Identification of Emerging Food Risks:

Results of an International Delphi Survey

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Outline of the lecture

- Introduction
- International Delphi Survey on emerging food safety risks; GO-GLOBAL project
- WP2: foresight activity (Delphi survey)
- Design of the Delphi study
- Results
- Conclusions

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Global Platform on EMERGING Risks in the Food and Feed chain (GO-GLOBAL EU FP 6 project: 2006-2009)

Project team

- the Netherlands
- United Kingdom
- Turkey
- Thailand
- Argentina
- Russia
- New Zealand

Platform members

- .US
- Ghana
- Botswana
- Australia
- China
- India
- WHO
- EFSA

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www.goglobalnetwork.eu

WP2: Emerging risks initiatives: foresight and collation
of expert opinions (WP leader: prof. dr. Lynn Frewer)

Objective:

To identify the opinions of geographically and culturally diverse stakeholders regarding emerging food safety risks.

Method: Delphi technique

Results:

Wentholt, M.T., Fischer, A.R., Rowe, G., Marvin, H.J.P., & Frewer, L.J. (2010). Effective identification and management of emerging food risks: results of an international Delphi survey. Food Control (accepted)
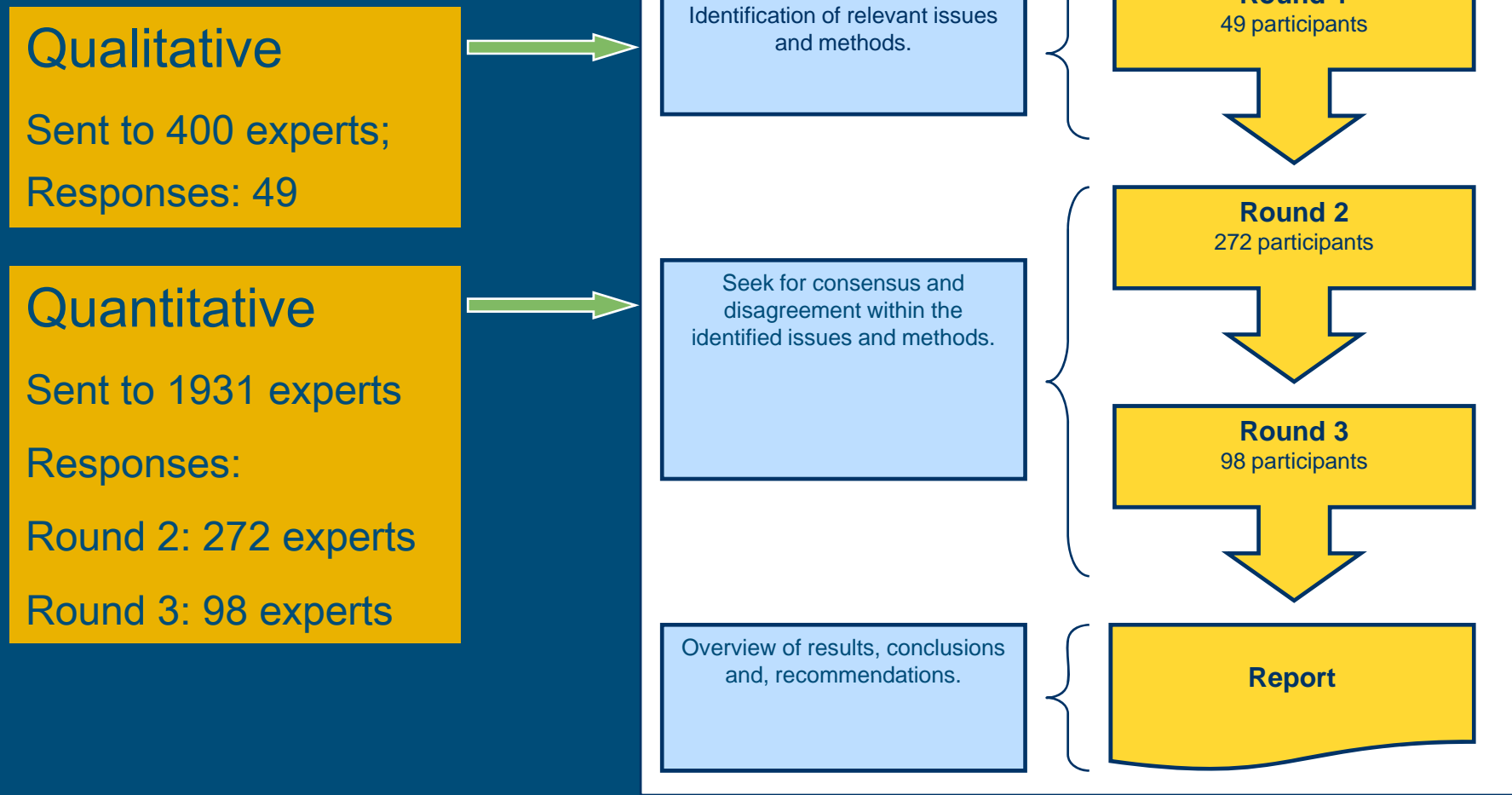
Delphi method: definition

A procedure to:

"obtain the most reliable consensus of opinion of a group of experts … by a series of intensive questionnaires interspersed with controlled opinion feedback"

Dalkey & Helmer, 1963, p458

Some characteristics of Delphi method:

- Internet based with several rounds

- Number of rounds may vary

- Anonymous

- Shows issues of consensus

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Overview of the GO-GLOBAL Delphi study

Qualitative

Sent to 400 experts;

Responses: 49

Quantitative

Sent to 1931 experts

Responses:

Round 2: 272 experts

Round 3: 98 experts

Identification of relevant issues and methods.

Seek for consensus and disagreement within the identified issues and methods.

Overview of results, conclusions and, recommendations.

Round 1
49 participants

Round 2
272 participants

Round 3
98 participants

Report

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Results of the GO-GLOBAL Delphi (round 1)

First round Delphi (summer 2007)

- 49 returned questionnaires with usable data
- Global response
- Language: English

- **Emerging risk definition needed**

- **Issues of importance for global society**

  - Climate change
  - Increased disease prevalence
  - Development of technology
  - War and terrorism
  - *Economic depression*

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Results of the GO-GLOBAL Delphi (round 2)

- **Second round Delphi (September 2008)**
  - 30 questions
  - Languages: English, French, Portuguese and Spanish
  - Sent to 1931 experts
    - 272 responses from 60 countries (all continents included)
    - Expert *average age* between 45-55
    - Male 61%
    - Female 39%
    - EU citizens 61%

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Results of the GO-GLOBAL Delphi (round 2)

Round 1: need definition of emerging food risk

➡️ Question on definition of emerging risk included in round 2

Emerging Risk Definition (EFSA 2007)

- An emerging risk to human, animal and/or plant health is understood as a risk resulting from a newly identified hazard to which a significant exposure may occur or from an unexpected new or increased significant exposure and/or susceptibility to a known hazard

➡️ 88% (240 experts) agreed with this definition

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Results of the GO-GLOBAL Delphi (round 2)

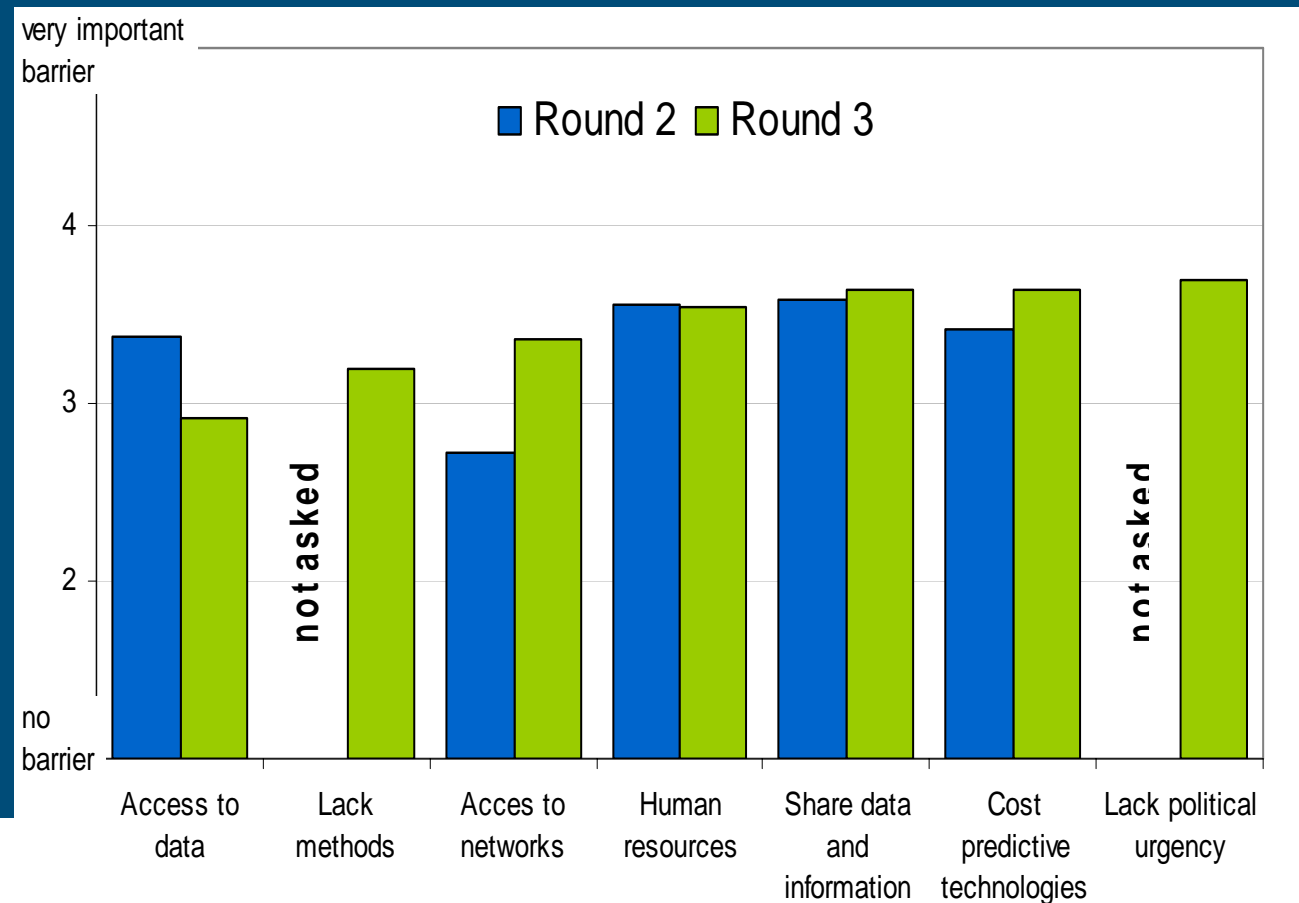Factors preventing effective emerging food safety risk identification:

- Access to relevant data

- Access to global networks for information exchange

- Willingness of food safety stakeholders to share data and information

- Cost of predictive technologies

- Human resources and expertise

- Lack of political urgency

- Lack of methodology/systems

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Results of the GO-GLOBAL Delphi (round 3)

- **Third round Delphi (March 2009)**
  - 20 questions
  - Languages: English, French, Portuguese and Spanish
  - Sent to 272 experts who responded in round 2
    - 98 responses from 39 countries (all continents included)
    - Expert *average age* between 45-55
    - Male 65%
    - Female 35%
    - EU citizens 68%
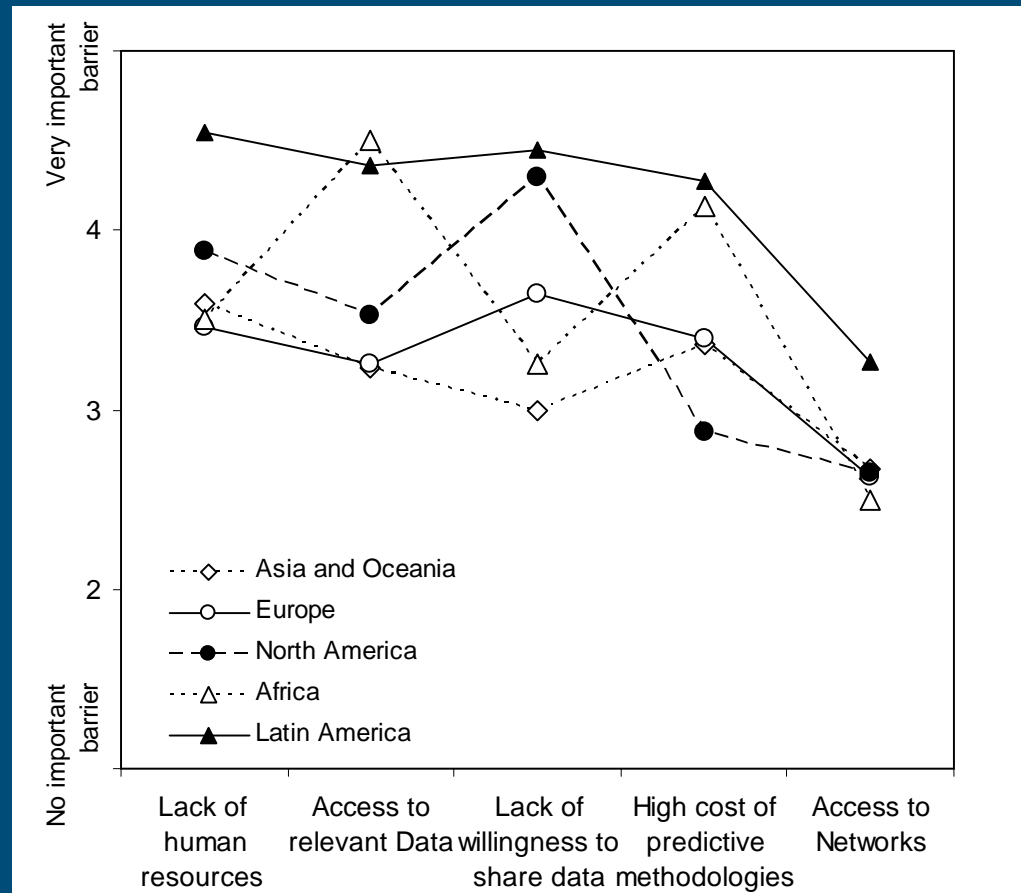
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Results of the GO-GLOBAL Delphi (round 3)

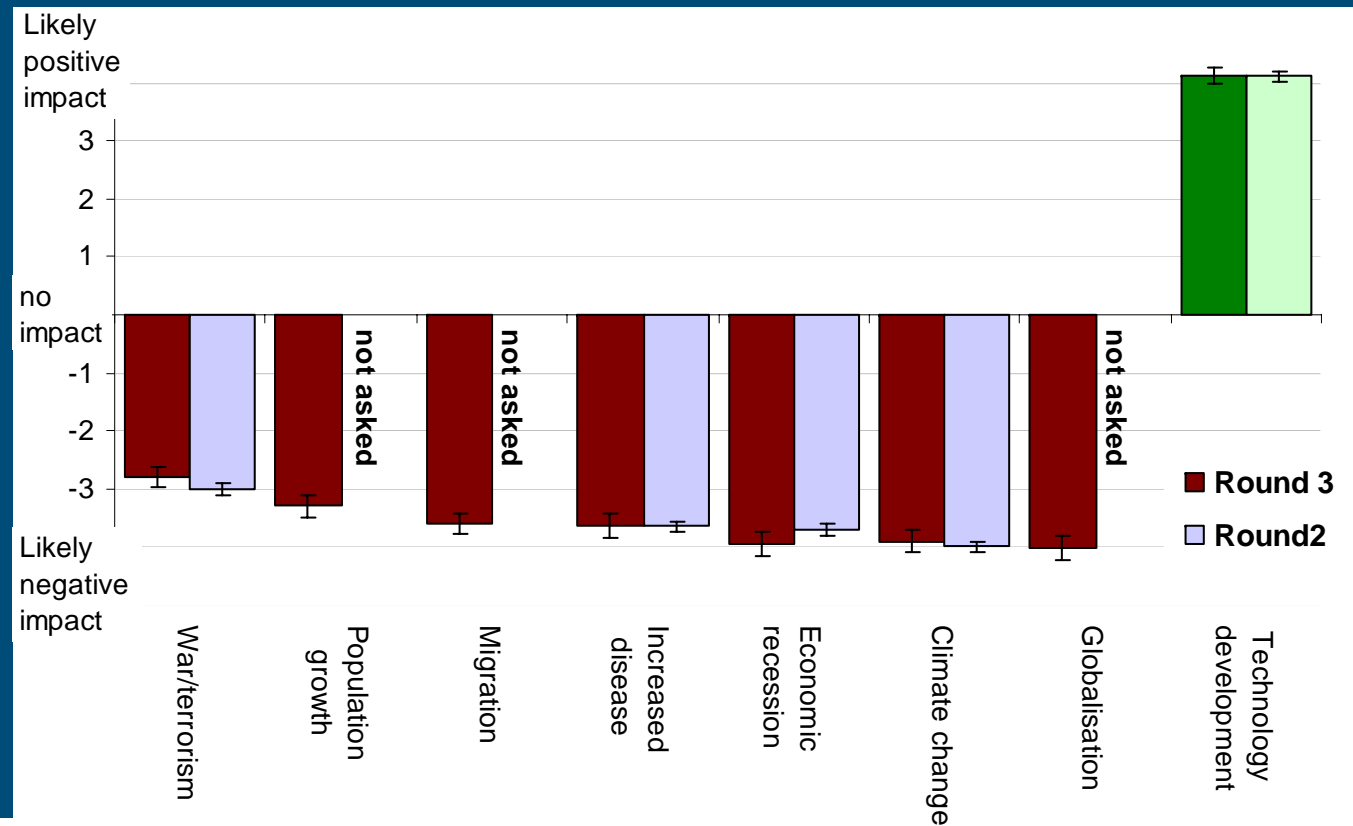Factors preventing effective emerging food safety risk identification (e.g. barriers):

Results of the GO-GLOBAL Delphi (round 3)

Importance of barriers by region

Results of the GO-GLOBAL Delphi (round 3)

Most important drivers of emerging food risks in your country (next 20 years)
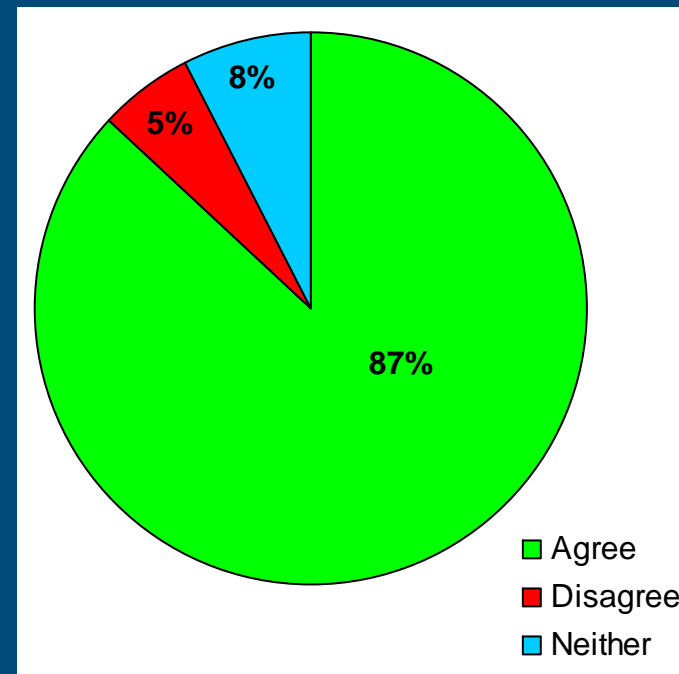
Results of the GO-GLOBAL Delphi (round 3)

The impact of technology development on people living in my country will be positive

"Technology development is the only solution to filling the energy gap, battle global warming, fight new emerging diseases, built new jobs, provide food for growing populations." [Germany]

Legend:
- Agree (87%)
- Disagree (5%)
- Neither (8%)

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Results of the GO-GLOBAL Delphi (round 3)

Some concerns about technology development also expressed….

"I think overall technology development will probably benefit people, though some unforeseen risk may accompany this…"

[Japan]

"…Issues concerning the environment, natural resources, and food security are strongly inter-related and their implementation will depend on the political will…"
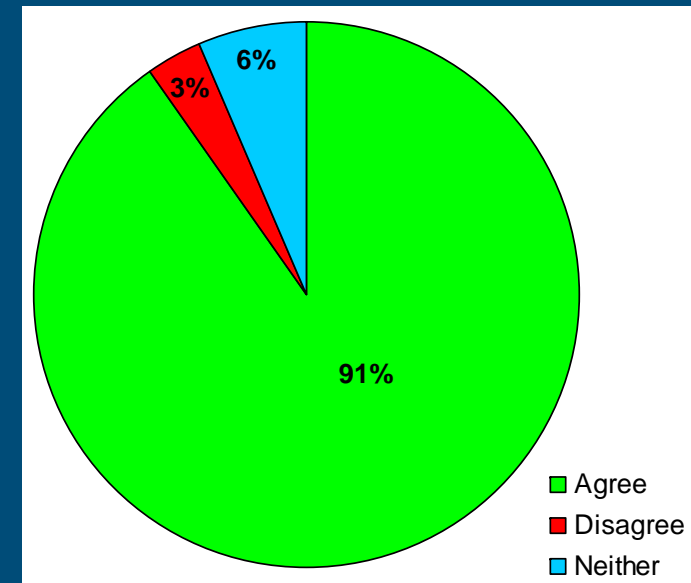
[Kenya]

"…An area of concern is that appropriate research funding may be reduced due to the financial crisis and insufficient support of governments…"

[the Netherlands]

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Results of the GO-GLOBAL Delphi (round 3)

Technology development contributes to the identification of emerging food risks

A country … sensitive to public health should continually review its (R and D) infrastructure and identify gaps based on existing technology for continual improvement and mitigation…" [Kenya]

6%

3%

91%

- Agree
- Disagree
- Neither

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Results of the GO-GLOBAL Delphi (round 3)

Participants were asked to rank attributes of six predictive methods

Predictive methods
- Foresight, vulnerability assessment, horizon scanning, risk profiling, risk trending, early warning systems

Attributes
- Accuracy, timely identification of emerging food risks, available data, efficient incorporation of judgmental inputs of experts, low development and maintenance costs, ease of interpretation of available data, improved decision making, reduced costs associated with the emerging food safety risk, flexibility, usefulness for emerging food safety risks, ease of use
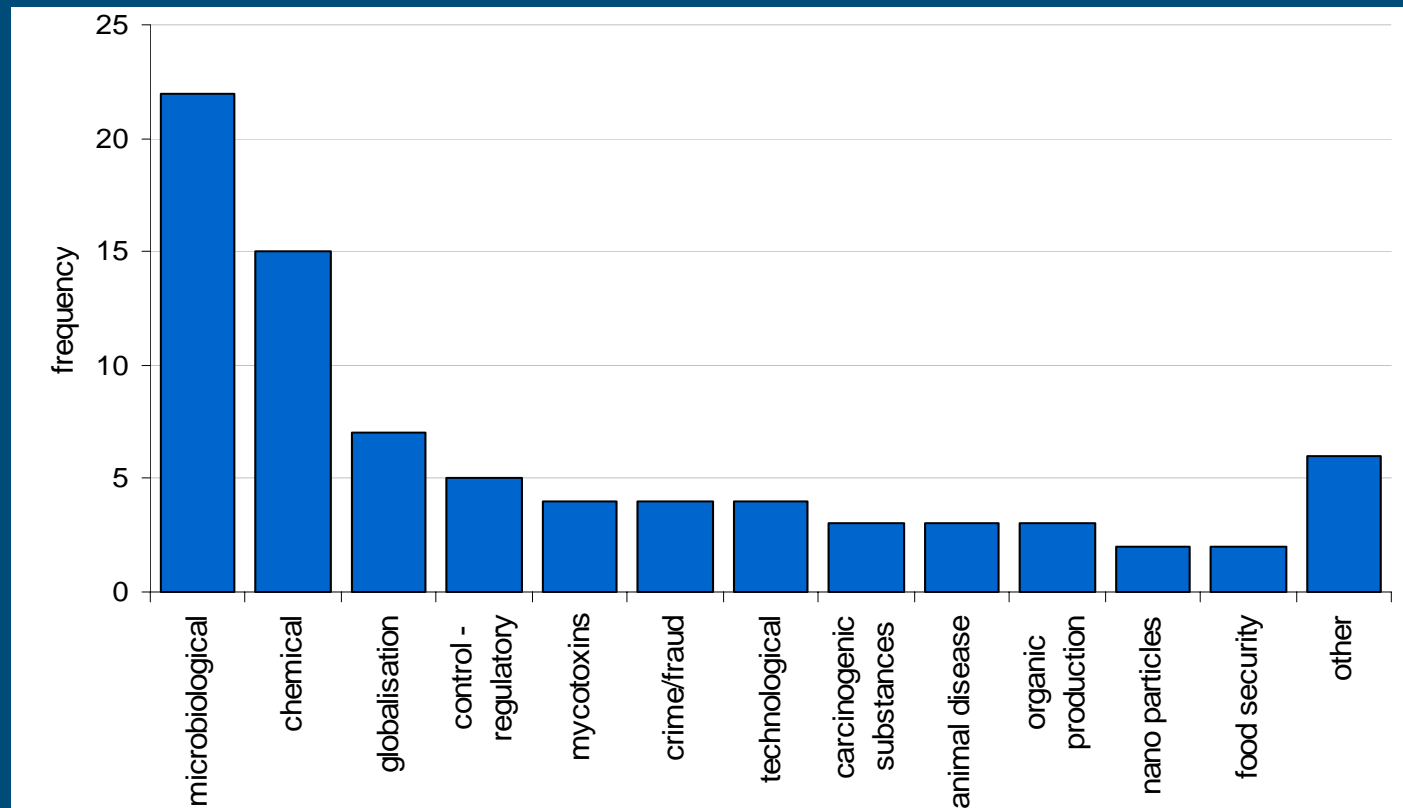
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Results of the GO-GLOBAL Delphi (round 3)

Participants were asked to rank attributes of the six predictive methods

Method \ Attribute	Accuracy	Timely Identification	Data availability	Expert input	Development Cost	Reliability	Ease of interpretation	All other
Foresight	✘	✘	✘	✔	✔	✘	✘	◯
Vulnerability Assessment	✔	◯	◯	✔	✔	✘	✔	◯
Horizon Scanning	✘	✘	✘	✔	◯	✘	✘	◯
Risk Profiling	✔	✔	✔	✘	✘	✔	✔	◯
Risk Trending	◯	✘	✔	✘	◯	✔	✔	◯
Early Warning systems	✔	✔	✔	✘	✘	✔	✔	◯

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Results of the GO-GLOBAL Delphi (round 3)

What are the most important emerging food risks *in your country?*

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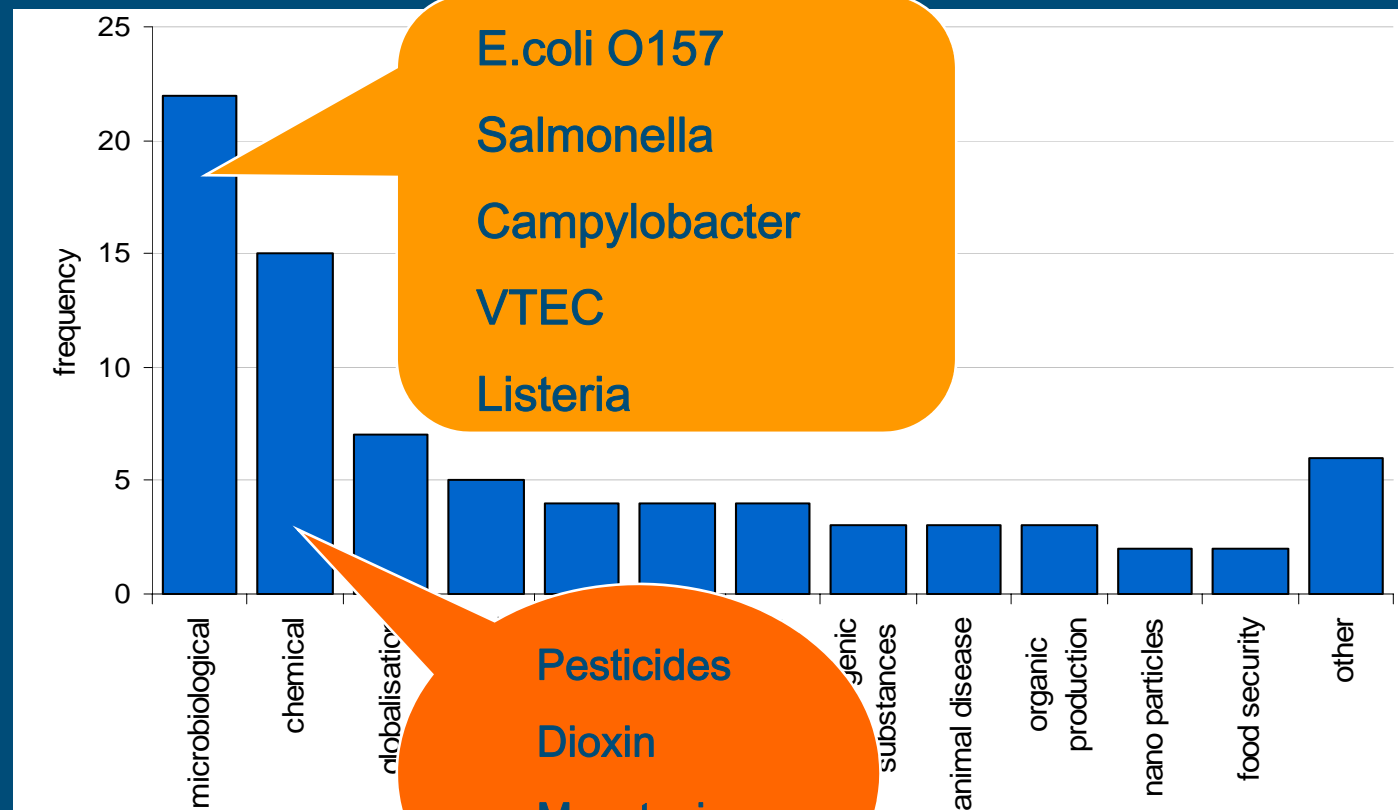
Results of the GO-GLOBAL Delphi (round 3)

What are the most important emerging food risks *in your country?*

E.coli O157

Salmonella

Campylobacter

VTEC

Listeria

Pesticides

Dioxin

Mycotoxins

Melamine

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Results of the Delphi survey supported by trend analysis performed in WP3 of GO-GLOBAL

- Database with research projects

- > 600 entries

- 11 countries includes

Research topics with common interest (all countries):

Microbial & chemical contamination, Mycotoxins, pesticides (monitoring, analysis)

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Conclusions

- The definition of emerging risk proposed by EFSA (EFSA 2007) is widely accepted

- Disparity in capacity to detect emerging food safety risks exist between regions and countries

- Both methodologies and expert networks are currently available to provide an adequate basis for effective emerging risk identification

- Microbial and chemical contaminations are seen as the most important emerging risks in the future

- Information exchange and data sharing are key elements in a successful strategy to combat food safety risks

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Thank you for your attention

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