

Food Safety Research in the Feed the Future Innovation Lab for Livestock Systems

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About The Livestock Innovation Lab

Feed the Future is the U.S. Government's global hunger, resilience and food security initiative, and much of its implementation comes through the U.S. Agency for International Development (USAID). In 2015, USAID awarded funds to the University of Florida's Institute of Food and Agricultural Sciences to establish the "Feed the Future Innovation Lab for Livestock Systems." It partners with the International Livestock Research Institute for implementation. In 2017, the Bill & Melinda Gates Foundation awarded funding for additional research projects. The Livestock Systems Innovation Lab (LSIL) aims to improve the nutrition, health, livelihoods and incomes of the poor by sustainably increasing livestock productivity and by the marketing and consumption of animal-source foods. It pursues progress by introducing new location-appropriate technologies, by improving management practices, skills, knowledge, capacity and access to and quality of inputs across livestock value chains, and by supporting the development of a policy environment that fosters sustainable intensification and increased profitability of smallholder livestock systems. The Lab draws on the expertise of target countries, U.S. and foreign universities, institutes and organizations, and its primary work is accomplished through competitively-funded, long-term, multi-disciplinary, integrated applied research and capacity-building projects. Learn more by emailing livestock-lab@ufl.edu or visiting <http://livestocklab.ifas.ufl.edu>. LSIL is funding 22 projects in 6 countries, of which 7 are addressing food safety aspects of animal source food consumption. REACH grants are funded for 4 years, FOCUS grants for 1 year

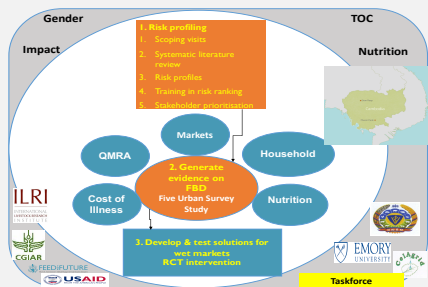
REACH grants

Safe Food, Fair Food Cambodia (PI: Delia Grace, ILRI)

- Generate actionable evidence on the health and economic burden (gender-disaggregated) of FBD associated with ASF in Cambodia.
- Develop, pilot and test a new approach to food safety, which relies on incentives (rewards) and light-touch interventions in close partnership with the private sector.
- With stakeholders, describe, plan and monitor how evidence-based recommendations and the tested approach and could contribute to the LSIL theory of change.
- Make recommendations for enhanced engagement and benefit sharing for men and women in ASF value chains through improving understanding of gender aspects.
- Build capacity in understanding food safety risk, its management and effective communication among stakeholders including: government, private sector, academia, donors, and media.

Linking cattle nutrition to human nutrition - Ethiopia (PI: Jessie Vipham, Kansas State University)

- Create a systems-based research approach that strengthens linkages between improved animal source food production and consumption practices and human nutrition outcomes in Ethiopia
- What is the food safety risk associated with increased consumption of meat and milk?
- Create baselines for foodborne pathogens for meat products, during processing and at retail.
- Implement strategies to mitigate the burden of foodborne pathogens on meat and milk products.



Safe Food, Fair Food for Cambodia

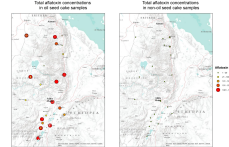
FOCUS grants - mycotoxins

Aflatoxin-related health risk for milk consumers in rural and peri-urban areas in Burkina Faso (PI: Silvia Alonso, ILRI)

- Map the dairy value chains in rural & peri-urban Ouagadougou.
- Determine presence of milk-borne pathogens in milk in rural & urban areas
- Assess aflatoxin contamination in cattle feed and milk on dairy farms
- Estimate aflatoxin-related health risk for rural and urban consumers of liquid milk (children under 5 yrs and pregnant and lactating women)

Safe Feed Safe Food: Mycotoxin Prevalence and Mitigation Measures (PI: Deon Van Der Merwe; Yacob Zereyesus (Kansas State University))

- Expand understanding of the risks posed by mycotoxins to animal and human health in Ethiopia through animal feeds
- Enhance mycotoxin testing capacity for animal feeds
- Communicate mycotoxin risk information to stakeholders to enhance risk management strategies



Aflatoxin levels in feeds

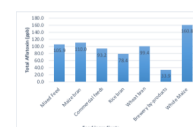
Assessment and Mitigation of Aflatoxin and Fumonisin Contamination in Animals Feeds (PI: Dirk Maier, Iowa State University)

- Quantify aflatoxin and fumonisin levels in animal feeds in five different agro-ecological zones (AEZs) of Rwanda at different points in the animal feeds value chain.
- Establish a surveillance and early detection system for aflatoxin and fumonisin presence and mitigation in animal feeds.
- Raise awareness of aflatoxin and fumonisin contamination and prevention among stakeholders involved in the animal feeds value chain.
- Evaluate the regulatory framework in regards to policies for the mitigation of aflatoxin and fumonisin contamination in animal feeds.

85% of feed samples exceeded standard for aflatoxin (5 µg/kg)



Type of feed samples



Mean aflatoxin concentration



FOCUS grants - dairy

Improving Dairy Animal Productivity and Income of Dairy Farmers through Effective Control of Mastitis Disease - Nepal (PI: Keshav Sah, Heifer International)

- Enhance the livelihoods of smallholder dairy farmers through effective control of mastitis

Prevalence of subclinical mastitis in Nepal was significantly reduced (by 55% -> 28% in cows; 78% -> 18% in buffaloes) on smallholder farms that adopted good dairy husbandry practices like post milk teat dipping. Feedback on conductivity readings from cooperative milk collection centers motivates farmers to adopt mastitis control.

- Improving handling practices and microbiological safety of milk and milk products in Borana pastoral communities, Ethiopia (PI: Kebede Amenu, Addis Ababa University)
- Quantitatively assess the knowledge, attitude and practices (KAP) of women with regard to milk consumption and handling, and the associated health risks focusing on microbial pathogens (to generate quantitative baseline data)
- Assess the effect of introducing improved storage containers and smoking of containers on the microbial quality and shelf-life of milk / yoghurt
- Assess the effects of training focusing on the improved milk production and handling practices on the microbiological safety of milk/milk products and KAP of women

Prevalence of E. coli O157 in cows / camels milk 5 / 0% and Salmonella 4 / 1%, respectively.

Milk production practices, udder health and the impact on milk quality, safety and processability in Rwanda (PI: Jean-Baptiste Ndahetuye, University of Rwanda)

- Develop best practices that enhance dairy cow's health and milk quality in the Rwandan dairy chain
- Evaluate udder health, risk factors and impact of subclinical mastitis on dairy productivity in Rwanda
- Identify spoilage bacteria and their impact on milk preservation along the dairy chain from farms to dairy processors
- Evaluate microbiological quality and safety of raw milk in Rwanda through examination of the prevalence of zoonotic bacteria, their antimicrobial resistance and antimicrobial residues in milk at different stages of the milk chain in Rwanda
- Evaluate impact of antimicrobial residues present in raw milk on consumers' health and on lactic acid bacteria growth during milk processing
- Analyze other selected parameters (somatic cell count, casein number, protein to fat ratio) in order to evaluate the processability of the raw milk in Rwanda into various dairy products (fermented, cheese)
- Develop and train dairy farms, middlemen and milk center operators in hygienic practices during milking and raw milk postharvest handling.

