

KANSAS STATE UNIVERSITY

K-STATE RESEARCH AND EXTENSION

BUILDING FOR THE FUTURE

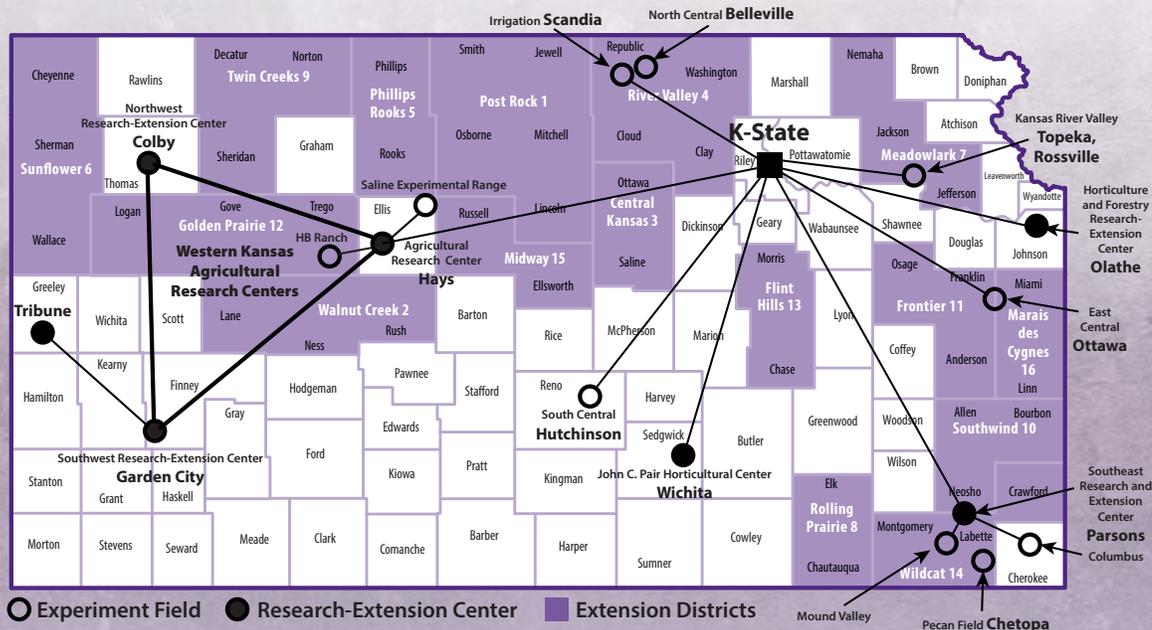
2016 ANNUAL REPORT



K-STATE
Research and Extension

K-STATE RESEARCH AND EXTENSION

We have the people.
 We have the network.
 We have the research.
 We are the trusted voice.
 We are Kansas State University.



MAKING AN IMPACT

K-State Research and Extension serves as the front door for the state's land-grant university by using its statewide network to effectively partner with local, state and federal agencies. The integration of teaching, research and extension creates an organization capable of improving the well-being of individuals, businesses, families and communities. As vital members of the community, we quickly deliver research-based, unbiased information when critical and emerging issues arise.



AGRICULTURE LEADS

Agriculture drives the Kansas economy and is the state's largest employer. One in five Kansans works in a job related to agriculture and food production.

K-State Research and Extension helps support and drive the state's largest — and most important — economy. With a value of \$62 billion, agriculture accounts for 43 percent of the state's economy.

**\$62.8
BILLION**

43% of the economy —
state's largest industry

**229,000
EMPLOYEES**

State's largest
employer

**\$4.9
BILLION**

Goods exported — state's
largest exporter

**\$26.9
BILLION**

Crops and livestock total
economic impact for Kansas

**46,137,295
ACRES**

Farmland in Kansas —
88.9% of all Kansas land

**8
COUNTIES**

Dependent on the
Ogallala Aquifer
produce 1/3 of the state's
agriculture revenue

GRAND CHALLENGES

During our strategic planning process, we met with stakeholders across the state. With their input, we identified five “grand challenges” facing every Kansan. We are addressing these challenges through targeted research and extension programs developed specifically for urban and rural communities.



Grand Challenges

GLOBAL FOOD SYSTEMS

K-State Research and Extension plays a vital role in preparing to feed the expected world population of 9.6 billion people by 2050. We are creating innovative practices to help farmers, ranchers, agribusinesses and communities solve challenges and grow the Kansas economy.

Kansas State paves the way for the future of our food systems through modern technology and techniques

- Studying innovative irrigation technologies that will conserve water with minimum expense to producers
- Researching how to prevent transmission of porcine epidemic diarrhea virus through animal feed



WATER

To ensure future generations have a reliable source of clean water, we develop and evaluate new practices and techniques as well as develop and implement programs to help Kansas citizens maintain and improve water quality. K-State Research and Extension works with scientists in neighboring states to extend the life of the Ogallala Aquifer, the major water source for western Kansas. This collaborative effort earned the USDA Secretary's Award.

1,330
consultations to
develop water-
quality plans to
reduce reservoir
sedimentation

50 meetings
facilitated to
gather input
for Kansas'
50-year water
plan

2,297 water
samples
collected and
analyzed for
pollutants

4 mobile device
applications
created to improve
automation
of agricultural
technology and
help producers
manage water
usage

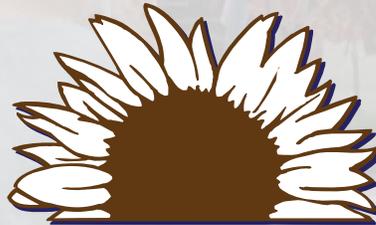
12 projects
implemented
to stabilize
over 4,500
linear feet of
streambank

COMMUNITY VITALITY

Our goal is to help citizens and communities — whether rural, suburban or urban — grow and prosper. We provide technical assistance, draw together community groups and offer research-based expertise from Kansas State University to help people create a vision across traditional geographical, sociological and political boundaries.



401 active Kansas PRIDE projects, 189 involving youth participants, in 34 counties with 277 collaborative partnerships



1,216 trained Master Gardeners donated over 101,000 hours, a value of \$2.1 million



175 vendors, farmers market directors and local producers trained on food safety and marketing practices



10,646 federal returns prepared, helping taxpayers earn \$11.3 million in refunds and save \$2.3 million in preparation fees

HEALTH

K-State Research and Extension works with local, state and national partners to provide programs that educate, support and motivate Kansans to make healthy lifestyle choices. Research shows that those who take good care of themselves are healthier, happier, more productive, miss less school and work, and have lower health-care costs.



Walk Kansas increases physical activity and healthful eating habits for over 16,000

ServSafe
National Restaurant Association

ServSafe training reduces the incidence of foodborne illness and related health-care costs



Senior Health Insurance Counseling for Kansas educated 7,117 seniors for a savings of \$3.7 million, an average of \$1,180

KOHP

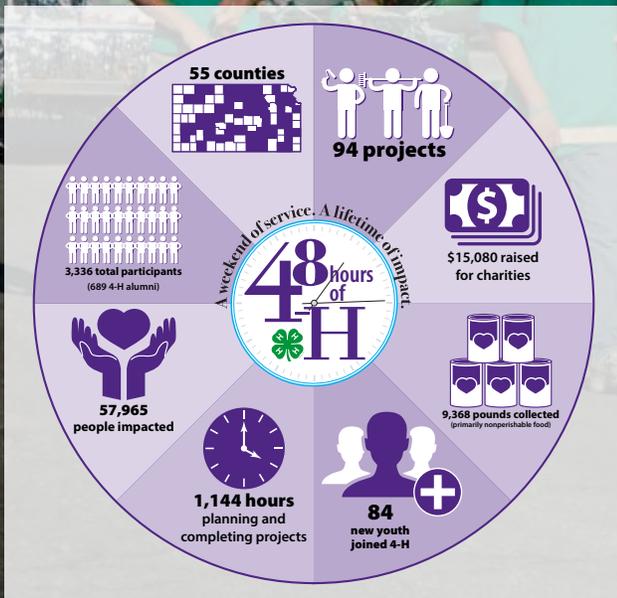
The Kansas Optimizing Health Program provides \$4 in health-care savings for every \$1 spent

TALENT – TOMORROW’S LEADERS

By adding SPecial Interest (SPIN) clubs and after-school enrichment programs to traditional projects and reaching out to underserved audiences, K-State Research and Extension now reaches 86,719 Kansas youth — up from 62,000 last year — through its 4-H Youth Development program. Research shows that youth active in 4-H become engaged adults who contribute socially and economically to their communities.

During National 4-H Week in October, Kansas 4-H members, volunteers and alumni lead statewide community service projects.

Kansas 4-H Membership Distribution



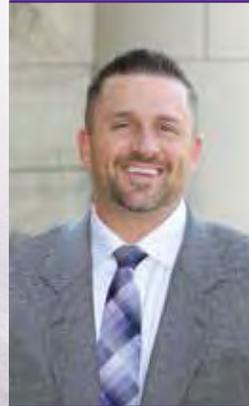
TALENT – TODAY’S LEADERS

Business and community leaders work with us to strengthen and promote Kansas State University. Four College of Agriculture alumni share why they stay connected to K-State Research and Extension.



“From an industry perspective, the work that K-State Research and Extension does in the livestock, agronomy and engineering disciplines provides farmers and ranchers with unbiased research and information to help them be successful.”

Matt Wolters – marketing manager, SureFire Ag Systems, Atwood



“Through 4-H, I learned at a young age the importance of owning something, being accountable and taking pride in my work. It also taught me the value of giving back. It’s great to see my kids growing and learning through 4-H.”

John Niemann – president, Cargill Turkey and Cooked Meats; chair, Dean and Director’s Advisory Council, Mount Hope



“K-State Research and Extension works in the community providing knowledge, research and information to other agencies, enabling them to serve their mission. It also provides training and support to help citizens make informed decisions.”

Ken Moldenhauer – vice president human resources, Cargill Beef; chair, Sedgwick County Extension Board, Valley Center



“I’m still drawing on K-State research resources because ADM has an interest in wheat innovation and working with the wheat breeder at Hays. I also consult with campus food scientists. Having someone to call on food-safety questions is very valuable.”

Tess Brening – technical products manager, ADM Milling Company, Prairie Village

TRAINING – LEADING THE WAY

Our skilled educators and unbiased information provide Kansans hope. K-State Research and Extension is the “boots on the ground” for multiple state agencies that look to our team to support and implement their programs and initiatives at the local level.

KAMS

Helped 265 families and landowners build farm succession plans through Kansas Agricultural Mediation Services.



Partnered with Kansas Department of Agriculture to respond quickly to a wheat disease not seen in the Great Plains since the 1930s.



Offered management options through *AgManager.info*, which receives 1,523,232 annual visits — an average of 126,936 per month.



Clarified 2014 Farm Bill information through meetings and face-to-face consultations to help 23,732 landowners, farmers and ranchers make the best decisions for their operations.



Engaged 200 food producers and 125 buyers to assess the local food system in northeast Kansas and help develop a business plan for the producer cooperative.

PARTNERSHIPS

K-State Research and Extension is a trusted partner. We work closely with various agricultural organizations within industries such as wheat and grain sorghum. These partnerships allow us to make strategic alliances regarding research and innovation.

“K-State Research and Extension is an authoritative source for communicating research information with Kansas farmers. Kansas Wheat depends on this connection to share results of research projects we fund through the wheat assessment.”

Aaron Harries, vice president of research and operations for Kansas Wheat

FACILITIES

We must continually update facilities to conduct research, teach classes and meet the needs of Kansas citizens.



COUNTY AND DISTRICT OFFICES

Provide a valuable presence in every county. Districts promote specialized expertise and more effective use of human and financial resources.



RESEARCH-EXTENSION CENTERS

Located in Colby, Garden City, Hays, Olathe, Parsons (new facility dedicated November 2015), Tribune and Wichita to accommodate climate and soil variability.



BIOSECURITY RESEARCH INSTITUTE

Provides scientists and their collaborators with a secure location to study pathogens affecting plants, animals and food.



ANIMAL SCIENCES AND INDUSTRY FACILITIES

Includes the Sheep and Meat Goat Center, Stanley Stout Center, a new swine nursery building and more.

SOUTHEAST RESEARCH
AND EXTENSION CENTER

GRAIN SCIENCE AND INDUSTRY COMPLEX



KANSAS WHEAT INNOVATION CENTER

Houses research labs, greenhouses, offices and K-State's world-renowned Wheat Genetics Resource Center.



BIOPROCESSING AND INDUSTRIAL VALUE-ADDED PROGRAM

Includes labs for research in extrusion, fermentation and biomaterials.



INTERNATIONAL GRAINS PROGRAM INSTITUTE CONFERENCE CENTER

Houses the International Grains Program Institute, which educates leaders and officials about U.S. grains and oilseeds.



O.H. KRUSE FEED TECHNOLOGY INNOVATION CENTER

Includes feed research, teaching and production training facilities for feed processing, pet food development and grain handling.



HAL ROSS FLOUR MILL

Contains full-scale equipment and control systems found in today's industry. Used for teaching, research and industry training.

AGE OF CAMPUS RESEARCH AND EXTENSION BUILDINGS

- 1913 East Wing of Waters Hall
- 1923 West Wing of Waters Hall
- 1952 Center Wing of Waters Hall
- 1958 Umberger Hall
- 1964 Call Hall
- 1981 Throckmorton Hall Phase I
- 1985 Renovation of Weber Hall
- 1994 Throckmorton Hall Phase II

INNOVATION — TAKING THE LEAD

K-State Research and Extension's research portfolio spans the broad areas of agricultural and horticultural crops, livestock, natural resources, nutrition and the environment. Research faculty support is located across five colleges on three K-State campuses in Manhattan, Olathe and Salina.



Developing new crop varieties — 2 hard red winter wheats and 1 hard white winter wheat, 9 grain sorghum seed parents and 3 winter canolas in 2014–2015.



Monitoring livestock, crop, plant and tree diseases that could drastically affect the Kansas economy. Annual value: livestock — \$13.8 billion; crops, plants and vegetables — \$13.1 billion. Estimated value of ash trees in 5 northeastern Kansas counties — \$2.6 billion.



Receiving two patents — a grain scientist developed a novel jelly-like substance with biomedical applications and a team of entomologists created a biological process that inhibits the genetic code of insect pests.



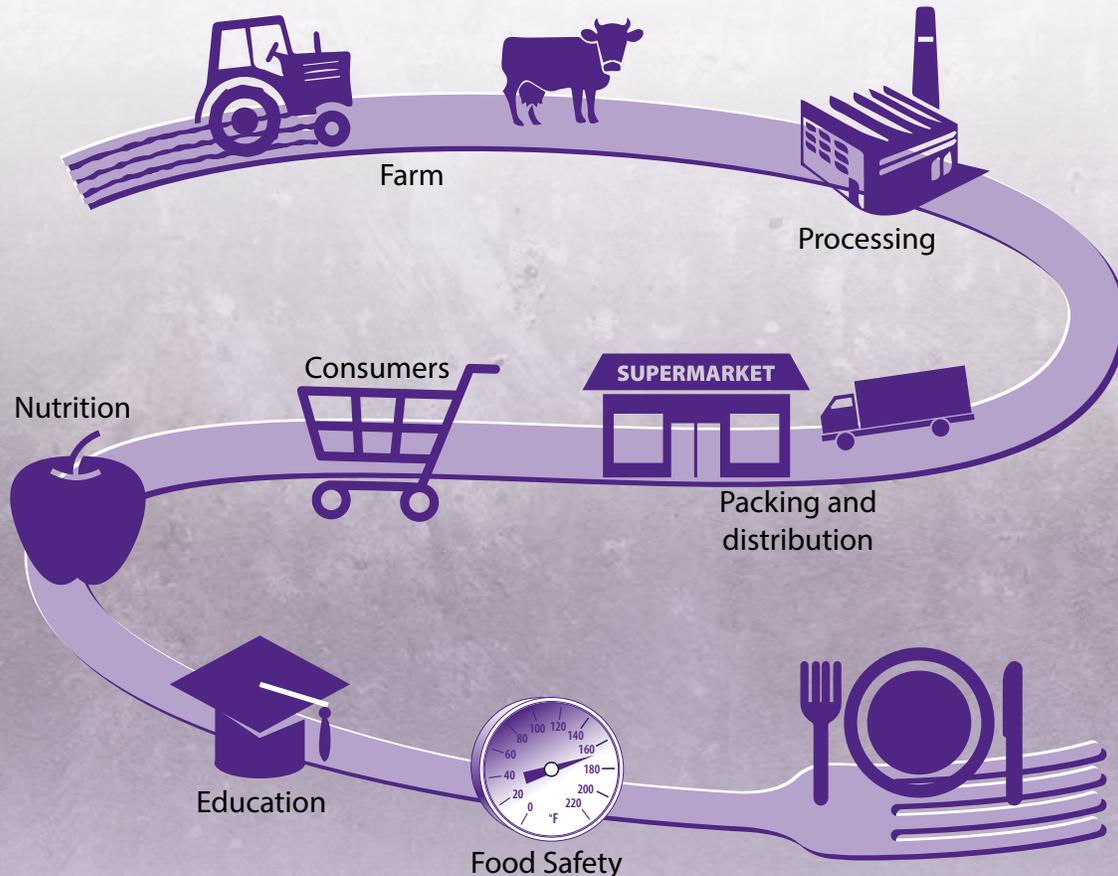
Studying ways to reduce Shiga toxin-producing *E. coli* (STEC) in the beef industry. Each year, about 1 in 6 Americans get sick, 128,000 are hospitalized and 3,000 die of foodborne diseases.



Improving food packaging, distribution and storage to reduce waste and spoilage. In the United States, 30 to 40 percent of the food supply is wasted — about 20 pounds of food per person per month.

FARM TO FORK

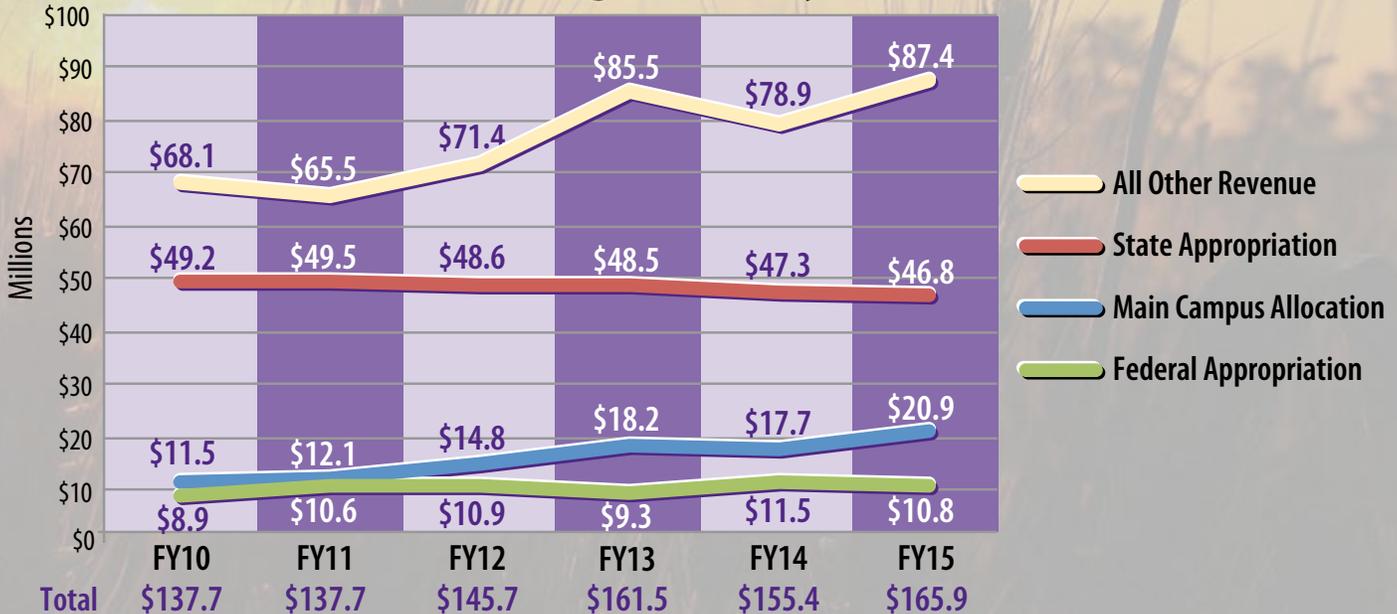
We touch all aspects of the food system from basic field production, through processing, and transportation to grocery stores. We provide education on healthful food choices, preservation and storage.



FUNDING SOURCES

Through efficiency and planning, we use allocated resources to make an impact.

K-State Research and Extension/College of Agriculture 2010–2015 Budget Summary



Investing in Research and Extension Benefits Everyone in Kansas



\$33.6 Long-term
benefit-cost
ratio

10.2% Average
annual
return

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

Visit www.ksre.k-state.edu
to learn more about how we are
helping Kansas communities,
businesses and citizens

BUILD FOR THE FUTURE.

CONTACT INFORMATION

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Research and Extension

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