Risk Assessment in Finnish Food Safety Authority Evira

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Risk Assessment Research Unit
Finnish Food Safety Authority Evira
ensures food safety and quality, plant health, and animal health and welfare
Tasks of the Risk Assessment Research Unit

- Independent information on risks
- Scientific opinions to risk management decisions and control planning
- Tools for prioritization, evaluation
- Statistical models for assessment

- Plant health
- Animal health
- Food safety

- International principles
- Risk assessment models
- New methods

- EFSA’s focal point activities

- National and international risk assessment and food safety networks
Risk Assessment Research Unit at Evira

Products:
• Science based risk assessments, surveys supporting decision making, risk profiles, accounts on urgent topics
• Research projects (with other research institutes)
• Methodology
• Risk communication
• Training, education

Based on:
- WTO & SPS Agreement: CAC, OIE, IPPC; national and European regulations
"The client":
- need of investigation
- order of risk assessment

Project group:
- Project plan & design
- Search of information
- Analysis of information
- Report writing
- Response to the comments -> finishing of the assessment and the report

Expert and stakeholder groups:
- Support to info collecting
- Source evaluation
- Release of the risk assessment
- Commenting

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Date: 17.5.2017
Risk assessment over the years

- 1999: First risk assessments were started at EELA (National Veterinary and Food Research Institute)
  - MRA /salmonella

- 2000: Risk Assessment Research Unit was founded

- 2001: the RA Unit started
  - MRA and animal diseases / Echinococcus granulosus, E. multilocularis, classical swine fever, Finnish salmonella control programme

- 2004: chemical hazards

- 2006: EELA was merged to Finnish Food Safety Authority Evira
  - food safety hazards, animal diseases, plant pests


- National Institute for Health and Welfare THL: nutrition
- Radiation and Nuclear Safety Authority STUK: radiation
- Finnish Medicines Agency Fimea: veterinary medicines
Salmonella Control Programme
Cumulative RA of heavy metals

\[ c(\text{mixture}) = RPF_{Cd} \times c(Cd) + RPF_{Pb} \times c(Pb) + RPF_{As} \times c(As) + RPF_{Hg} \times c(Hg) \]

Sources of cumulative heavy metal exposure for 6-year-old Finnish children.
Left, neurotoxic endpoint; right, nephrotoxic endpoint.

* includes juices and rice drinks
Microbiological criteria

Risk Ratio = $P(\text{ill} \mid \text{MC met})/P(\text{ill})$ and expected percentage (%) of rejected batches, for each Campy n/c/m-criterion for broilers. Model based on historical sample data from SE.

<table>
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<tr>
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<th>m=1000</th>
<th>m=100</th>
<th>m=100</th>
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<td>n=10</td>
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<td>0.584%</td>
<td>0.0911%</td>
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</table>

Data on sampled batches

Slaughter batch

Sampled carcass

Predicted $\log_{10} \text{cfu/g}$ on carcass skin.

Predicted $\log_{10} \text{cfu/g}$ on fresh chicken meat.

Predicted $\log_{10} \text{cfu/g}$ in chicken meal.

Home kitchen

Bayesian evidence synthesis

Predictive QMRA model

Require: MC met.
NORA – a tool for rapid "risk assessment"

Use: assessment on the risk of introduction of an animal disease into Finland (e.g. when a new disease or outbreak has been detected in an important new area for Finland) → a rapid and rough estimate

Based on expert opinion

On Excel: 63 questions – entry pathways
23 statements - impact

<table>
<thead>
<tr>
<th>Term</th>
<th>Probability</th>
<th>Impact</th>
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</thead>
<tbody>
<tr>
<td>Negligible</td>
<td>Rare, needs not to be considered</td>
<td>Insignificant, needs not to be considered</td>
</tr>
<tr>
<td>Low</td>
<td>Rare, can not be ruled out</td>
<td>Insignificant, can not be ruled out</td>
</tr>
<tr>
<td>Moderate</td>
<td>Happens sometimes</td>
<td>Must be prepared for the consequences</td>
</tr>
<tr>
<td>High</td>
<td>Happens often</td>
<td>Consequences are serious</td>
</tr>
<tr>
<td>Very high</td>
<td>Happens almost always</td>
<td>Consequences are very serious</td>
</tr>
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</table>

Current projects

Plant health
- Cost-benefit analysis of risk management measures and assessment of the areal risk to plant health
- Enhanced control of potato-infecting nematodes
- Automatic assessment of the time suitable for the appearance of fire blight symptoms

Epizootic diseases
- Control and prevention of antimicrobial resistance in the pork production chain (LÄKÄ)
- Evaluation of the surveillance program for bovine diseases

Food safety
- Evaluation of the national hygiene proficiency testing system (Hygiene passport)
- Exposure to microbiological and chemical hazards via food (BIKE) -project
- Antimicrobial resistance and residues on cattle farms – impacts on the environment and health
- Exposure of Finnish consumers to food additives
- Potential of sewage sludge phosphorus in plant production and impacts of harmful compounds in sludge on environment and food chain (PProduct)
- Risk profile of plant food supplements
- Risk profile of contaminants – national point of view
- Risk assessment on dietary exposure of Finnish adults to heavy metals
International and national networking

- Universities and other research institutions
- **Lynet** (Finnish Partnership for Research on Natural Resources and the Environment; [http://www.lynet.fi](http://www.lynet.fi))
- **SOTERKO** (Finnish partnership for expert institutes on social work and health area)
- **Matine** (The Scientific Advisory Board for Defence / CBRN)
- Nordic networks
- EFSA and its networks
- Focal Point

THL, LUKE, SYKE, Customs, STUK, HY, TUKES
Contacts to EFSA

- 12 out of 16 network members come from Evira)
- 6 out of 16 network members from RA Research Unit
Wellcome to Risk Assessment Research Unit’s seminar on May 19 2017!

House of Science and Letters (hall 104), Kirkkokatu 6, Helsinki
My contact details

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