International Livestock Research Institute

Training course report

Risk analysis in practice to improve food systems

August 2019

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Written by Chi Nguyen

Citation

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Patron: Professor Peter C Doherty AC, FAA, FRS
Animal scientist, Nobel Prize Laureate for Physiology or Medicine–1996

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ILRI has offices in East Africa • South Asia • Southeast and East Asia • Southern Africa • West Africa

Contents

Training summary

Organizer/co-organizers: Veterinary Public Health Centre for Asia Pacific (VPHCAP) in Chiang Mai University and International Livestock Research Institute (ILRI)

Lecturers/facilitators:

- Warangkhana Chaisowwong, Faculty of Veterinary Medicine, Chiang Mai University, Thailand
- Maximillian Baumann, Faculty of Veterinary Medicine, Free University Berlin, Germany
- Fred Unger, ILRI
- Hung Nguyen, ILRI
- Sinh Dang, ILRI and Hanoi University of Public Health (HUPH)

Course description

This course will provide the necessary risk- and science-based tools to evaluate and mitigate the microbial and chemical risks in a food production chain-from the farm until consumption-. Participants will be divided in small interdisciplinary groups to mimic a real risk analysis team and develop a real-case scenario (different for each group). The attendants will follow the risk analysis process as an integral part of a science-based decision-making (risk prioritization, risk assessment, risk management and risk communication) to estimate and manage the food safety risks. The attendants will apply different qualitative (hazard analysis, decision matrices) and quantitative (risk prioritization, modelling and web-based software) tools by using a computer. The participants will present the main outcomes from the analyses and will evaluate possible mitigation options to reduce the risk in a cost-effective way.

Course goals and objectives

The goal of the course is to introduce the participants to real life applications of microbial and chemical risk assessment in foods to provide science-based answers to complex food safety issues in a multidisciplinary setting.

Upon completion of this course, students will be able to:

- Apply the basics of risk analysis to provide science-based decisions;
- Use qualitative and quantitative tools to estimate the risk;
- Practice writing, reporting and communicating the results of a risk assessment; and
- Practice problem solving with colleagues who have different backgrounds and areas of expertise.


Participants at the training (photo credit: ILRI)

Agenda

Tuesday 15 August		**Person in charge**
13:00-14:30	Opening session Joint session: Risk Analysis / Veterinary Molecular Epidemiology Food safety risk analysis and components **Hazard identification** Risk profiling: Risk ranking and prioritization Case studies. Exercise 1: Use of decision matrices	CMU/FUB/ILRI Fred Unger Warangkhana Chaisowwong Fred Unger Sinh Dang Xuan
14:30-14:45	Break	
14:45-16:00	Exercise 2: Use of risk ranger tool	Sinh Dang Xuan
16:00-17:00	Q & A	Sinh Dang Xuan
Friday 16 August		
09:00-10:30	**Hazard characterization** - Exercise: characteristics of the pathogens - Dose response model **Exposure assessment** - Risk pathway: characterization of food production process - Exercise: develop risk pathway	 Warangkhana Chaisowwong Sinh Dang Xuan Fred Unger Sinh Dang Xuan
10:30-10:45	Break	
10:45-12:00	Pathogen modelling Exercise: use of predictive microbiology software Dose estimation Exercise: calculation of dose consumed	Warangkhana Chaisowwong Warangkhana Chaisowwong Sinh Dang Xuan Sinh Dang Xuan
12:00-13:00	Lunch	
13:00-14:30	**Risk characterization** Exercise: development risk model (deterministic model) Exercise: estimation of the number of infection cases	 Hung Nguyen

14:30-14:45	Break	
14:45-16.00	Probability distribution Exercise: develop risk model (Probabilistic model) using @Risk	Sinh Dang Xuan
16:00-17:00	Q & A	
Saturday 17 August		
09:00-10:30	Risk communication & management Cost-benefit analysis	Hung Nguyen Warangkhana Chaisowwong
10:30-10:45	Break	
10:45-12:00	Group work	All tutors
12:00-13:00	Lunch	
13:00-14:30	Presentation	
14:30-14:45	Break	
14:45-16:00	Presentation Closing & certificate	

Training material

All training materials can be downloaded from this link https://vphcap.wixsite.com/ghit2019/risk-analysis-materials

List of participants

Serial No.	Name	Email contact	Sex (M/F)	Country of origin	Country Classification (Developing/Developed)
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11	Siriporn Kanwichai		F	Thailand	Developing
12	Duanghathai Saipinta		F	Thailand	Developing