PRE-ACCESSION PROGRAMME

Parma, 18 April 2013
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Training on Microbiological Risk Assessment
Venue: Radisson Blu Resort & Spa Hotel, Dubrovnik Sun Gardens – Na Moru 1 – 20234 – Dubrovnik – Croatia
14-16 May, 2013

Final Agenda

1st Day – Tuesday 14 May, 2013			
Time		**Activity**	**Tutors**
08:00	*08:45*	*Arrival of participants, registration*	
		Introduction to microbial risk analysis and risk assessment	
08:45	09:15	**Welcome and introduction**	**Training coordinators :Håkan Vigre and Leonardo de Knegt**
		Opening and welcome address: Overview of the training course activities: general and learning objectives, program and expectations for the course.	
09:15	09:30	**Lecture 1a**: **Introduction: What is risk?**	
		Introduction to the concepts of risk and risk perception in the context of food safety.	
		Objectives of the session: Understand the concepts of risk and hazard; discuss the importance of risk perception	
09:30	09:45	**Lecture 1b**: **Introduction: What is risk analysis?**	
		Introduction to food safety risk analysis, including presentation of the three pillars of risk analysis: risk assessment, risk management and risk communication. Also short introduction to methods for safety risk assessments (QPS) and how they are related to food risk assessment.	

		Objectives of the session: Acquire knowledge on the three pillars of risk analysis, recognizing the role of each and the importance of separating tasks among risk assessors and risk managers.	
09:45	10:30	**Lecture 2**: **What is risk assessment?**	
		Overview of the four steps of risk assessment: hazard identification, hazard characterization, exposure assessment and risk characterization. Presentation of the main differences between e.g. microbial and chemical risk assessment. Introduce examples of microbial risk assessment.	
		Objectives of the session: Understand the differences and similarities of concepts and risk terminology in the various areas of food safety. Understand the content, objectives, data requirements and methods of each step of the risk assessment process in microbial risk assessment.	
10:30	*10:45*	*Coffee break*	
10:45	11:15	**Lecture 3:** **Risk assessment in EFSA's Panel on Biological Hazards (BIOHAZ) and use in risk management and communication**	**Ms Winy Messens, EFSA**
		Content of the session: Overview of the structure of EFSA, its role in risk assessment and risk communication and the interaction with risk management. Examples of BIOHAZ opinion will be used to explain how risk assessments' results are used in risk management.	
		Objectives of the session: Understand the way risk assessment results are communicated by EFSA and how these are used in risk management.	
		Objectives of the session: Understand the role and procedures of international agencies in the context of microbial risk assessment. Understand the principles of risk assessment in comparison with the precautionary approach.	
11:15	11:45	**Lecture 4:** **Hazard identification**	
		Identifying food safety problems (risk identification and risk ranking (based on e.g. burden of disease, food attribution and	

		occurrence in food)). Presentation of examples within the context of microbial risk assessment.	
		Objectives of the session: Understand the process of identifying a food safety problem, including potential sources of information and different approaches for food safety issues.	
11:45	12:45	**Group exercise 1:** **The concept of risk analysis and risk assessment**	
		Introduction to short sections of text, for instance a summary from a risk analysis, where the participants should identify the hazard, the risk, the risk manager, the risk assessor, data used, subject matter experts, the risk communicator, etc.	
		Objectives of the session: Consolidate concepts learned in theoretical lectures. Introduction to the case study each group will follow for the rest of the training.	
12:45	*13:45*	*Lunch break*	
		Exposure assessment	
13:45	14:15	**Lecture 5:** **Framework and example of a risk assessment**	
		Content of the session: Introduction to a typical framework of a risk assessment. Identification and formulation of risk questions. Highlight the importance of a common understanding of the risk question(s) by the risk assessors and risk managers.	
		Objectives of the session: Understand the process of risk assessment as a response to or interaction with risk management. Understand the importance of the definition and framing of the risk question.	
14:15	14:45	**Lecture 6:** **Exposure pathways**	
		Overview of steps and variables to consider in the food pathway. Effect of each step in the pathogen load. Relation between variables. Discussion of data requirements.	
		Objectives of the session: Learn how to identify the steps and variables of a transmission pathway. Understand the connection between variables and the effect of each in the levels of the pathogen in the food item,	

		e.g. growth or inactivation. Learn how to identify data requirements.	
14:45	15:15	**Lecture 7:** **Qualitative and quantitative models for risk assessment**	
		Overview of qualitative models for risk assessment. Discussion of the concepts of low, moderate and high risk.	
		Objectives of the session: Understand the utility, data requirements and methods of qualitative risk assessments. Discuss the meaning of different outputs, and how results can be used. Discuss limitations of the qualitative approach.	
15:15	*15:30*	*Coffee break*	
15:30	16:00	**Lecture 8:** **Data requirements and data collection**	
		Presentation of the typical data requirements for a microbial risk assessment. Overview of sources and methods for data collection, including presentation of international databases (e.g. Food Consumption Database and EU Zoonosis Report database) and online resources.	
		Objectives of the session: Provide the participants with tools to identify data needs and collect data in national and international resources.	
16:00	16:30	**Group exercise 2:** **Case-studies**	
		Work on the case-study provided in the morning sesion. The group should identify and frame the risk question(s) and design a risk pathway following the farm to fork concept, and identify data needs.	
		Objectives of the session: Consolidate concepts learned in theoretical lectures, particularly in the identification of a risk question and definition and relation between variables. Develop case study initiated in the morning sesion.	
16:30	16:45	**Discussion**	
		Closure of the first day	

2nd Day – Wednesday 15 May			
Time		**Activity**	**Tutor**
		Models for risk assessment	
8:45	*9:00*	*Registration*	
9:00	9:45	**Lecture 9:** **Quantitative models for risk assessment**	
		Introduction to quantitative models for risk assessment. Comparison between semi-quantitative and quantitative models. Introduction to deterministic models. Presentation and comparison of deterministic and stochastic models.	
		Objectives of the session: Understand the utility, data needs and methods of quantitative models.	
9:45	10:30	**Teaching example:**	
		Introduction of a teaching example that will be used throughout the course to illustrate the different numerical methods in microbiological risk assessment. Using the case-study, participants will develop a simple deterministic model, implementing it in an Excel spreadsheet. The spreadsheet with the teaching example will be handed out, and works at a template for further work during the group exercises. The participants should add in extra steps in the model in alignment with group exercise 2.	
		Objectives of the session: Consolidate concepts learned in theoretical lectures. Application of units and values to defined variables; establishment of the connection between variables; interpretation of the output.	
10:30	*10:45*	*Coffee break*	
10:45		**Group exercise 3 Case studies.**	
11:45	12:15	**Group exercise 3 cont. and discussion**	
12:15	*13:30*	*Lunch break*	
		Stochastic models for risk assessment and risk characterisation	

13:30	14:00	**Lecture 10:** **Probability and uncertainty**	
		Content of the session A basic introduction of probability theory and probability distributions and conditional probability. Subjective and empirical (relative frequency) assessment of probabilities.	
		Objectives of the session: Understand the concept of probability and rules for calculations based on probability. Be familiar with how probability distributions	
14:00	14:30	**Lecture 11:** **How to model the probability of contamination of a food item taking uncertainty into account**	
		Content of the session: Methods for modeling the probability of contamination of a food item, and how sampling procedures/data sources influence on the uncertainty	
		Objectives of the session: Understand the relationship between prevalence of infection (animal level) and prevalence of contamination (food item level) and between qualitative (presence/absence) and quantitative occurrence of contamination. Learn modeling methods for taking uncertainty into account in a model.	
14:30	15:00	**Lecture 12:** **How to model concentration of pathogens in food taking the variability into account?**	
		Content of the session: Methods for modeling the changes in concentrations of pathogens in food, including predictive model for growth and inactivation.	
		Objectives of the session: Understand the difference between contaminated/not contaminated and given it is contaminated, what is the concentration. Learn modeling methods for taking variability into account in a model.	
15:00	*15:15*	*Coffee break*	

15:15	16:40	**Lecture 13:** **Dose response for infectious organisms – dose response models**	
		Content of the session: Modeling dose-response relationship. Statistical inference in dose-response modeling and applicability of results to new condition.	
		Objectives of the session: Practical exercises in DR assessment; hands-on experience in obtaining/applying dose response information.	
16:40	17:30	**Follow up and clarification of different topics from the two first days**	

3rd Day – Thursday 16 May			
Time		**Activity**	**Tutor**
8:45	*9:00*	*Registration*	
9:00	10:30	**Lecture 14:** **Risk characterisation**	
		Content of the session: Estimating the risk by integrating the output from exposure assessment (taking into account uncertainty and variability) with the dose-response. This will be illustrated using the lecture example	
		Objectives of the session: Learn methods for estimating the risk.	
10:30	*10:50*	*Coffee break*	
10:50	11:20	**Finalizing the exercise**	
11:20	11:50	**Lecture 15:** **Risk assessment history and international regulatory work**	
		Overview of microbial risk assessment history and regulatory work of international agencies like EFSA, OIE, COM, FAO, and WHO. Introduction to risk assessment guidelines.	

		Objectives of the session: Understand the role and procedures of international agencies in the context of microbial risk assessment. Understand the principles of risk assessment in comparison with the precautionary approach.	
11:50	12:30	**Discussion and closure of the training**	
12:30	*14:00*	*Lunch*	

Learning objectives:

After the course you will be able:

- Understand and describe the concept of risk analysis
- Understand and describe the concept of risk assessment
- Be able to outline differences between chemical and microbiological risk assessment (MRA)
- Be able to frame appropriate risk questions
- Be able to construct simple exposure pathways
- Be able to identify and interpret data used in MRA
- Be able to describe farm-to-fork-to-consumer models used in risk assessment
- Be able to describe the differences between qualitative and quantitative risk assessment models, inclduing advatages and disadvantages
- Be able to interpret and evaluate risk estimates
    - Appraise, argue, defending
- Be able to outline why risk assessment models are limited