Harnessing Food Safety to Address Global Food Security

Feed the Future Innovation Lab for Food Safety

October 28, 2020
Harnessing Food Safety to Address Global Food Security

Speakers

Robert Bertram
USAID Perspective on Food Safety

Bonnie McClafferty
Framing Global Food Safety

Haley Oliver
Research-Driven Approaches to Improve Food Safety
Moderator

Martin Wiedmann, Feed the Future Innovation Lab for Food Safety and Cornell University

Dr. Wiedmann is the Gellert Family Professor in Food Safety at Cornell University. He holds both a Veterinary Doctorate (DVM equivalent) from the Ludwig-Maximilians University in Munich and a Ph.D. in food science from Cornell University. Dr. Wiedmann is also the co-director of a CDC-funded Food Safety Center of Excellence, which is a joint effort between Cornell University and the New York State Department of Health. His work addresses food safety from primary production to the consumer, and his professional career has focused on comprehensive farm-to-table approaches to food safety and food security.
Agenda

- Dr. Martin Wiedmann, Feed the Future Innovation Lab for Food Safety/Cornell University.
- Dr. Robert Bertram, U.S. Agency for International Development (USAID) – 10 min.
- Bonnie McClafferty, Global Alliance for Improved Nutrition (GAIN) – 15 min.
- Dr. Haley Oliver, Feed the Future Innovation Lab for Food Safety/Purdue University – 15 min.
- Panel discussion – 10 min.
Dr. Bertram is the Chief Scientist in USAID’s Bureau for Resilience and Food Security, where he serves as a key adviser on a range of technical and program issues to advance global food security and nutrition. In this role, he leads USAID’s evidence-based efforts to advance research, technology and implementation in support of the U.S. Government’s global hunger and food security initiative, Feed the Future. Dr. Bertram’s academic background in plant breeding and genetics includes degrees from University of California, Davis, the University of Minnesota and the University of Maryland. He also studied international affairs at Georgetown University and was a visiting scientist at Washington University in St. Louis.
Bonnie McClafferty is currently the Director and Chief of Party for EatSafe: Evidence and Action Toward Safe Nutritious Food. She has more than twenty-five years’ experience working at the nexus of the food system and nutrition and health. First, within the research institutes that make up the Consultative Group on International Agricultural Research (CGIAR) and since 2011, at the Global Alliance for Improved Nutrition (GAIN). Bonnie serves on the Board of the World Vegetable Center and the global Steering Committee of the Program for Aflatoxin Control in Africa (PACA), housed at the Africa Union Commission.
Harnessing Food Safety to Address Global Food Security

Bonnie McClafferty
Director, EatSafe
Global Alliance for Improved Nutrition
Can there be food security without safety?
• Unsafe food can cause a variety of acute and chronic health impacts from mild to life-threatening

• In 2010, 31 foodborne hazards were responsible for 600 million episodes of foodborne illnesses and 420,000 deaths, for a total of 33 million disability-adjusted life years (DALYs) (WHO, 2015)

• Food borne disease impacts nutrition-related outcomes such as stunting and wasting
Health & Physiology

- Foodborne disease (FBD) incidence among poor households in LMICs: data?
- FBD and reduction in nutrients intake and absorption.
- Vicious cycle of cumulative exposure and malnutrition.
- Impact of FBD on newborn growth and fetal development.
- Infection treatments need to responsibly control antimicrobial resistance

Consumers

- Concern over unsafe foods may change diet choices. Cuts both ways.
- Affordability of safe food. Consider if/how safety affects price.
- Time for acquisition and preparation of safe foods may impact income and care
- Food safety knowledge associated with education, income, and health
- Who can consumers trust on food safety and related information?

Supply Chains & Markets

- Can increased demand for safe nutritious foods incentivize supply chains to improve food safety?
- Do supply chain actors have access to FS education and training?
- Priorities for infrastructure and equipment development
- Exposure to zoonotic pathogens in markets. Is this an occupational hazard and is there a gender dimension that needs to be considered when designing interventions?

Policy & Regulation

- Practicality and cost of food safety enforcement in informal settings.
- Level of acceptable safety. What are the appropriate standards for LIMCs?
- Can vendors comply with regulations or best practices?
- Processing, storage, or preparation guidelines: can they work in harmony with preserving nutritional quality and environmental sustainability?
- What is the role of labeling for safe and nutritious foods?
Health & Physiology

- Foodborne disease (FBD) incidence among poor households in LMICs: data?
- Vicious cycle of cumulative exposure to FBD and malnutrition.
- Impact of FBD on newborn growth and fetal development
- Infection treatments what are options while responsibly controlling antimicrobial resistance
- FBD and reduction in nutrient absorption (micro and macro).
Consumers

• Concern over unsafe foods may change diet choices. Cuts both ways.
• Affordability of safe food. Consider if/how safety affects price.
• Time for acquisition and preparation of safe foods may impact income and care
• Food safety knowledge associated with education, income, and health
• Who can consumers trust on food safety and related information?
Supply Chains & Markets

The supply chain is responsible for safety with or without regulation.

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- Priorities for infrastructure and equipment development
- Exposure to zoonotic pathogens in markets. Is this an occupational hazard and is there a gender dimension that needs to be considered when designing interventions?
Policy & Regulation

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- Processing, storage, or preparation guidelines: can they work in harmony with preserving nutritional quality and environmental sustainability?
- What is the role of labeling for safe and nutritious foods?
Dr. Haley Oliver is a professor of Food Science at Purdue University and the director of the Feed the Future Innovation Lab for Food Safety. She completed her Bachelor of Science degrees in Molecular Biology and in Microbiology at the University of Wyoming and received her PhD in Food Science, with minors in Epidemiology and Microbiology, at Cornell University. Dr. Oliver’s current research focuses on prevalence, persistence, and transmission of L. monocytogenes and Salmonella in retail food systems as well as development of practical and feasible control strategies aimed to reduce cross-contamination. In addition to her work with the FSIL, she has been working to develop food safety capacity in Afghanistan, Nigeria, and Peru.
OVERVIEW

- Purdue and Cornell Universities partnership
- $10MM USAID Investment (2019-2024)
- Potential for $20MM Associate Awards and Buy-Ins
- Private sector, government, consumer stakeholders
- Food safety focus is farm-to-fork
- Focus countries: Bangladesh, Cambodia, Kenya, and Senegal
MOTIVATIONS FOR OUR APPROACH

- 125,000 children die from foodborne diseases every year (WHO, 2015)
- Unsafe foods inhibit higher value/global market access
- Use of advanced technologies to “accelerate” solutions can be unsuccessful (e.g. informal sector)
- GFSP meta-analyses study informs, focuses, and redirects food safety development strategies
AREAS OF INQUIRY

**Improve Nutrition & Human Outcomes**
Leveraging our food safety research innovations into transformative knowledge

**Reduce & Mitigate Risk for Enhanced Resilience**
Identifying technologies, practices, and discoveries that minimize food safety risks

**Advance Productivity Frontiers Through Economic Development**
Scaling up technologies and practices we identify to improve food safety

Targeting biological and chemical hazards

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**Feed the Future**
The U.S. Government’s Global Hunger & Food Security Initiative

**USAID**
From the American People

**Purdue University**

**Cornell University**
RESEARCH & ENGAGEMENT ACTIVITIES

AWARENESS
Increase stakeholder awareness of food safety issues, impacts, and measures to reduce food safety risks.

RESEARCH
Build local research capacity and conduct research on regional food safety challenges.

POLICY
Support translation and dissemination networks to develop policies and engagement structures.

TRAINING
Enhance local capacity to translate food safety research into training, guidelines, & commercialized products.
CROSS-CUTTING THEMES

Empowering women, youth and other marginalized populations

Developing human and institutional capacity

Enabling environments that support food safety
MANAGEMENT ENTITY

WHAT IT DOES

Provides technical leadership that guides USAID’s food safety research agenda while ensuring effective management and implementation of all activities within the Food Safety Innovation Lab portfolio.
**ADVISORY COMMITTEE**

**PURPOSE**
Formed to counsel the FSIL on research and programmatic priorities

**GOAL**
Will serve as key resource for the research subaward process

**CHAIR**
Chaired by Dr. Kathryn Boor at Cornell University

**MEMBERS**
Currently consists of 8 members from public and private sectors
QUICKSTARTS
Initial Research Investments

Short-term projects with pre-identified partners in FSIL focus countries/regions that conduct country-wide and site-specific food safety assessments.
INITIAL RESEARCH INVESTMENTS

QUICKSTARTS

01. BANGLADESH
Assessing food safety risks, scientific capability, and food industry preparedness in Bangladesh  
_Sathguru_

02. CAMBODIA
Bacterial Contamination in Fresh Vegetables: Focusing Interventions  
_Kansas State University, Purdue University, & Royal University of Agriculture, Phnom Penh_

03. KENYA +
Situational Analysis of Food Safety Control Systems in East Africa  
_International Livestock Research Institute (ILRI)_

04. SENEGAL
Testing cost-effective interventions to reduce _E. coli_ and other contamination in Senegalese groundnut production and consumption  
_Purdue University & Institut Sénégalais de Recherches Agricoles (ISRA)_
KENYA & EAST AFRICA REGION QUICKSTART

- Characterize previous and ongoing food safety investments in the region
- Understand food safety control systems within the EAR
- Review literature of major foodborne diseases and assess stakeholder understanding of food safety in the region
- Activities conducted with university partners in Kenya, Uganda, Tanzania, Burundi, and Rwanda
BANGLADESH QUICKSTART

• Identify the existing food safety risks, regulatory framework, and scientific capacity to address food safety risks in Bangladesh

• Analyze industry preparedness and gaps in food safety systems

• Map institutional capacity to detect foodborne pathogens

• Conduct a workshop to prioritize food safety action points and opportunities to improve foodborne pathogen detection capacity

Implemented by: Sathguru
CAMBODIA QUICKSTART

• Create a catalogue of current food safety initiatives in Cambodia to help shape future research priorities, avoid duplication, and identify areas of convergence

• Conduct quantitative and qualitative assessments of bacterial pathogen contamination rates in regularly consumed vegetables as those vegetables traverse the value chain

Implemented by:
Purdue University
Kansas State University
USAID
Review academic literature and projects taking place in Senegal to improve food safety in staple crops.

Identify the extent of microbial and fungal contamination in groundnuts that are produced and consumed by rural Senegalese households.

Implemented by:

[Logos of USAID, Purdue University, and Cornell University]
Rapid Response to COVID-19

Food Safety and Food Security Challenges

• The COVID-19 pandemic has forced the global food system into uncharted territory
• Connect with local subject matter experts to mentor, train, and support coordination of Food Industry Office Hours
• Implement technical, organizational and personnel measures to manage risks
• Customize and translate relevant resources
• Bangladesh, Cambodia, Kenya, Senegal, Nepal, Tanzania
BUILDING THE FSIL RESEARCH PORTFOLIO

QuickStarts  First RFA  Subsequent RFAs
• Nutritional value
• Shelf life
• Regional importance & need
• Scaling
• Private sector engagement
• Enabling environments
• Gender and youth
• Institutional capacity
GENDER WORKING GROUP OVERVIEW

• Synergize and amplify FSIL food safety gender research strategies and findings that ultimately help women overcome barriers to safer foods
• Share research successes and challenges
• Implement USAID Feed the Future Advancing Women’s Empowerment Program’s recommendations to enhance gender studies
NEAR-TERM FSIL ACTIVITIES

• Long-term research portfolio announced in the coming weeks
• 3.5 year, $700k projects (4)
• Outcomes from QuickStarts
• New website showcasing the entire program in January 2021
The Feed the Future Innovation Lab for Food Safety is made possible by the generous support of the American people through the United States Agency for International Development (USAID).

www.feedthefuture.gov
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Panel Discussion

Robert Bertram
U.S. Agency for International Development (USAID)

Bonnie McClafferty
Global Alliance for Improved Nutrition (GAIN)

Haley Oliver
Purdue University, Feed the Future Innovation Lab for Food Safety
Thank You!

Please join us for our next webinar:

**Food Safety and One Health: Approaches to Reducing Foodborne Pathogens and Zoonotic Diseases**

November 19, 2020
9:00-10:00 am Eastern Time (UTC-5:00)

[https://cornell.zoom.us/webinar/register/WN_qniDxFvbTVOY9KIFDbIJIA](https://cornell.zoom.us/webinar/register/WN_qniDxFvbTVOY9KIFDbIJIA)
FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative