Food safety continues to be a growing concern—one that scientists at the National Food Safety and Toxicology Center take seriously. The Centers for Disease Control estimate that each year in the United States 76 million people are affected by foodborne illnesses, 325,000 people are hospitalized and 5,000 die from food-related diseases. People are eating a greater variety of foods from around the world, and the risk of foodborne illness and death related to contamination of domestic and imported foods is significant. People are also eating more of their meals away from home. As more workers prepare meals, the opportunity for disease-causing errors also increases.

Perhaps most paramount is the emergence of new foodborne pathogens and the ability of existing pathogens to resist antibiotics and traditional food safety barriers such as temperature.
NFSTC Mission
To conduct research that will increase understanding of chemical and microbial hazard in foods and to use the knowledge to develop a safer food supply, well-founded public policy, and a greater public understanding of food safety issues.

NFSTC Research
Foodborne illness is more than an upset stomach. Evidence suggests that toxins and other components in food can have far-reaching and long-lasting effects. Michigan State University is blessed with strong expertise, and the center uniquely pulls together these experts in using a multidisciplinary approach to investigate:
• where bacteria, such as E. coli, come in contact with food.
• Campylobacter infections, which are suspected of leading to Guillain-Barré syndrome.
• how antibiotics used in farm animals could potentially create resistant bacteria, such as Salmonella (DT=104) and affect human health.
• the science of pre-harvest food safety in animal, plant and environmental settings.
• how asthma, a rapidly growing problem in the United States, might be rooted in the food chain, and whether food allergies early in life may lead to this disease.
• creating ways to reduce pesticide use, such as better use of beneficial insects, more efficient methods of spraying, and development of resistant plants.
• devising more sensitive, specific and inexpensive ways to detect chemicals, pathogen, and toxins long before they get on a fork.
• the effect of certain toxins called mycotoxins in grains on the immune system and their power to cause cancer.

NFSTC Focus
At the National Food Safety and Toxicology Center, researchers address these challenges everyday. At every stage of the food system, NFSTC scientists investigate a range of issues from food animal and plant production to processing and packaging to retailing and food preparation in the home. The center focuses on toxicology research, microbial pathogens, analytical and food chemistry, epidemiology, public policy and outreach and education to:
• reduce the incidence of foodborne illness.
• encourage global food safety efforts among industry, academia, the government and the public.
• use risk analysis to support scientific information to support food safety decisions.
• encourage policy makers and administrators to more fully employ risk communication in the risk analysis process.
• improve food systems education for food safety specialists.

NFSTC and Risk Analysis
To make good policy, the risk and science behind it must be understood and communicated effectively. Risk analysis is more a way of thinking than a formula or science, though it relies on science for accuracy and validity of conclusions. It is a way to organize and use scientific information to support decisions.
The NFSTC is positioned to play a key role in the process, with access to MSU’s leading experts. The center has the ability to integrate various disciplines to address the three components of risk analysis, i.e., risk assessment, risk management and risk communication.

University Research
Containment Facility
This 52,000-square-foot facility provides sophisticated, secure facilities for a broad range of food animal and aquatic toxicology research activities. Both pathogens and chemical toxicants can be studied in an environment that provides complete containment of the hazard and strict control of emissions.

NFSTC Building
Located on Michigan State University’s spectacular campus, the 115,000-square-foot building has laboratory and other experimental facilities for researchers with expertise in toxicology, carcinogenesis, pathology, analytical chemistry, microbiology, epidemiology, and the social sciences.
In addition, the three-story center is the location of outreach and education programs, seminars and workshops.
The building, which is bordered by the renowned MSU Horticultural Demonstration Gardens and a natural wetlands area, provides state-of-the-art laboratory space to faculty researchers from a broad spectrum of disciplines, ranging from toxicology and microbiology to horticulture and pediatrics to communication arts and social science.

The $24.2-million building was funded by the U.S. Department of Agriculture, Michigan State University, and the MSU Foundation. It was completed early in 1998.

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