

## **CENTER FOR FOOD SAFETY UNIVERSITY OF GEORGIA**

Established in 1993, the University of Georgia's Center for Food Safety is a research unit whose mission is to maintain and improve the safety of foods through the development of methods that detect, control, or eliminate pathogenic microorganisms and their toxins. Its \$7.6 million state of the art research facility is located in Griffin, Georgia, just 35 miles south of Atlanta's Hartsfield International Airport. The Center is an off-campus facility of the UGA College of Agricultural and Environmental Sciences.

The Center's research programs focus on microbiological issues across the entire food continuum, from farm to the table. Projects involve identifying the niches where foodborne pathogens persist, developing and evaluating tools for detecting parasites and bacterial pathogens, educating and characterizing conditions required to prevent pathogen contamination or growth in foods, and identifying and evaluating treatments to eliminate pathogens from foods and animal reservoirs. Examples of specific research projects include determining sources of pathogen contamination of produce and livestock, isolating human-friendly microorganisms that competitively exclude harmful bacteria like *E. coli* O157:H7 to reduce their carriage by animals, developing sensitive methods to detect parasite contamination of fruits and vegetables, and optimizing conditions for killing pathogens like *Salmonella* in manure.

The research is coordinated by 14 faculty members and is sponsored by federal, state, and industry grants and contracts totaling ca. \$7 million. Most (ca. 80%) are federal grants. The Center faculty includes microbiologists, toxicologists, risk assessors, biochemists, parasitologists, and food scientists. The Center's outreach program is national in scope and involves assisting most major U.S. food processors in addressing microbiological food safety issues.

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**DEPARTMENT OF EPIDEMIOLOGY AND PREVENTIVE MEDICINE**  
**UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE**  
**UNIVERSITY OF MARYLAND BALTIMORE**

The University of Maryland School of Medicine, the oldest public medical school in the United States, is part of the University of Maryland Baltimore, located in downtown Baltimore close to the inner harbor. During the past decade the School of Medicine has emerged as a national leader in clinical and basic research. The Department of Epidemiology and Preventive Medicine at the University of Maryland School of Medicine (<http://medschool.umaryland.edu/Epidemiology>) traces its origins to 1833, when the University became the first medical school in the United States to formally teach preventive medicine. The Department is currently one of the premier such departments in the country, with 59 faculty members with primary appointments divided into 8 divisions/program areas (Division of Biostatistics and Bioinformatics, Division of Gerontology, Division of Healthcare Outcomes Research, Division of Gender-Based Epidemiology, Division of International Health, Division of Environmental Epidemiology and Toxicology, Foodborne and Emerging Pathogens, and Clinical Preventive Medicine). Total direct grant funding for the Department exceeds \$20 million annually, with the Department serving as the Coordinating Center for several large, NIH-sponsored multi-center trials. The Department offers Master of Science degrees in Epidemiology and in Clinical Investigation, as well as PhD degrees in Epidemiology, Molecular Epidemiology, and Toxicology; the Department also sponsors a Preventive Medicine Residency program, which currently has 8 residents.

The Department, together with investigators at Johns Hopkins and the Maryland Department of Health and Mental Hygiene, has responsibility for a CDC Emerging Infections Program sentinel surveillance (FoodNet) site that encompasses the state of Maryland (one of nine such sites in the United States). Under the leadership of Dr. Glenn Morris, Professor and Chairman, investigators in the Department are recognized nationally for their clinical and research expertise in enteric microorganisms and in food safety. Recent research has, in particular, focused on mathematical and computer modeling of foodborne disease transmission and on use of molecular techniques to monitor and track spread of pathogenic bacteria.

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# FOOD MARKETING POLICY CENTER

## UNIVERSITY OF MASSACHUSETTS AMHERST

### Center Overview

The Food Marketing Policy Center (<http://vm.uconn.edu/~wwware/FMktC.html>) conducts research on food and agricultural marketing and related policy questions. It provides information that contributes to improved performance of the food production and marketing system. The Policy Center is primarily an economic research organization but also conducts interdisciplinary research. Key users of its research include farmer and consumer organizations, agribusiness firms, public agencies, state legislatures, and the U.S. Congress.

The Food Marketing Policy Center's main office is located at the University of Connecticut. Dr. Ronald Cotterill directs the Center. The faculty associates of the Center at the University of Massachusetts are Drs. Julie Caswell, Richard Rogers, and Nathalie Lavoie, all in the Department of Resource Economics.

### **Food Safety Research at the University of Massachusetts**

The Center's food safety research program focuses on understanding the operation of domestic and international food systems, with particular interest in the economics of food quality (especially safety and nutrition), international trade, and food labeling. Current research projects focus on the economic evaluation of risk management options for improving food safety; the economics of traceability and certification for food quality attributes such as safety and the use of biotechnology; the effectiveness of labeling in influencing consumer behavior; and the impact of higher safety standards in developed countries on trade between them and on exports from and food safety within developing countries.

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# INSTITUTE FOR FOOD SAFETY AND SECURITY

## IOWA STATE UNIVERSITY

The *Institute for Food Safety and Security* is dedicated to protecting Iowa's vast investment in food production and agriculture. It will directly serve production, processor and consumer needs. ISU is uniquely positioned to conduct research and analysis to enhance food safety and security because of its access to world-class scientists (ISU, federal and private industry) and to an extensive array of production and processing facilities. A diverse resource of multidisciplinary faculty will enable rapid identification and responses to food safety and food security concerns that will have impacts throughout the global food chain. The expected outcomes of this institute will strengthen Iowa's role as a safe and reliable producer and supplier of high quality food and food products that will aid in ensuring Iowa's economic future.

The *Institute for Food Safety and Security* is dedicated to research, training and outreach activities.

The institute will have eight centers that engage food problems and food issues as follows:

- Food-borne Infectious Disease
- Food and Water - Harvest
- Food and Water - Post-Harvest
- Food Service and Retail
- Consumer Economics & Issues
- Food-borne Disease Models & Risk Analysis
- International Food Security
- Food Security and Public Health

**Objectives.** The *Institute for Food Safety and Security* will develop research and training programs that engage in human health risks and issues that arise from globalization, intensification of production agriculture, food processing, food service, environmental changes and the prevention of agroterrorism. Research will encompass the farm-to-table spectrum and include production management systems that prevent pre-harvest contamination, improved diagnostic reagents, vaccines, antimicrobial drugs, toxicology, clean water, computer modeling with risk analysis and the social / economic aspects of food issues. Information gained will be of high quality and useful for national programs for food safety and disease control. Research directed at harvest, post-harvest, processing, and food service will be integrated with research priorities and needs of the USDA and DHHS.

**Background.** Located in the heart of one of the world's most intensive food-producing areas, Iowa State University has unique access to crops, farm animals, production units, and food processing facilities. Food industries view ISU as strong, supportive, and focused on safety. Internationally recognized research and extension programs at ISU in animal and crop diseases, agronomy, animal science, anthropology, ecology, food science, informational technology, microbiology, and statistics, are areas of great strength that will be directed to the control of pathogens, chemicals, and toxins in food. The *Institute for Food Safety and Security* embraces the land-grant heritage of ISU with an orientation to science and technology. Building on traditional strengths in consumer food safety, food service, food science, toxicology, health of crops, and food-producing animals, the *Institute* is dedicated to promoting a strong, creative, intellectual environment where ideas are vigorously debated and rigorously tested. These strengths will be directed to translate information on food safety and food security to our economy.

**Vision.** The concept of the *Institute for Food Safety and Security* is to bring together diverse research, education and outreach components of food safety/security into one center for the purposes of efficient teamwork that is well positioned among government, industry, and producers. At ISU, current research expertise is focused in various units across campus that are often isolated from one another and function independently with regard to learning, discovery and engagement. The *Institute* concept will mesh these units together and will coordinate and integrate their activities towards high priority state and national issues. Other attributes that ISU has to aid in the success of an *Institute* include:

- Centralized biotechnology centers
- Statistical laboratories for data analysis
- Computation facilities for risk modeling
- Close ties with food industries and farms
- Strong international programs and contacts
- Grant acquisition tools
- Diagnostic/outreach facilities for application

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# NATIONAL FOOD SAFETY & TOXICOLOGY CENTER

## MICHIGAN STATE UNIVERSITY

**Overview.** The National Food Safety & Toxicology Center is committed to reducing food-related disease globally through research, education, and outreach. This is achieved by fostering collaborations across a full spectrum of relevant disciplines within and beyond the university, and through building partnerships with public health officials, food producers and retailers, consumers, and other key stakeholders. Disciplines such as microbiology, toxicology, epidemiology, pre-harvest food safety, risk assessment, communication, and social science are part of the center's wide research scope that will lead to increasing multidisciplinary approaches to tackling major food safety issues.

**Objectives.** The Center is primarily committed to:

- Ensuring the safety of all types of food (including products that are conventional, organic, imported, irradiated, bioengineered, and others)
- Addressing food safety-related issues in all forms (including water quality) and at all stages of food production, from pre-harvest to final preparation and consumption
- Focusing efforts upon the areas of greatest need, with primary emphasis on cutting-edge research
- Being involved in food safety activities at local, national, and international levels
- Conducting activities in the following areas:
  - a. Basic and applied research in a broad array of food safety issues aimed at a better understanding of the impact of pathogens and chemicals on human health and of the social processes that produce food-safety related behaviors
  - b. Service to the community and industry, including problem solving to address specific food safety issues and preventing illness
  - c. Education for food safety scientists, professionals, policy makers, and others who carry responsibility for ensuring the safety of the food supply
- Providing leadership in the area of food safety, involving stakeholders in meaningful ways, and operating in a multidisciplinary manner
- Preserving and building upon the core land grant mission and the capacities afforded to the Center by virtue of its association with Michigan State University.

**Background.** In early 1998, the NFSTC opened its doors in a state-of-the-art research facility to provide long- and short-term solutions for foodborne problems, as a result of the State's uncertainty in its ability to address major food safety concerns that started with the PPB crisis affecting the dairy industry in Michigan many years earlier. To accomplish this goal, the center gradually brought together more than 10 staff members and 50 faculty with expertise in preharvest food safety, epidemiology, toxicology, microbiology, food law, risk assessment and communications, sociology, education and outreach, and policy development. Some are housed in the building and others across campus. In just five years, the Center has established itself as a vital national food safety resource through its many accomplishments. A newly created external board of advisors will oversee the Center's five-year strategic plan for expanded growth, ground-breaking research and educational programs. The Center's signature research areas plan to include research on mechanisms of pathogenicity and toxicity of *E. coli* O157:H7, *Campylobacter*, *Listeria monocytogenes*, *Salmonella*, food-related allergies, and foodborne toxicants.

**Vision.** As the center celebrates its 5-year anniversary, its leadership has been looking at the challenge of understanding the mechanism of how toxins and pathogens produce foodborne illnesses and the means of reducing these nationally and globally, through the implementation of the newly published Strategic Plan for the next 5 years. We are seeking to develop the center in specific ways:

1. Establishing the Center's reputation for excellence in basic and applied research in targeted areas
2. Strengthening the Center's food safety education program for professionals
3. Developing an international food safety focus within the Center
4. Engaging the Center's external stakeholders
5. Attracting, developing and maintaining a diverse and high quality faculty within the Center
6. Ensuring the most effective use of space resources to fulfill the Center's priorities
7. Creating sufficient budgetary resources to enable the Center to become increasingly self-sustaining
8. Creating effective governance mechanisms to provide operational and strategic guidance for the Center.

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## RESOURCES FOR THE FUTURE

**Overview:** Resources for the Future (RFF) is a non-profit, non-partisan think tank located in Washington, D.C., that conducts independent research – rooted primarily in economics and other social sciences – on environmental, natural resource, and related public policy issues. RFF is dedicated to improving policymaking through independent research of the highest caliber. RFF neither lobbies nor takes positions on specific legislative or regulatory proposals.

**Objectives:** Economists at RFF have widely recognized expertise in valuing the health benefits of public interventions aimed at reducing risk and in assessing the cost effectiveness of risk reduction measures. RFF researchers have extensive experience as senior managers of food safety issues and programs at the Food and Drug Administration and U.S. Department of Agriculture, and others are examining how market incentives affect the food safety behaviors of businesses.

**Background:** RFF launched its food safety program with a May 2001 conference and workshop to examine what is known and what needs to be learned to implement an integrated, risk-based food safety system. The event brought together leading experts from government, industry, academia, and the consumer community to hear commissioned papers examining the current distributions of risk and regulatory effort across the food supply and identifying opportunities to improve risk reduction. RFF Press published a book based on the conference and workshop in 2004, edited by Michael Taylor and Sandra Hoffmann, titled “Toward Safer Food.”

As a follow up to the conference, RFF, in collaboration with the Milbank Memorial Fund and colleagues at the University of Maryland and Iowa State University, developed the concepts for a multi-disciplinary research consortium to improve the focus and effectiveness of government food safety programs. The research objectives include development of analytical and decision tools to better allocate resources in relation to risk and risk reduction opportunities. The Milbank Memorial Fund will publish a report in the spring of 2003 that summarizes these concepts and the importance of such research.

**Vision:** Following consultations with interested parties in government, industry, academia and the consumer community, RFF and five research universities have formed the Food Safety Research Consortium. The Consortium provides a vehicle for collaboration among researchers from diverse institutions and disciplines and for convening stakeholders from throughout the food system to work toward better tools for comparing and ranking risks and risk reduction opportunities and evaluating the effectiveness of interventions to reduce risk.

The first project undertaken by the Consortium was the development of a model to rank the public health impact of specific foodborne hazards, including appropriate measures of the economic impact of illness. This project, initially funded by the Robert Wood Johnson Foundation, was carried out by RFF, the Department of Epidemiology and Preventive Medicine at the University of Maryland School of Medicine, and the Institute for Food Safety and Security at Iowa State University. The first phase of the model was completed in 2003. The model is currently in the second phase of development, funded by USDA CSREES.

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# WESTERN INSTITUTE FOR FOOD SAFETY AND SECURITY

## UNIVERSITY OF CALIFORNIA, DAVIS

### **Vision:**

We envision the world's premiere research institute for food safety and security.

### **Mission Statement:**

The mission of the Institute is to conduct research that will enhance food safety in all sectors of the food systems' continuum from environment to consumer. The Institute shall be a leading resource for scientific information that will facilitate innovations and new practices that will improve food safety, build greater protection against intentional harmful acts directed at the food system, enhance economic stability of the food industry, and overall, lead to improved human health and welfare.

### **Founding Principles and Goals:**

The WIFSS is expanding partnerships between the University of California, Davis; the State of California, states in the Western region, private industry, Federal agencies and international entities. It grew out of the shared commitment to enhance food safety and to prevent intentional acts that endanger food safety and public health and welfare. Food safety and security are complex and dynamic issues that require comprehensive, multi-faceted, solutions based on sound science and field-tested solutions. Increasingly, new, highly technical solutions will be needed to off-set increasing complexity of the food systems and sophistication of those who aspire to do intentional harm to the food system and public health and welfare. The Institute is being organized to bring together innovative strengths from academia, states and Federal government, and the private sector to discover and deliver solutions to the escalating food safety and security challenges of the Western region and the nation as a whole. To be successful, WIFSS will need the full participation of all the partners, and with its success everyone will be more secure with a safer and more secure food supply.

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