Food safety is a critical priority with consumers, government agencies and the food industry. The general concern for food safety has taken on even greater importance relative to homeland security and possibilities of bioterrorism. Common pathogens may cause extensive losses to grain or meat production and common foodborne pathogens can cause widespread illness and social disruption.

The Need
There is an urgent need for:

- New applied research to underpin the design of reasonable and effective rules for on-farm production and downstream processing.
- Development of improved production and processing equipment with integrated control systems.
- Development of rapid pathogen or non-pathogen contamination sensor technologies.
- Development of rapid holistic data management systems that connect the entire supply chain.
- Focused education programs to prepare young scientists for careers.
- Outreach programs to assist extension educators, as trusted advisors, to help producers and processors understand and comply with new policies and expectations.

Oklahoma State University has developed the human capital and the infrastructure necessary to lead in developing innovations in protecting the safety of the food production and processing systems.
Support for these programs from the state of Oklahoma provides the base of funding necessary to maintain the programs. Additional funding from federal agencies will provide impetus to greatly increase knowledge and education and increase speed of innovation. In addition, OSU researchers work with federal homeland security agencies to decrease the threat of intentional pathogen introduction. These improvements are critical as we secure a safe system to feed 9 billion humans by the year 2030.

**Goals**

- Develop knowledge through research to increase efficiencies and productivity – Oklahoma Agricultural Experiment Station.
- Develop forensic technologies for agricultural applications. OSU researchers have developed new, sensitive technologies for pathogen detection and discrimination in agricultural settings, thereby reducing crop vulnerability and increasing response and mitigation capabilities. The same technologies are also applicable to new and emerging diseases of natural causes. – Oklahoma Agricultural Experiment Station.
- Develop engineering solutions through research to increase the efficiency of detecting food-borne hazards and removing contaminated products from the supply chain – Oklahoma Agricultural Experiment Station.
- Develop value-added data management systems to increase the efficiency of removing contaminated products from the supply chain and reducing the magnitude of recalls – Oklahoma Agricultural Experiment Station.
- Deliver science-based information to farmers, ranchers and industry to increase efficiencies and productivity – Oklahoma Cooperative Extension Service.
- Deliver formal education to develop our youth as the best trained and most highly educated population possible so that they may continue to increase efficiencies and productivity. OSU provides coursework, research experience and internships that prepare our graduate and undergraduate students to become professionals in the homeland security community, to which they will contribute their agricultural knowledge – College of Agricultural Sciences and Natural Resources.

**Infrastructure**

- The National Institute for Microbial Forensics & Food and Agriculture Biosecurity (NIMFFAB)
- The Robert M. Kerr Food & Agricultural Products Center (FAPC)
- The Department of Animal Science and associated buildings, labs and facilities
- The Department of Biochemistry and Molecular Biology – Genomics and Proteomics Core Lab
- The Department of Biosystems and Agricultural Engineering

**For More Information**

- The Division of Agricultural Sciences and Natural Resources: www.dasnr.okstate.edu/