The Identification of Food Safety Priorities using the Delphi Technique

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EU RISK ASSESSMENT AGENDA (RAA)

- where priorities are defined and attained collaboratively, Member States together with EFSA

Delphi study ongoing
- agree on common priorities involving the EFSA AF and around 150 experts across the EU Member States

AF end 2015
- Delphi findings on AF meeting in December 2015 as a basis for the first EU RAA

EU RAA
- key tool for collaboration on priority subjects

Clustering
- cooperation on priority topics by different MS - improved use of EU capacities and preventing doubling of work

DELPHI STUDY ON FOOD SAFETY PRIORITIES

Remit

- To carry out a study, using the Delphi technique:

"to identify and gain consensus on the most important scientific food safety areas for collaboration between EFSA & EU Member States…"

- The study should focus on identifying priorities in:
  - "microbiological risk assessment,
  - chemical risk assessment,
  - environmental issues directly impacting on human health through the food chain…and
  - nutrition"

NOTE: as indicated by the AFDG, on purpose AHAW and PLH are not covered in this exercise

DELPHI STUDY ON FOOD SAFETY PRIORITIES

The Delphi Technique

- Uses groups to pool expertise but seeks to minimize adverse group effects by:
  - Restricting interpersonal interaction
  - Controlling information flow
- Principles:
  - Anonymity
  - Feedback
  - Iteration
- A structured process:
  - Judgments → Collate → Feedback → Judgments…
- Advantages include:
  - Reach → sample size
  - Consensus building
  - Audit trail → transparency

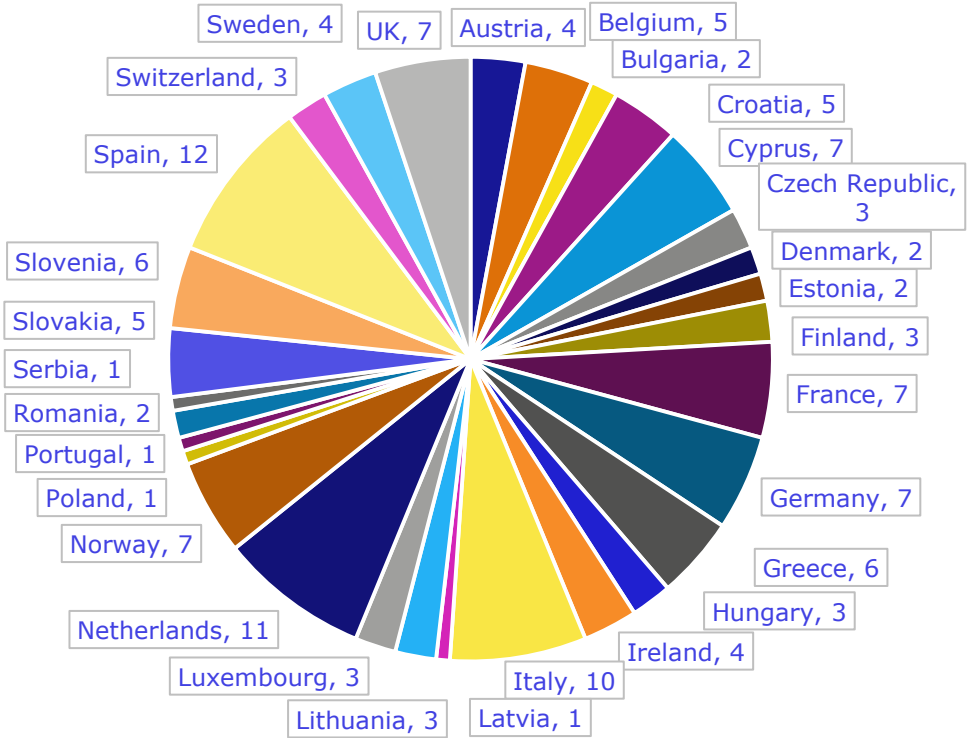
DELPHI STUDY ON FOOD SAFETY PRIORITIES

The Study

- First Round ("Brainstorming")
  - Elicited 240 topics in 4 risk domains from 88 experts from 30 countries
- Middle Round (1st Delphi Round)
  - 4 questionnaires (1 per risk domain), 30-40 topics per domain
  - Topics rated on 3 criteria ("Knowledge", "Public Health", "Harmonisation")
  - Rationales given for 2 favourite topics
- Final Round (2nd Delphi Round)
  - 10 highest rated topics per risk domain rated again
  - Feedback given about ratings and rationales at previous round

DELPHI STUDY ON FOOD SAFETY PRIORITIES

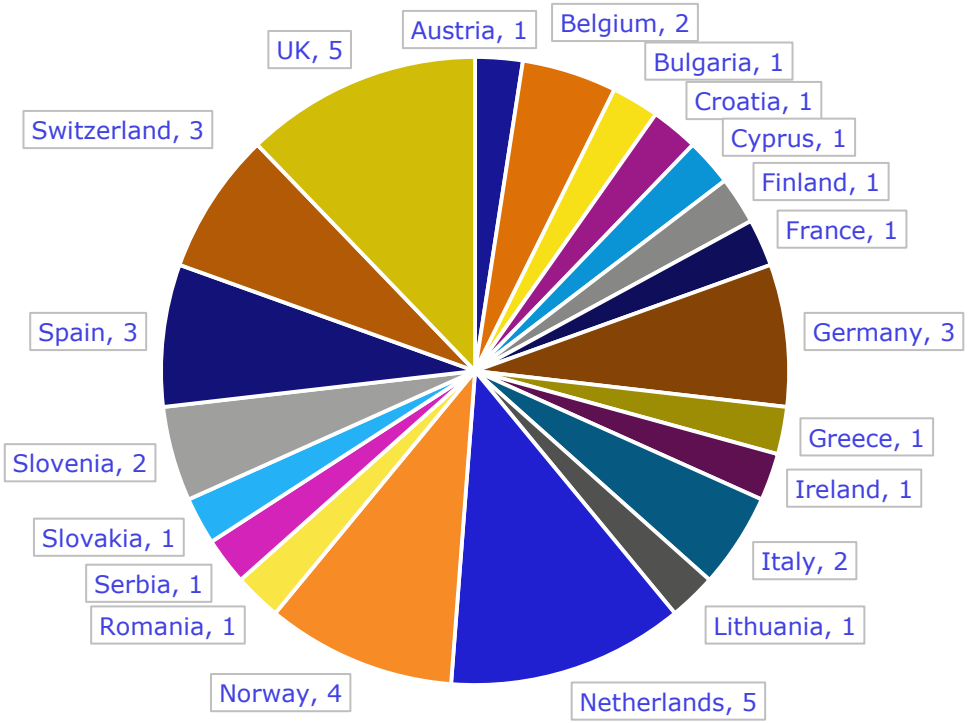
Final Round: Responses by Country



137 responses in total (of 173 = 79.2% response rate) from 29 countries

DELPHI STUDY ON FOOD SAFETY PRIORITIES

Final Round: Chemical Responses by Country



41 returned (of 48 = 85.4% response rate) from 21 countries

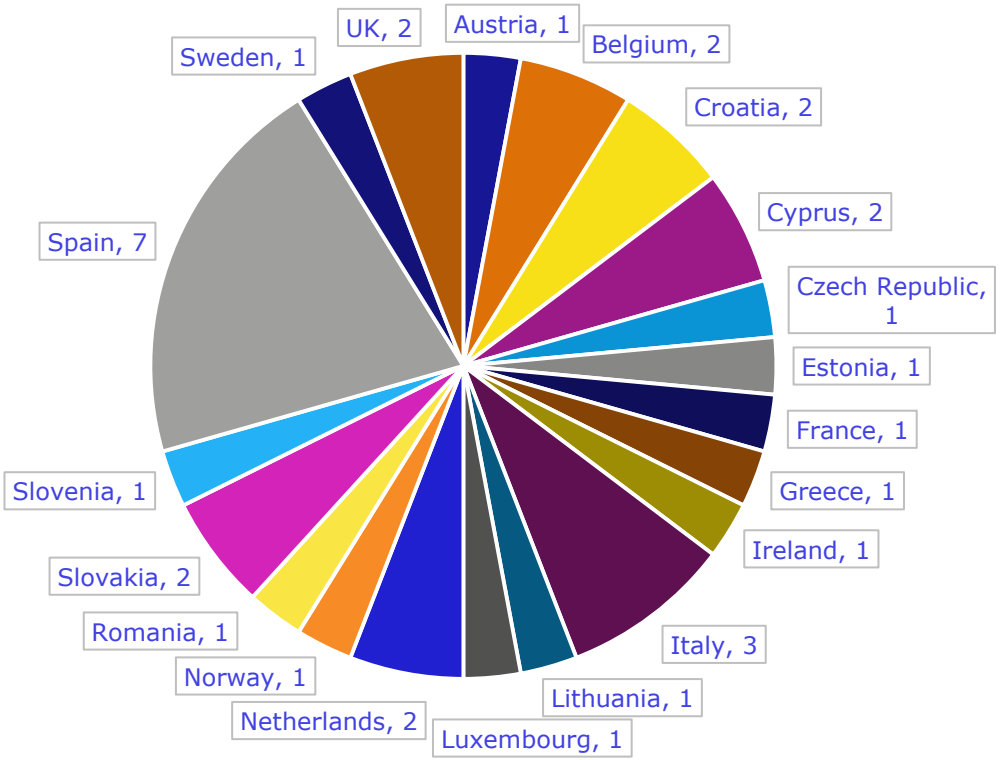
DELPHI STUDY ON FOOD SAFETY PRIORITIES

Final Round: Chemical Topic Ratings

Rank	Mean Rating	Topic
1	6.10	Common data collection /surveillance scheme (over many domains) across Europe
2	6.00	Aggregated exposure (as per cocktail effects, but including environmental as well as food exposures)
3	5.96	Harmonisation of methods for risk assessment of chemical contaminants
4	5.88	Infant and baby food
5	5.87	Cumulative exposure assessment (e.g. for pesticide residues/ PAHs)
6	5.73	Risks/benefits of botanicals/herbals in food supplements (specifically)
6	5.73	Multiple contaminant impacts on the risk profile of foods
8	5.65	Allergenicity/ food allergens in general (risk assessment and management)
9	5.64	Development of standard risk-benefit assessment methods (of foods)
10	5.62	Emerging contaminants

DELPHI STUDY ON FOOD SAFETY PRIORITIES

Final Round: Microbiological Responses by Country



34 responses (of 45 = 75.6% response rate) from 20 countries

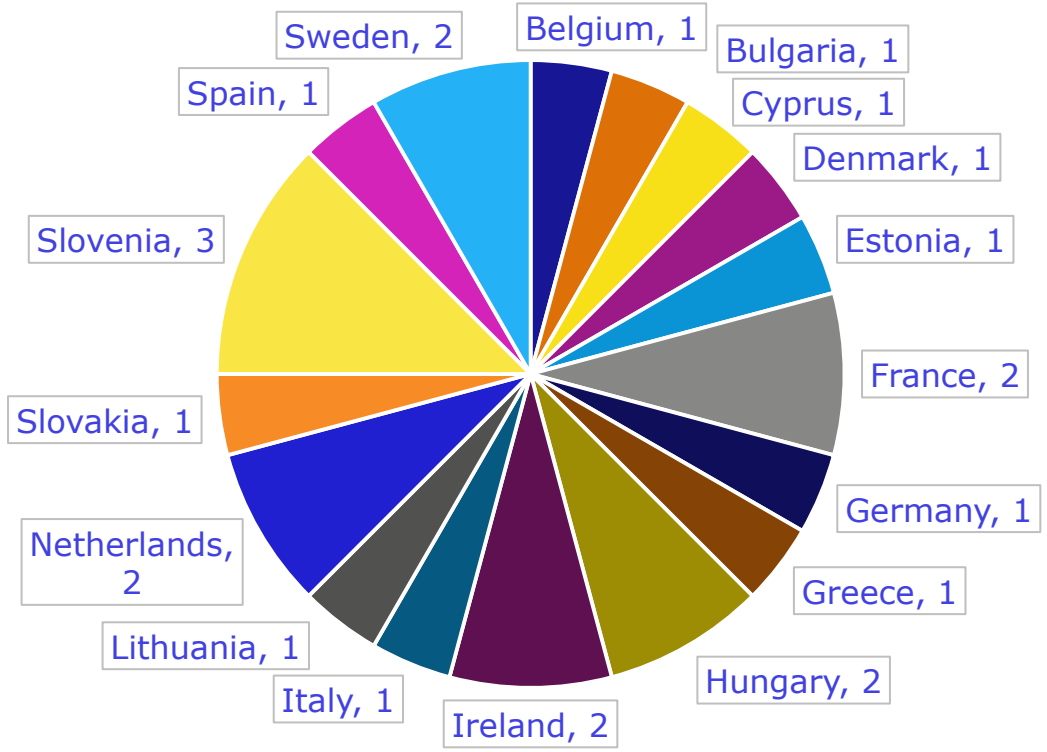
DELPHI STUDY ON FOOD SAFETY PRIORITIES

Final Round: Microbiological Topic Ratings

Rank	Mean Rating	Topic
1	6.14	Antimicrobial/ antibiotic resistance
2	6.04	Zoonoses (in general, including bio-hazards, MRSA etc.)
3	5.91	Campylobacter (e.g. in poultry and ready to eat foods)
4	5.90	Systems for monitoring and characterising microbes isolated from food, environment and human illness cases
5	5.89	Methods and systems for identifying emerging (food) risks (e.g. new food-borne diseases)
6	5.88	Food-borne viruses (in general) (e.g. Hepatitis A and Norovirus in fruit and vegetables)
7	5.86	Common data collection/surveillance scheme (over many domains) across Europe
8	5.85	Microbial food pathogens (in general)
9	5.72	Improve the use of genetic data (e.g. from whole genome sequencing) for risk assessment of microbiological contaminants
10	5.34	Multiple contaminant impacts on the risk profile of foods

DELPHI STUDY ON FOOD SAFETY PRIORITIES

Final Round: Environmental Responses by Country



24 returned (of 31 = 77.4% response rate) from 17 countries

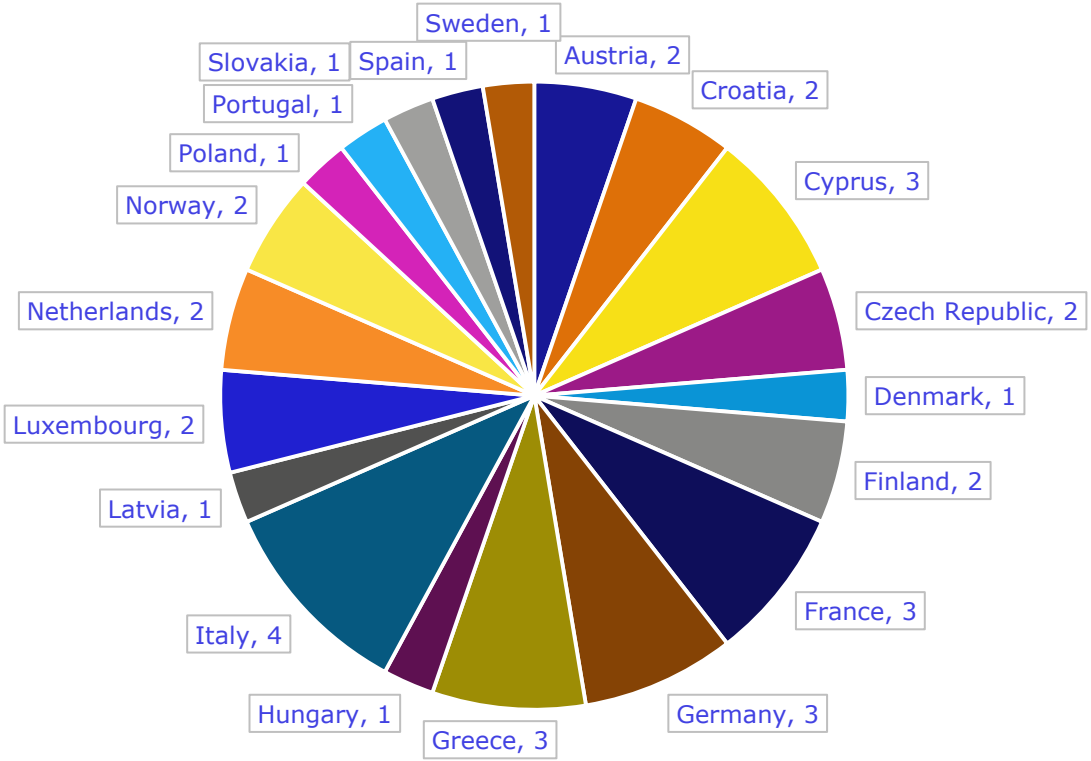
DELPHI STUDY ON FOOD SAFETY PRIORITIES

Final Round: Environmental Topic Ratings

Rank	Mean Rating	Topic
1	6.00	Aggregated exposure (as per cocktail effects, but including environmental as well as food exposures)
2	5.94	Presence/detection of environmental contaminants (e.g. from agricultural, industrial or household sources) in food
3	5.93	Cocktail effects (the health risk assessment of chemical mixtures e.g. food additives)
4	5.86	Improving information on the occurrence and spread of harmful organisms at the level of individual EU countries
5	5.83	Methods and systems for identifying emerging (food) risks (e.g. new food-borne diseases)
6	5.78	Development of standard risk-benefit assessment methods (of foods)
7	5.75	The impact of chemicals on the ecosystem (release of chemicals to the environment)
8	5.65	Better understand biological organisms and plant substances used in crop protection (so reducing need for chemicals e.g. pesticides)
9	5.63	Ribonucleic acid interference (RNAi) applied to food producing organisms as pesticide, veterinary medicine, or newly expressed trait in genetically modified crops
10	5.62	Multiple contaminant impacts on the risk profile of foods

DELPHI STUDY ON FOOD SAFETY PRIORITIES

Final Round: Nutrition Responses by Country



38 responses (of 49 = 77.6% response rate) from 20 countries

DELPHI STUDY ON FOOD SAFETY PRIORITIES

Final Round: Nutrition Topic Ratings

Rank	Mean Rating	Topic
1	6.23	Aggregated exposure (as per cocktail effects, but including environmental as well as food exposures)
2	6.05	Development of standard risk-benefit assessment methods (of foods)
3	5.90	Common data collection/surveillance scheme (over many domains) across Europe
4	5.89	Risk/benefits of botanicals/herbals in food supplements (specifically)
5	5.82	Food supplements risk/benefits (generally)
6	5.78	Multiple contaminant impacts on the risk profile of foods
7	5.71	Developing standard biomarkers of intake and/or exposure to contaminants
8	5.60	Indirect effects on human health due to modified agricultural practices (e.g. via reduction of pesticide use, changed content of mycotoxins, etc.)
9	5.54	Determination of allergen thresholds (clinical studies), in conjunction with immunochemical measurements of allergens in foods
10	5.50	Allergenicity/ food allergens in general (risk assessment and management)

MAIN OUTCOME OF THE DELPHI STUDY

28 food safety risk assessment priorities

- 7 priorities common in many areas= Generic
- + Chemical topics [C]
- + Microbiological topics [M]
- + Environmental topics: [E]
- + Nutrition topics [N]

Generic

1. Methods and systems for identifying emerging food risks (e.g. new food-borne diseases) [M E]
2. Development of standard risk-benefit assessment methods (of foods)[C E N]
3. Common data collection /surveillance scheme [C M E N]
4. Multiple contaminant impacts on the risk profile of foods [C M E N]
5. Risks/benefits of botanicals/herbals in food supplements [C N]
6. Allergenicity/ food allergens in general (risk assessment and management) [C N]
7. Aggregated exposure (as per cocktail effects, but including environmental as well as food exposures) [C E N]

Chemical

8. Harmonisation of methods for risk assessment of chemical contaminants
9. Cumulative exposure assessment (e.g. for pesticide residues/ PAHs)
10. Infant and baby food
11. Emerging contaminants

Microbiological

12. Systems for monitoring and characterising microbes isolated from food, environment and human illness cases
13. Improve the use of genetic data (e.g. from whole genome sequencing) for risk assessment of microbiological contaminants
14. Antimicrobial/ antibiotic resistance
15. Microbial food pathogens (in general)
16. Food-borne viruses (in general) (e.g. Hepatitis A and Norovirus in fruit and vegetables)
17. Campylobacter (e.g. in poultry and ready to eat foods)
18. Zoonoses (in general, including bio-hazards, MRSA etc.)

Environmental

19. Improving information on the occurrence and spread of harmful organisms
20. Ribonucleic acid interference (RNAi) applied to food producing organisms as pesticide, veterinary medicine or newly expressed trait in genetically modified crops
21. Better understand biological organisms and plant substances used in crop protection (so reducing need for chemicals e.g. pesticides)
22. The impact of chemicals on the ecosystem (release of chemicals to the environment)
23. Presence/detection of environmental contaminants in food (e.g. from agricultural, industrial or household sources)
24. Cocktail effects (the health risk assessment of chemical mixtures e.g. food additives)

Nutrition

25. Indirect effects on human health due to modified agricultural practices(e.g. via reduction of pesticide use, changed content of mycotoxins)
26. Developing standard biomarkers of intake and/or exposure to contaminants
27. Food supplements risk/benefits (generally)
28. Determination of allergen thresholds (clinical studies), in conjunction with immunochemical measurements of allergens in foods

28 food safety risk assessment priorities