces feed and water needs.
- Working with the State of Kansas and partnering with stakeholders to develop a new 50-year water plan.

Results

- Subsurface drip irrigation uses up to 25 percent less water than traditional irrigation methods and helps address water issues throughout the state.
- Developed technology to schedule irrigation, determine which crops to plant, predict crop yield, and evaluate fuel costs.
- Educated landowners on how to reduce runoff and protect surface water that supplies drinking water to just over 60 percent of Kansans.

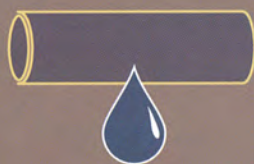
Thirty percent of Kansas adults are obese, and 19 percent of Kansas children live in poverty. Targeting the diversity of Kansans, our programs address quality of life, healthy development, and health behaviors across life stages for all socioeconomic groups.

What We Are Doing

- Identifying and implementing practices to help prevent adult and childhood obesity.
- Providing options to help families and practitioners understand health-care choices for elderly Kansans.
- Sharing unbiased information about national changes in health insurance requirements.
- Educating consumers on safe food handling with food preparation, food preservation, food service, and more.

Results

- Walk Kansas, an eight-week program to increase exercise and improve nutrition, creates positive results for more than 16,000 Kansans annually.
- In 2013, senior citizens saved more than \$1.7 million in prescription drug costs using educational programs.
- More than 6,000 Medicare participants saved an average of \$832 per person through Senior Health Insurance Counseling for Kansas.
- Trained 355 Kansans in ServSafe Food Service Manager and 738 Food Handler classes.



25

Percentage of irrigation water saved by using subsurface drip irrigation



60

Percentage of Kansans who get their drinking water from lakes and reservoirs



\$1.7 million

Savings to senior citizens in prescription drug costs using K-State educational programs



16,000

Number of Kansans who annually participate in Walk Kansas



Animal Shelter
(785) 238-1359

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Developing Tomorrow's Leaders

The complex global society of the future will require leaders with effective teamwork and communication skills. We need to prepare leaders of all ages, so they may contribute to a vibrant Kansas economy for years to come.

What We Are Doing

- Establishing a national model for bringing ethnically diverse families to 4-H.
- Adding value to the economy, 4-H members are twice as likely to attend college and pursue careers in science, engineering, and computer technology.
- Meeting the needs of military youth and their families at Kansas military installations and families of deployed members of the National Guard and Army Reserve.
- Training Kansans of all ages to be better citizens and leaders.

Results

- Introduced 4-H to 710 youth through multicultural and SPecial INterest (SPIN) 4-H clubs in 12 Kansas counties.
- Trained adults in the Kansas Agriculture and Rural Leadership and Board Leadership programs.
- Guided nearly 65,000 urban and rural youth in Kansas 4-H programs. In 2013, 62 percent of extension units showed an increase in their club membership numbers.
- Initiated the 48 Hours of 4-H service project with 3,158 participants completing 130 projects in 58 counties for a total value of \$41,070 in volunteer hours and 9,214 nonperishable food items collected.



Community Vitality

Rural, suburban, and urban communities throughout Kansas face many challenges. When citizens are encouraged to combine their experiences and skills to work together, everyone in the community benefits.

What We Are Doing

- Living and working in every county, K-State Research and Extension staff engage community groups and share expertise from the three K-State campuses.
- Helping communities of all sizes maintain necessary services, such as grocery stores, that hire locally and generate local sales tax.
- Working directly with farmers, ranchers, and families to develop better financial management practices.

Results

- Improved communities through the Kansas PRIDE program, which reported 419 collaborative partnerships and 56,723 adult and youth volunteer hours worth \$1.15 million.
- Trained Master Gardeners who donated more than 79,000 hours of service, a value of \$1.6 million.
- Provided financial information through *agmanager.info* to 104,983 visitors per month.
- Partnered with state agencies to develop a Rural Grocery Tool Kit with resources for existing grocery stores and communities wanting to establish a new store.



65,000

Number of urban and rural youth who annually participate in Kansas 4-H

KARL

360

Number of adults in 101 counties trained in the Kansas Agriculture and Rural Leadership program since 1993



79,000

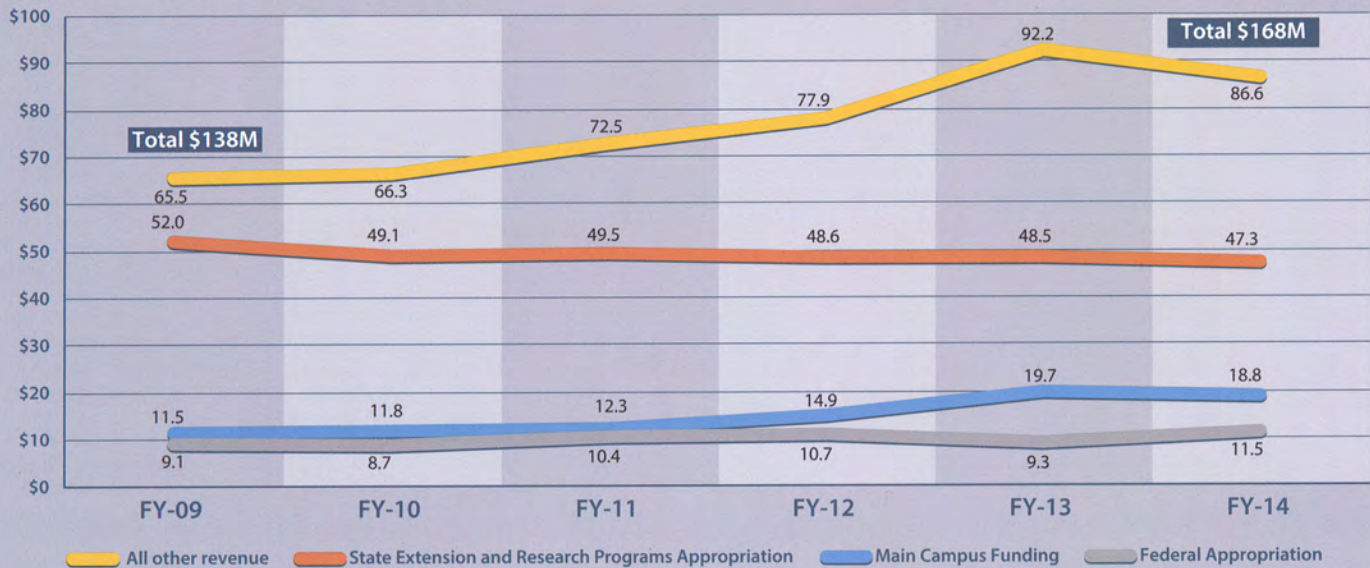
Hours of service donated by Master Gardeners, a value of \$1.6 million



56,723

Number of adult and youth volunteer hours through the Kansas PRIDE program, worth \$1.15 million

K-State Research and Extension and College of Agriculture Expenditures (in millions)



Investing in Research and Extension Benefits Everyone in Kansas

Kansas Dollars for Agricultural Research and Development



Studies for Kansas have shown a long-term benefit-cost ratio of \$33.60 for agricultural research, yielding a 10.2 percent average annual rate of return to agricultural productivity that can be directly correlated with in-state investment.

"The Economic Returns to U.S. Public Agricultural Research,"
Julian M. Alston, Matthew A. Andersen, Jennifer S. James, and Philip G. Pardey

www.ksu.edu/challenges