

2. Early Detection of Emerging Risks Associated with Food and Feed Production

Objectives:

- To establish a Working Procedure for the early detection and assessment of emerging microbial and chemical hazards in food and feed chains, including a transfer point for information on emerging food safety problems.
- To propose mechanisms, both at national and international level to feed information from the data base on early detection of risks and from workshops into regulatory systems.
- To provide data on emerging pathogens as well as on the development of multi-resistant bacterial strains in high- and low- input agricultural systems for production of animal foods and vegetables in expanding European markets.
- To provide data on chemical residues in foods and feed produced in high and low input agricultural animal food production systems in expanding European markets.
- To actively make use of completed and currently on-going research and apply acceptance criteria specified by different bodies such as EC, CEN, ISO, CODEX etc, wherever possible.
- To develop research proposals regarding food and feed safety issues and capacity building in candidate countries.
- Future research needs regarding food and feed safety assessment and capacity building in candidate countries will also be identified, grouped and prioritised.

Co-ordinator

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Participants:

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1 RIKILT (Inst. Food Safety; NL)

12 LFC (Latv. Food Cent.; LAT)

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14 RIVM (Nat. Inst. Pub. Health Env.; NL)

15 BfR (Fed. Inst. Risk Assessm.; D)

Contribution

early risk identification procedure, review on emerging pathogens, development future research proposals

review on emerging chemical risks
development future research proposals

early risk identification procedure

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Deliverables:

- Transfer point for information on emerging food safety problems, including an electronic library containing known experts and expertise in the field of food safety research and assessment.
- Framework for identification of emerging health risks in food and feed production.
- Training course for risk assessors, risk managers, and other interested stakeholders in identification and assessment strategies for emerging risks in food and feed production.
- Report based on available scientific literature which will identify emerging pathogens in food and feed produced by high- and low- input practices in expanding European markets.
- Report based on the available scientific literature which will identify emerging chemical risks in food and feed produced by high- and low- input practices in expanding European markets.
- Research proposals regarding food and feed safety issues and capacity building in former Eastern European Countries.

2.1 Establishment of a mechanism for early risk determination in food and feed production chains in Europe

Early identification and above all anticipation of emerging safety problems, adequate risk assessment and management strategies, and transparent communication will be performed to allow for restoration and strengthening of public confidence in the safety of foods and feed. In particular, a *coherent* European approach will be designed to ensure an adequate early identification systems for new emerging risks and to assess identified hazards based on commonly accepted scientific principles.

Activities proposed in this Research Task will be realised in co-operation with the existing Network "European Food Safety Network" (EFSN; www.efsn.net). A core group of EFSN consisting of NFC, RIKILT, RIVM, Hungary and Latvia will carry out the proposed activities and form the liaison with EFSN. The developed database and training modules as described below, will be located and maintained at RIKILT and permanently operated by EFSN.

2.1.1. Set-up of a transfer point for information on emerging food safety problems (including an electronic library containing known experts and expertise in the field of food safety research and assessment)

This activity includes the development of an *expert database* with European experts on food safety. The database will be Internet based user-friendly, and inter-operable to allow easy access to the information recorded. The database will contain at least experts' affiliation, a bibliography containing their most recent publications, on-going projects, committees and their link to their national government. Links and co-operation will be set up with existing relevant databases such as the AGROWEB CEE partnership (database funded by FAO) and SINAPSE. The database will also contain results of the relevant EC supported RTD projects, Concerted Actions and Thematic Networks in the area of food safety. The transfer point will provide all stakeholders, i.e. scientists, regulators, food producers in particular SME's and consumers with adequate information at any time. The database will be build up by the core group of EFSN, namely partners RIKILT, NFC, LFC, CFRI, RIVM, and BfR, and run and maintained by RIKILT after the completion of this IP. Extension of the expert data base with experts from areas which are linked to food safety and health issues (public health experts, epidemiologists) is practised during the second half of the project. The data base will be publicly accessible and linked to the currently utilised Rapid Alert System (RAS) by EU Member States.

2.1.2 Development of a framework to identify new emerging health risks in food production.

This project will establish a platform of well known experts who will develop new systems or working procedures that allow identification of emerging food borne hazards in an early stage. Activities conducted in this area in various EU and non-EU countries will be reviewed and the necessary work will be carried out to come to an effective method that can be used European-wide. One workshops will be organised in the second phase to table instruments to be used for hazard prediction and identification (use of existing databases on food contamination, public health, review of scientific explorative papers etc). The newly designed working procedure and possible implementation at the national and EU level will be discussed with representatives of national Food Authorities and the EFSA which are involved in this area. In particular coupling to the existing RAS system will be discussed. This project will concentrate on provision of *scientific tools and criteria* for food hazard prediction and identification.

2.1.3 Development of a training course (master class) for risk assessors and risk managers and other interested stakeholders in EU Member States and Pre-accession Countries.

Within this Research Task a module will be developed for training on emerging risk identification of employees from governments, small-scale food producing industries and other interested stakeholders. The module will be tested and further adapted in a master class with selected

participants in the second half of the project, and will be part of the toolbox developed in this IP, which is accessible through the Website of SAFE FOODS (see WP dissemination and training).

2.2 Review on emerging pathogens and chemical risks in high- and low input food and feed production practices

Review of the scientific and technical literature will be undertaken in addition to survey research on farms / meat plants/ horticulture to establish what exactly are the emerging pathogens and the potential role of high- low input food production practises as a contributory factor in their development. A similar exercise will be carried out with respect to chemical food contamination in particular focussed on problems in Central and Eastern European countries. The fate and occurrence of residues of PCB's, pesticides and mycotoxins in the human food chains and in feed will be described based on literature and other available data. Furthermore differences in practices between low input and high input agriculture may play a role in the contamination of food products by these chemical compounds, and will be analysed.

2.3 Identification, grouping and prioritisation of possible future research needs and capacity building

The outcome of the desk studies will form the basis for the identification, grouping and prioritisation of possible future strategic research needs on food safety issues and for capacity building (during months 19 to 48 of the project). Main objectives will be on:

- Predictive modelling of emerging pathogens
- Development of innovative detection and enumeration methods for novel pathogens
- Development and application of quick and cheap detection methods for food contaminants and chemical residues (biological, immunological and molecular (PCR) based techniques)
- Designing and standardising sampling protocols for surveillance and monitoring purposes, especially focussed on Central and Eastern European countries
- Capacity building and training of food scientists
- The provision of research data to provide the scientific basis for the risk management of emerging pathogens.

Co-operation will be established with national agencies active in food analysis and food safety programmes in these countries. Attention will also be focused on labelling and nutritional aspects as part of the risk-benefit analysis