



Food safety is a national priority.

North Dakota and Texas are the primary states where agricultural commodities enter the United States. Thus, North Dakota State University's Great Plains Institute for Food Safety (GPIFS) is addressing food safety threats of international trade and domestic food production. The GPIFS has met the needs of food safety in three major ways.

1. We are the only team in the nation with these disciplines working together.
2. We advance the science of food safety and production.
3. We develop information useful to policy makers and industry.



We have made unique contributions to food safety in the United States. We have solved important problems by:

- Creating a multiple sensor system (including material handling component, electro-mechanical subsystems, hardware, software etc.) for classifying spoiled and *Salmonella* contaminated beef samples.
- Using a pattern recognition technique that we have developed to classify packaged beef samples as spoiled or not with an average total accuracy of more than 90%.
- Developing a model that outlines how personal and social factors influence workers' motivation to keep food safe.
- Creating an integrated model of the motivation to perform safety and security behaviors.
- Developing a model that demonstrates that food production workers can play a critical role in reducing risk of contamination.
- Crafting a model to quantify food safety risk in monetary terms.
- Advancing the science of risk analysis: assessment, communication and management.
- Developing an efficient way to sample turkeys for *Salmonella* in production plants.
- Generating a model and framework to evaluate multiple risks factors (microbial, economic, and communication) and risk mitigation strategies simultaneously.

- Training the next generation of experts who will continue addressing the evolving challenges to food safety.
- Developing a model to integrate multiple food safety risks that eliminates the time lag in policy interventions.

We will continue meeting the needs of producers, processors, and consumers. More specifically:

- Our work has provided the tools to respond to emerging threats.
- We will continue to use innovative approaches to allow us to enhance the integrated risk model.
- We will adapt the model to address cross-border issues related to other pathogens (avian flu, BSE, etc.) and other commodities.
- We will apply this model to future threats.
- Integrate human factor risks into developed models as these models can evaluate multiple risk factors.
- Extend developed models to emerging risks (avian flu, BSE, etc.) for North Dakota and other boarder states.



<http://www.ndsu.nodak.edu/foodsafety/>