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# SAFE FOODS

**Promoting Food Safety through a New  
Integrated Risk Analysis Approach for Foods**

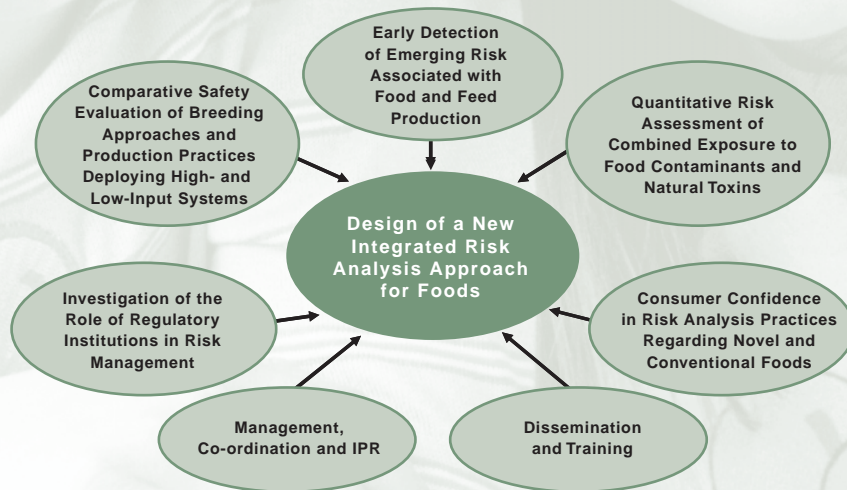




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The EU 6<sup>th</sup> Framework Integrated Project **SAFE FOODS** (2004-2008) aims to contribute to the restoration of consumer confidence in the food chain. SAFE FOODS seeks to refine risk analysis practice for food safety via an interdisciplinary approach. Research activities from a broad range of scientific disciplines provide input for the development of a new approach for risk analysis. More than 100 natural and social scientists are involved, coming from 37 institutions in 21 countries.

### Overview of the research activities in SAFE FOODS



## 6. Design of a New Integrated Risk Analysis Approach for Foods

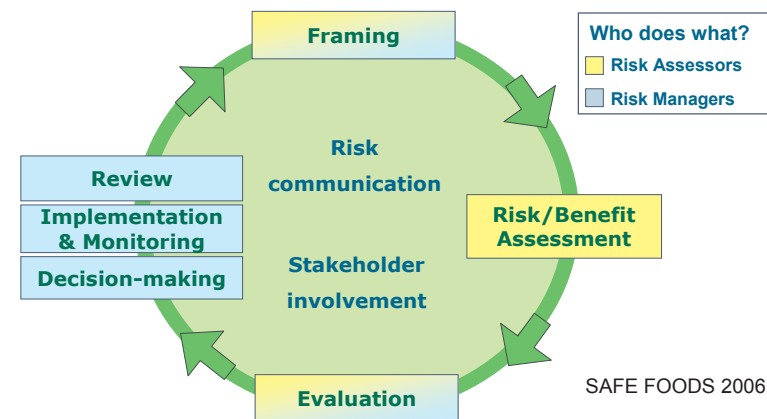
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SAFE FOODS aims to integrate the outcomes of these different research tasks into a new risk analysis approach for foods, produced by different breeding methods and production practices.

Novel elements in the SAFE FOODS model include:

- Identification and active involvement of relevant stakeholders
- The evaluation of new methods for risk assessment of food safety/nutrition issues (probabilistic risk assessment, genomics, profiling methods)
- Identification of Quality of Life parameters in the risk-benefit analysis of food/food production systems; how to weigh and integrate them in the risk analysis process
- Inclusion of economical factors in the risk analysis process
- Criteria and strategies for risk-benefit analysis of novel foods/food production technologies
- Improved risk communication with consumers throughout the risk analysis process

A first draft of the SAFE FOODS risk analysis framework has been presented on a large stakeholder consultation event in Athens in October 2005. The input of this meeting has been used to develop a second version of the model, which provides a basis for further optimisation.



## 5. Investigation of the Institutional Challenges and Solutions to Systemic Risk Management

6 SAFE FOODS is exploring current arrangements of food safety regulation in Europe in a comparative study. Based on literature and document research and interviews with agency representatives, policy makers, and key stakeholders, SAFE FOODS is reviewing institutional procedures and structures to cope with new food risks and analysing their compatibility with the new requirements of risk management. This contributes to the development of a general framework for food safety governance which shall respond to these needs. Besides, SAFE FOODS is providing suggestions for a more active stakeholder participation in risk management processes, in particular addressing questions such as who, when, and how to involve stakeholders?

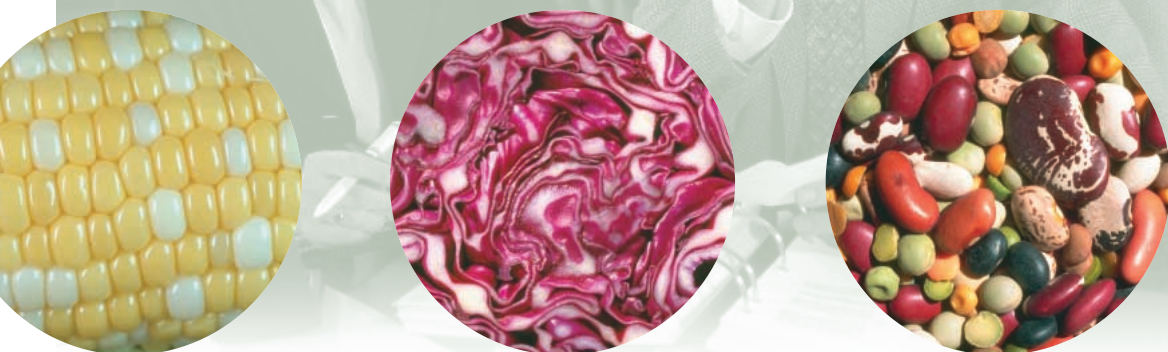
## 1. Comparative Safety Evaluation of Breeding Approaches and Production Practices

3 An international team of plant molecular biologists and specialists in bio-informatics has joined forces for a unique large-scale **comparative safety analysis** study between high- and low-input (organic) agricultural practices. Furthermore, this study aims to identify inherent risks associated with specific breeding approaches (traditional crossing, *in vitro* culture, genetic modification).



Potato and maize samples have been collected all over the world and currently, the newest highly sensitive **profiling methods** (transcriptomics, proteomics, metabolomics) are being used to develop huge comparative databases for risk assessment. Moreover, a targeted analysis will be carried out on the plant specimens to screen for major and emerging food-borne toxins, such as **mycotoxins**, on the plant specimens.

A comparative analysis of compositional profiles of foods produced by different agricultural practices under different environmental conditions, will provide relevant information for establishing base-lines and will document the **'history of safe use'** of foods, which is an important element in the safety and nutritional evaluation of foods.





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

**4** SAFE FOODS aims to establish a working procedure for the early detection and assessment of emerging risks. The goal of this warning framework is to prevent food safety incidents by focusing on the early identification of pathogens, chemical residues and mycotoxins in food and feed produced by high- and low-input farming practices in an expanding European market.

Furthermore, SAFE FOODS is setting up 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. A training course in identification and assessment strategies for emerging risks in food and feed production will be developed for risk assessors, risk managers and other interested stakeholders.

## 3. Quantitative Risk Assessment of Combined Exposure to Food Contaminants and Natural Toxins

**5** SAFE FOODS is focusing on the development of an improved risk assessment approach that integrates effect (level that may bring about a toxic effect) and exposure (level of intake of a toxic compound in a population). Residue data on pesticides, mycotoxins and natural toxins have been collected from different countries, together with food consumption data, allowing a combined exposure assessment approach. In addition, to integrate exposure and effect modelling, a probabilistic risk assessment method is being developed. Finally, SAFE FOODS is also working on a model to identify the major sources of uncertainty in risk assessment.



## 4. Consumer Confidence in Risk Analysis Practices

SAFE FOODS also concentrates on the identification of factors influencing public and stakeholder perceptions towards food risk analysis. Furthermore, cultural and individual differences in attitudes, perceptions, and beliefs about risk management practices are taken into consideration. The results of focus group studies in several European countries have been used to develop a quantitative survey instrument. This tool has been applied to further investigate the determinants of consumer confidence in risk management practices. Finally, information experiments will be developed to communicate uncertainty and variability in risk assessment and to give recommendations for better food risk communication in the integrated risk analysis approach for foods.

