European Food Safety Authority

EFSA activities on emerging risks: bluetongue as a case study

Hubert Deluyker
Director
Scientific Cooperation & Assistance

Emerging animal diseases: from science to policy
17 October 2008, Brussels, Belgium

Components emerging diseases

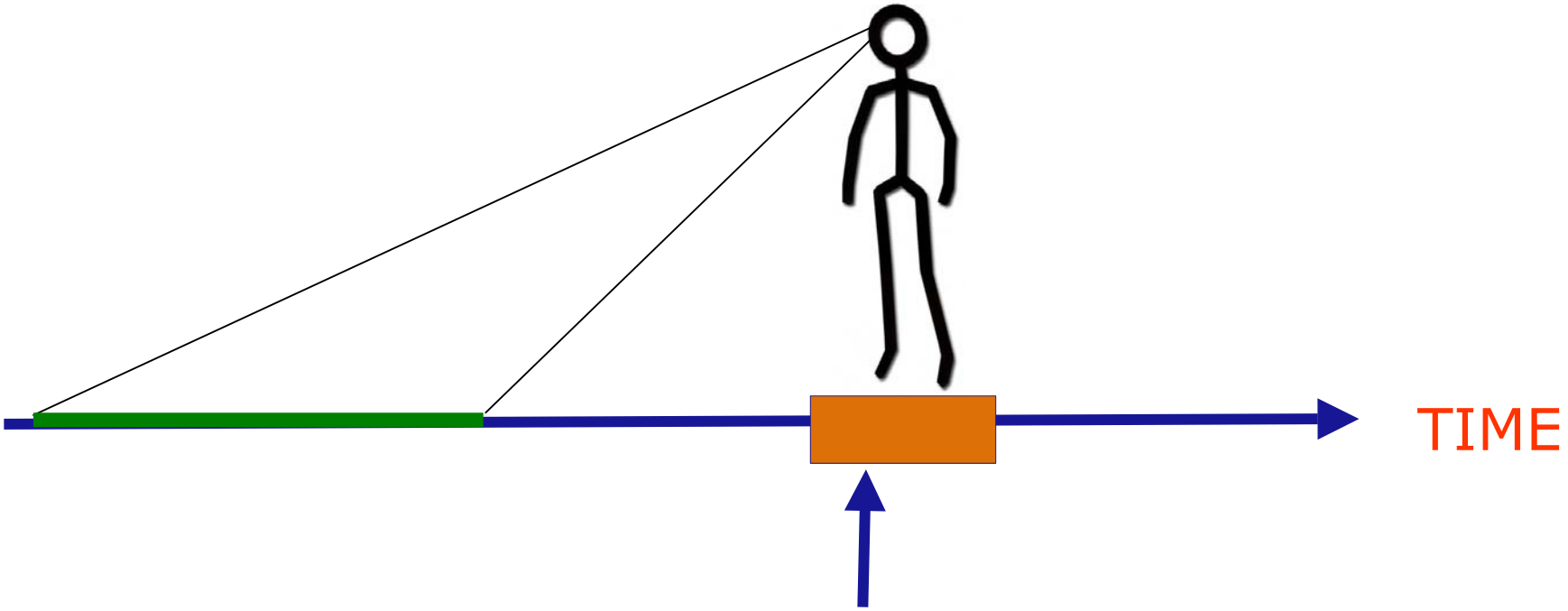
Elements of risk

- **New or re-emerging hazard**
  - **Chemical e.g. use of *new* contaminant**
  - **Microbiological**
- **Change in Exposure, for contagious diseases**
  - **Introduction**
  - **Establishment and**
  - **Spread**
- **Change in Exposure to chemicals e.g. mycotoxins**

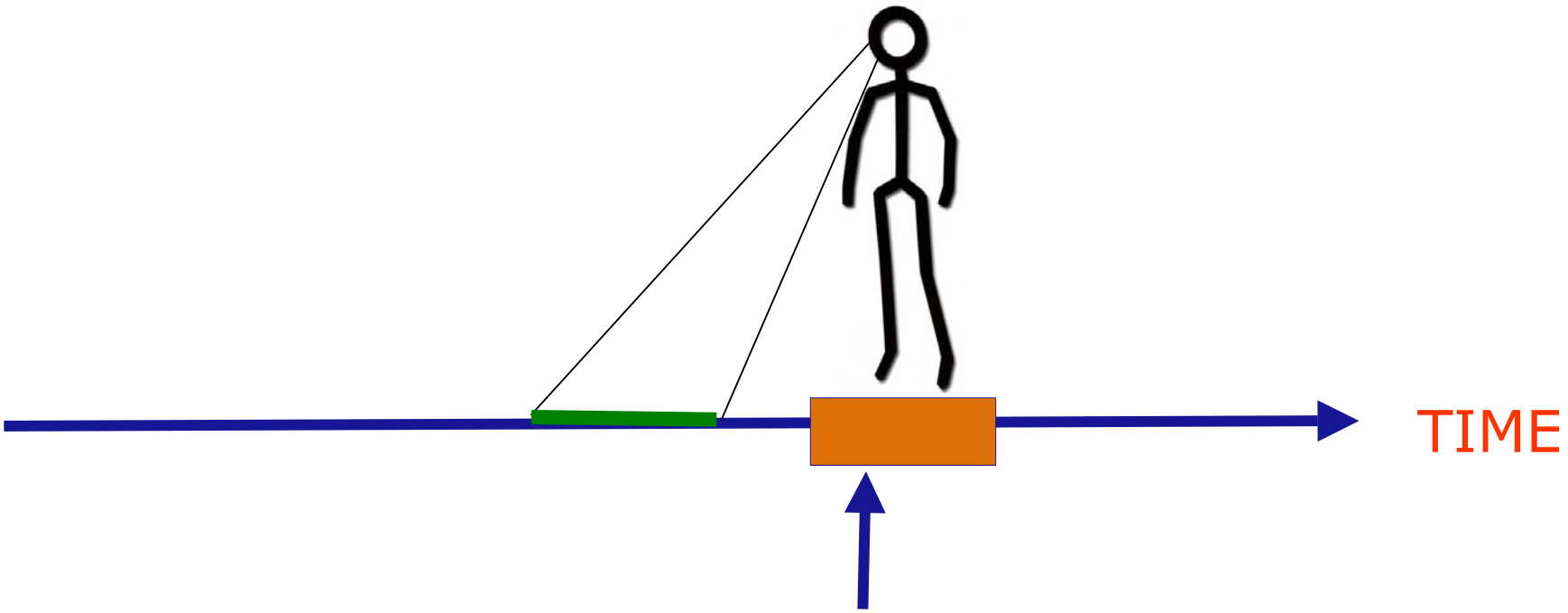
What influences the risk?

- **Globalisation - increased movement**
  of goods, people, animals, plants and vectors
- **Climate change**

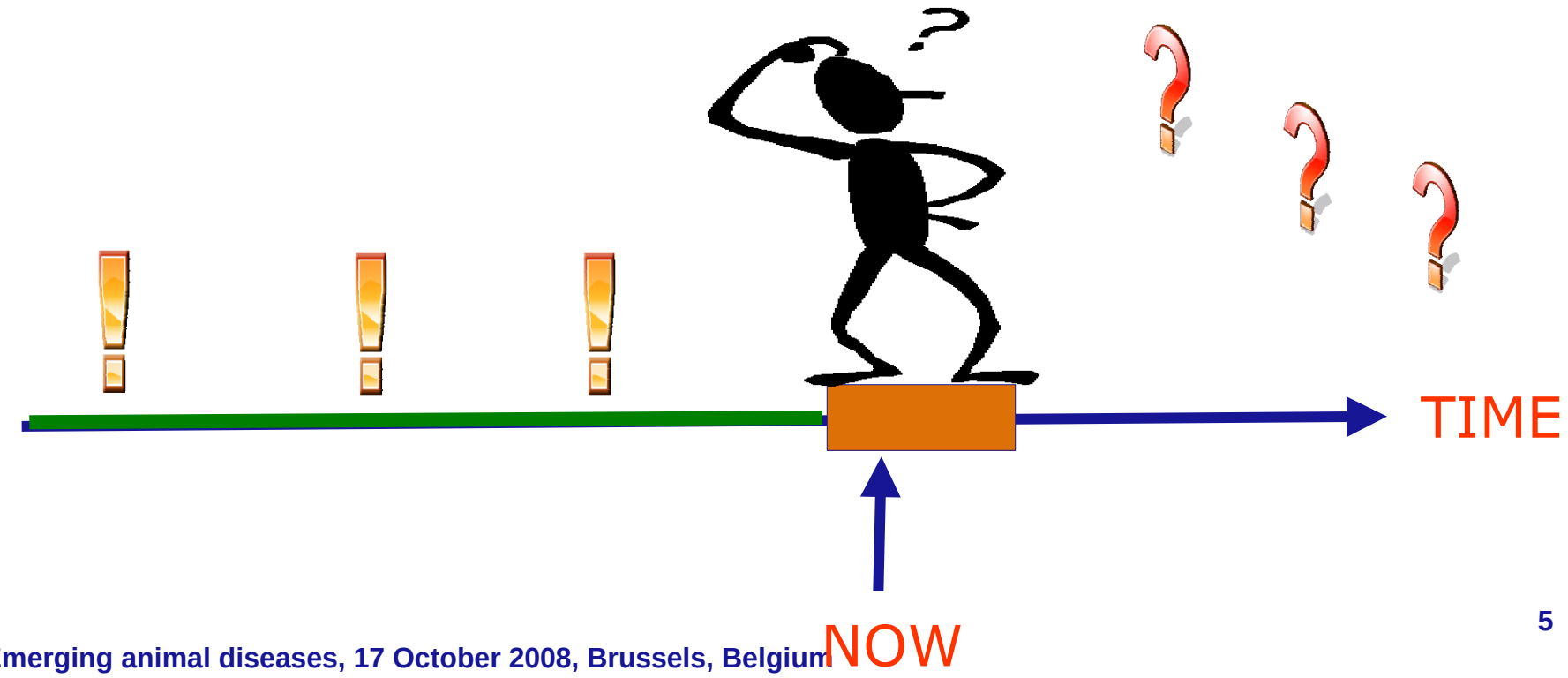
Classical risk assessment



Early evaluation



Identification / Forecasting of Emerging Risks



EFSA Remit
Founding Regulation Reg. 178/2002

- **Scientific opinions** (art. 29 & 30)
- Promote and coordinate uniform **risk assessment methodologies** (art. 23)

- **Scientific studies** (art. 32) and **Data collection** (art. 33)
- Establish **networks of organisations** field of EFSA's mission (art. 36)

- **Emerging risks** (art. 34) and **Rapid Alert Systems** (art. 35)

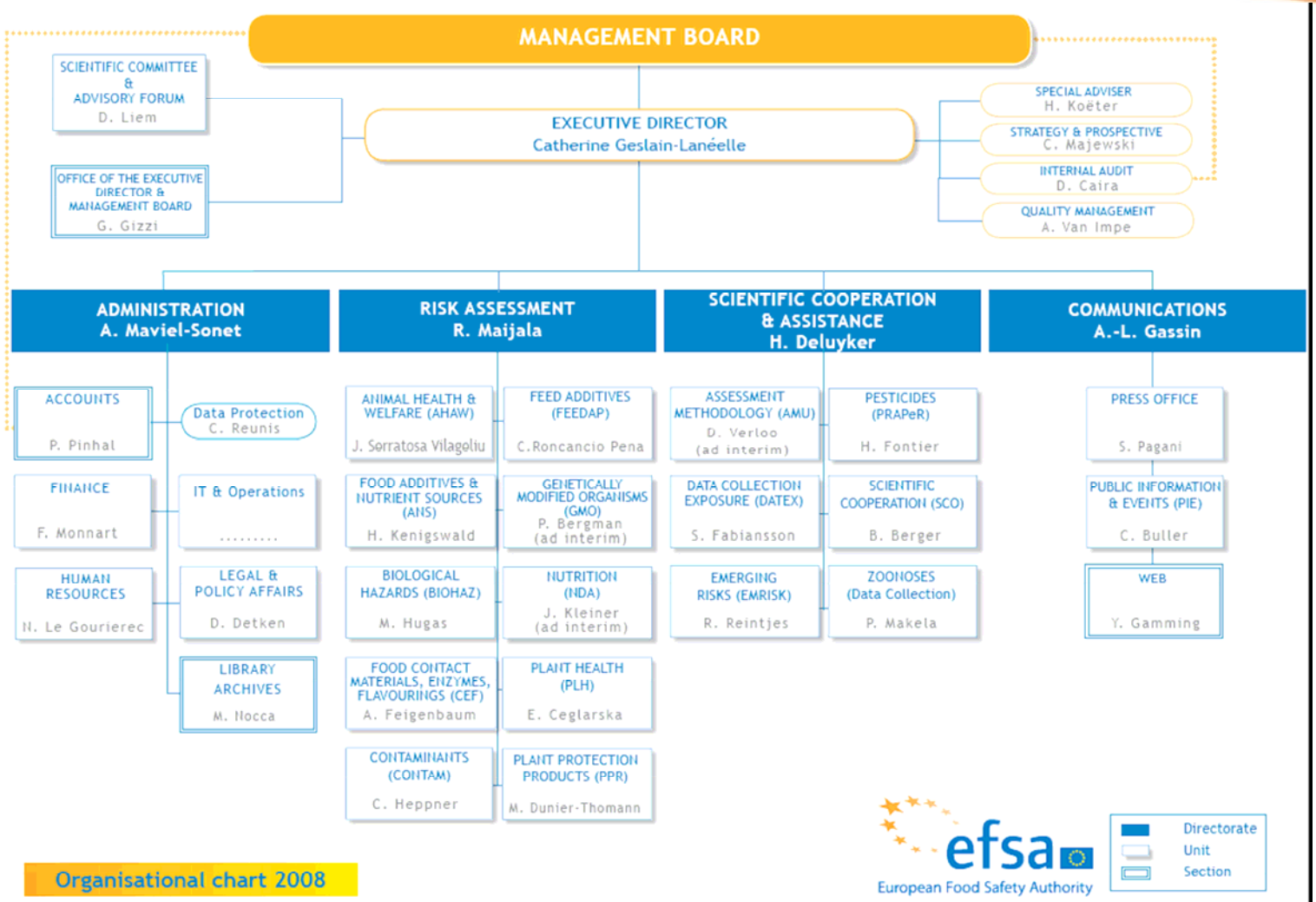
EFSA's contribution to emerging animal and zoonotic diseases

1. Known Hazards - EFSA Scientific Panels assess emerging diseases, including the risk for EU introduction

2. Post Introduction - EFSA's Community networks for data collection and analysis e.g. Zoonoses Task Force

3. New Threats - Dedicated Emerging Risk Unit to horizon scan for early identification of emerging diseases

EFSA Organigram



Organisational chart 2008

Risk assessment in contagious animal diseases

- EFSA Panels on Animal Health and Welfare (AHAW) and Biological Hazards (BIOHAZ)
- Delivered 132 scientific opinions to this date
- Network of 227 experts in this field.

Data collection

- **Objective data collections: Art. 22 Reg. 178/2002**
  - monitoring risks – exposure assessments compliance
  - risk assessment
- **Scope: Art. 33 Reg. 178/2002**
  - food consumption
  - occurrence micro-organisms
  - contaminants & residues and
  - all data in EFSA's remit: food composition, animal health and welfare, plant health, and GMOs
- **Specific Legislation**
  - zoonoses - Directive 2003/99
  - pesticide residues - Regulation 396/2005

Collaboration with Member States

	Member States Networks	Contracts and Grants (mostly 2007 and 2008)		
		Number of agreements	Number of Member States	Number of Institutions
Data Collection	4	6	12	15
Scientific Opinions	12	2	9	11

Mandate from the European Commission on Bluetongue

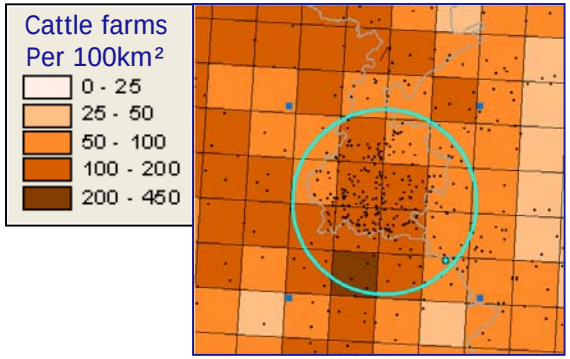
- **22 September 2006**
  - European Commission (EC) Chief Veterinary Officer (CVO) meeting recommends for EFSA to create BT Epi WG with
    experts from Commission, Member States (MS), CRL, OIE Ref Lab
    chaired by Prof. D. Pfeiffer (Member EFSA AHAW Sci. Panel)

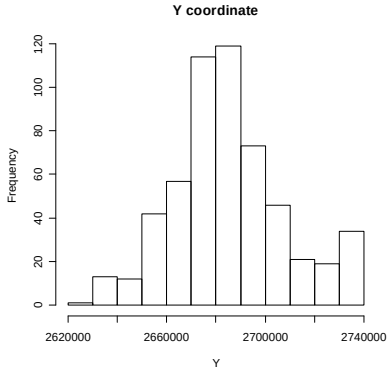
- **objectives and timelines**
  - regular epidemiological reports: weekly reports EFSA website
  - overall epidemiological analysis: draft report on 31 January 2007

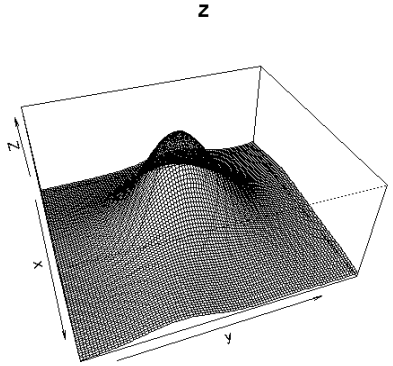
Detailed Description of Epidemic: Onset, Establishment and Spread

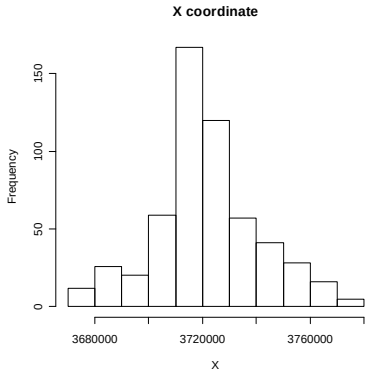
- Time-space distribution of the outbreak between herds & Identification of the area of first infection **– G. Gerbier, CIRAD**
- Description of the clinical aspects of the outbreak and Pattern of the disease within herds **– A. Elbers, CIDC**
- Vector studies **– R. Meiswinkel, CIDC**
- Environmental factors affecting spread **– C. Staubach, FLI**
- Human interventions affecting introduction and spread **– K. Mintiens, VAR13**

Area of first infection









- **Potential earliest case**
  - farm in Belgium 5km from B,NL,D borders
  - earliest clinical signs: possibly 17/07/2006
- **Model-based estimation**
  - probable origin: centered close to Maastricht (The Netherlands)

Environmental and Climatic Factors affecting the Vector and the Disease

- daily variations in *Culicoides* numbers were strongly correlated with prevailing temperatures
- lag time between temperature and outbreaks is estimated at ~4 weeks
- lower average temperatures in cooler, hilly areas may have slowed down the spread of the disease
- lower cattle and sheep densities interrupted the spatial continuity of outbreaks of BTV-8

Studies on *Culicoides* in the affected countries

- ***Culicoides imicola,*** **that is involved in BTV transmission in southern Europe, was not found in central Europe**
- ***Culicoides*** **endemic to central Europe include multiple vectors of BTV**
- **Hence orbiviruses affecting livestock stand a good chance of being transmitted once they are adventitiously introduced in this part of Europe**
- **Significant numbers of *Culicoides* were found to enter buildings to bite animals indoors**

Possible Vector Spread through Wind

- **Observed density of wind events in an east-west direction** may partly explain this 'horizontal' spread of the epidemic

- **The relatively low number of cross-channel wind density events, after the outbreaks had reached the Belgian coastal zone, may explain why BTV did not arrive in the UK in 2006**

- **Terrain roughness may be an important factor preventing the spread of infected midges on the wind**

- **Preventing establishment of dense primary foci of infected *Culicoides* should probably inhibit subsequent long-range spread of BTV, assuming infected animal movement is controlled**

Overall Conclusions: epidemic resulted from interactions

- ***Biology:*** virus, vector, and animal
- ***Environment:*** may be influenced by climate change
- ***Human intervention:*** can affect movement of infected animals and vectors

Success Factors for Outbreak Investigations

- **Good cooperation between institutions involved**
  - Member States
  - Commission
  - EFSA
- **Data availability and access**
  - confidentiality issues
  - consistency of data between Member States
  - availability/quality of databases on ‘minor’ species (e.g.small ruminants) and wildlife
- **Preparedness through ‘peace time’ cooperation on data collection: including training and standardisation**

Plant pest risk models using climate data

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Example: **“Citrus Black Spot”** (Fungus)

Can be modelled by similarities

Or by plant epidemiological models

Milestones on Emerging Risks

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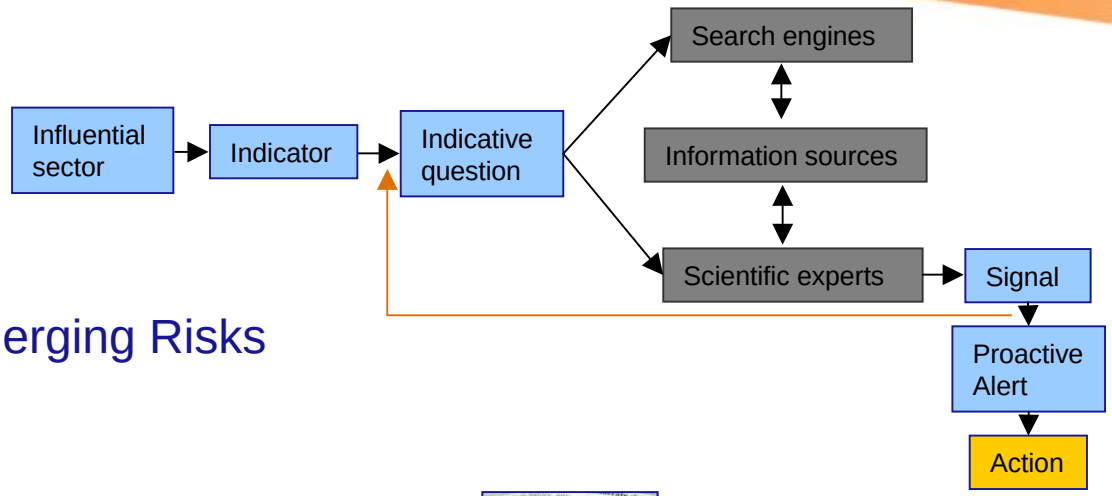
Timeline

2006 — EMRISK Project



SC Opinion on Emerging Risks

2007 — EFSA Adopts Emerging Risk Definition

ESCO Working Group on Emerging Risks

2008 — Emerging Risks Unit

Assessment of Emerging Risks

- *Art. 34-1.* **Identification of emerging risks:**

  The Authority shall establish **monitoring** procedures for systematic searching for, **collecting, collating** and **analysing** information and data **with a view to the identification of emerging risks** in the fields within its mission

- *Art. 34-2.* Where the Authority has information leading it to suspect an emerging serious risk, it shall **request additional information** from the Member States, the Community agencies, and the Commission….

Assessment of Emerging Risks

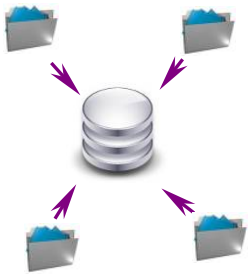
- *Art. 34-4.* The Authority shall **forward** the evaluation and information collected on emerging risks to the European Parliament, the Commission and the Member States.

Mandate of the Emerging Risks Unit

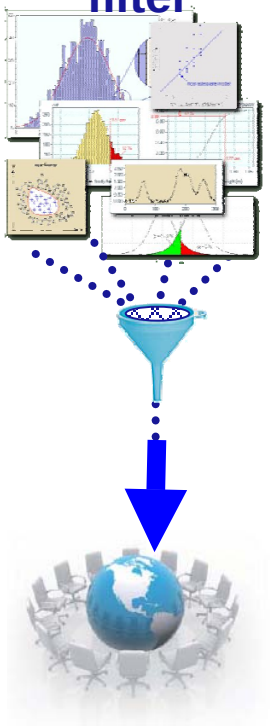
(Regulation EC 178/2002, art 34)

Monitoring

Collecting and collating



Analyse and **filter**



sharing

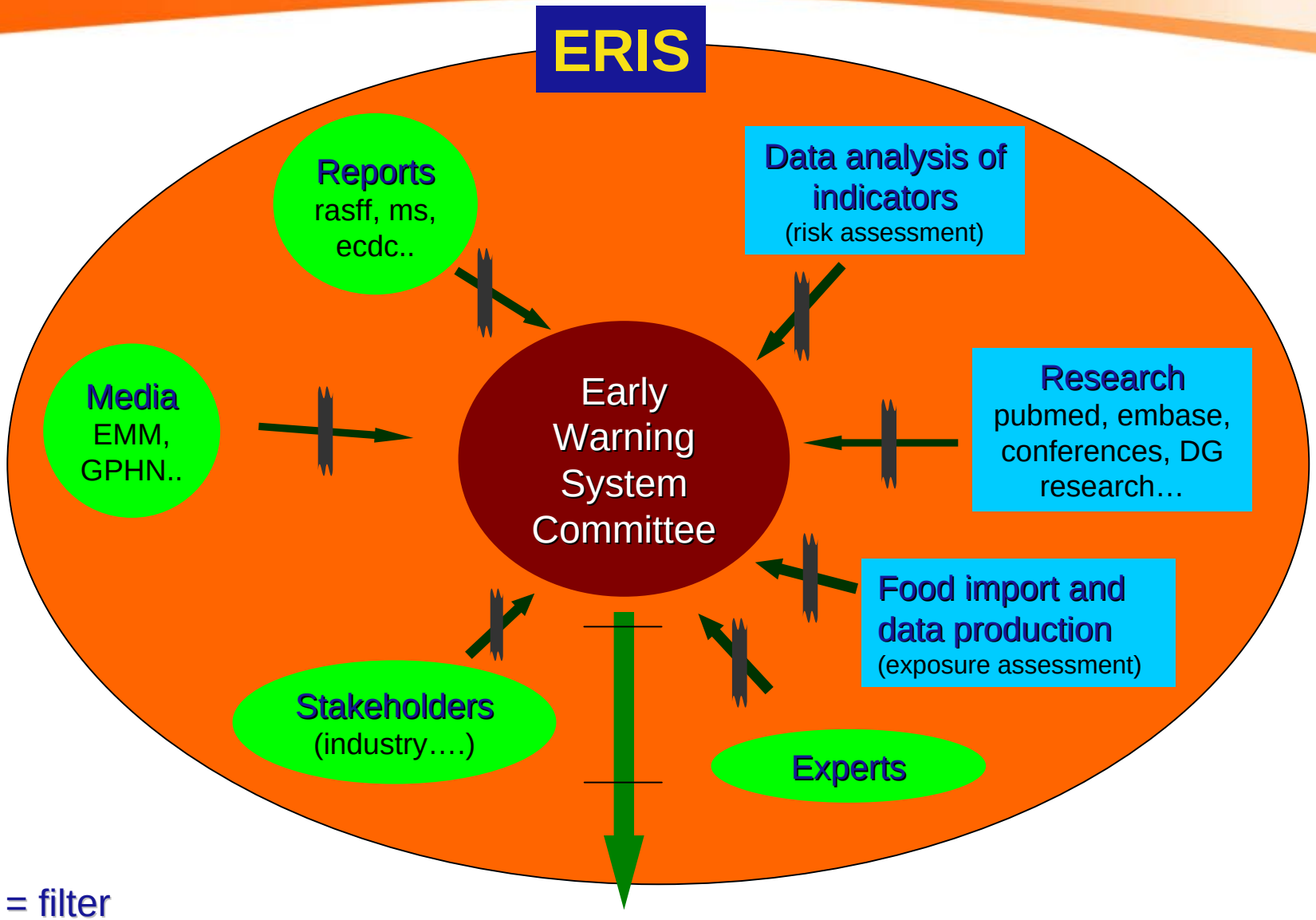
Responsibilties on Emerging Risks

- **Analysis based on "Early detection of facts related to that risk derived either from research, monitoring programs or episodic observations" (EFSA Scientific Committee, 2007)**

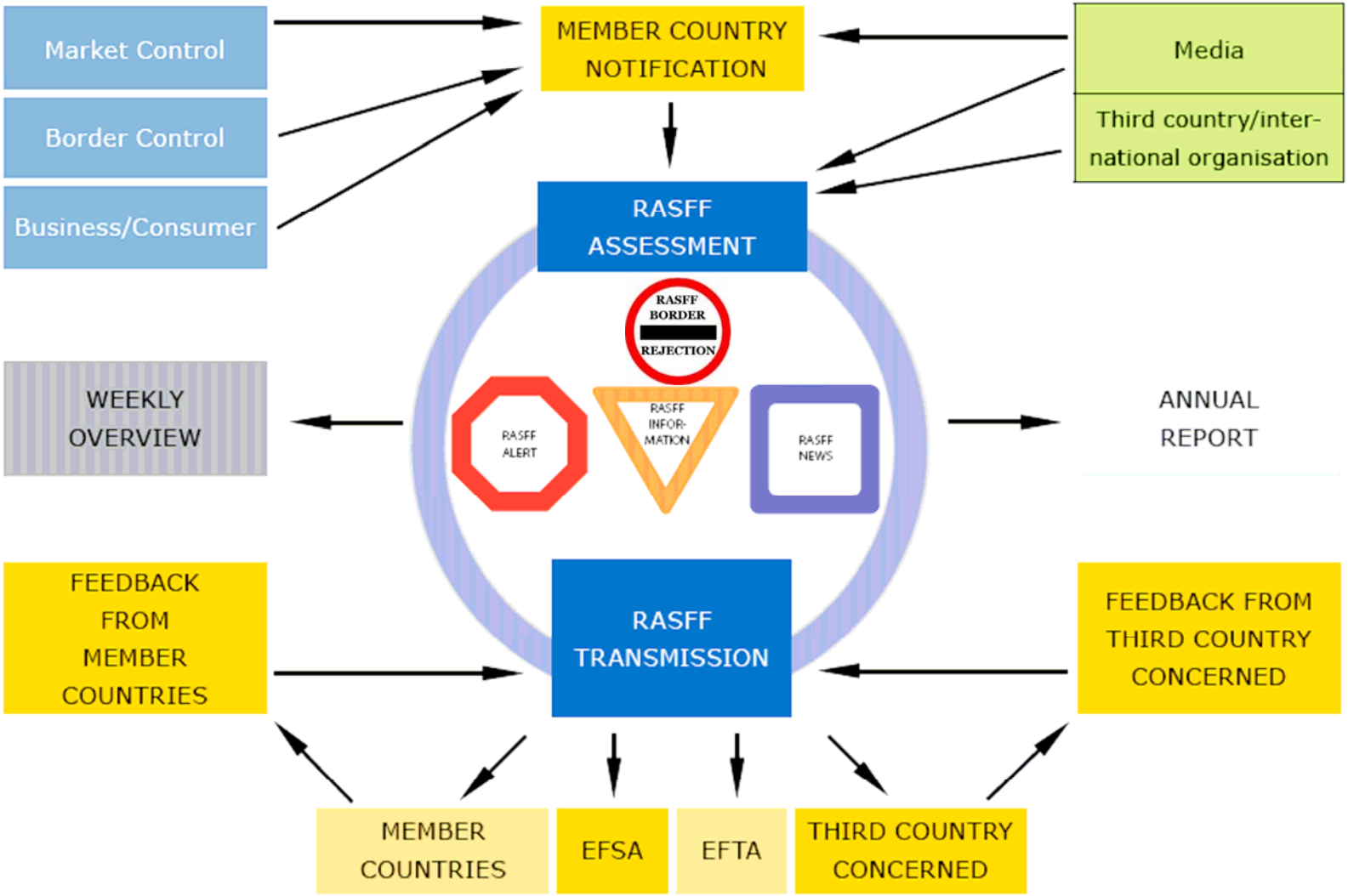
- **Good cooperation between institutions involved in Member States, Commission, and EFSA**
  - MS Network is needed

- **Preparedness through 'peace time' cooperation on annual report**

Emerging risks identification system

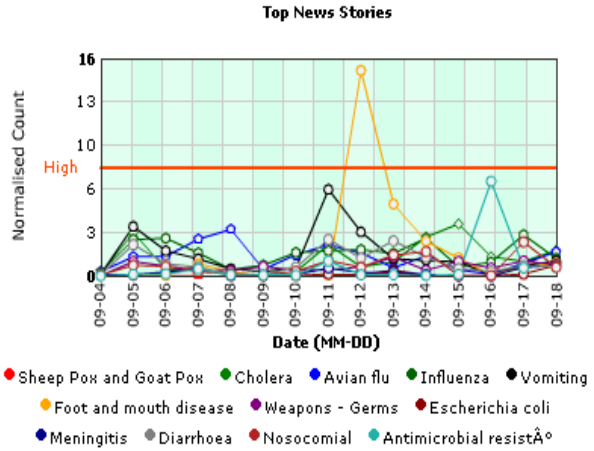


Rapid Alert System for Food and Feed (RASFF)



Media monitoring: European Media Monitor (EMM) by JRC

EMM is a system for media news aggregation and analysis



The information is:

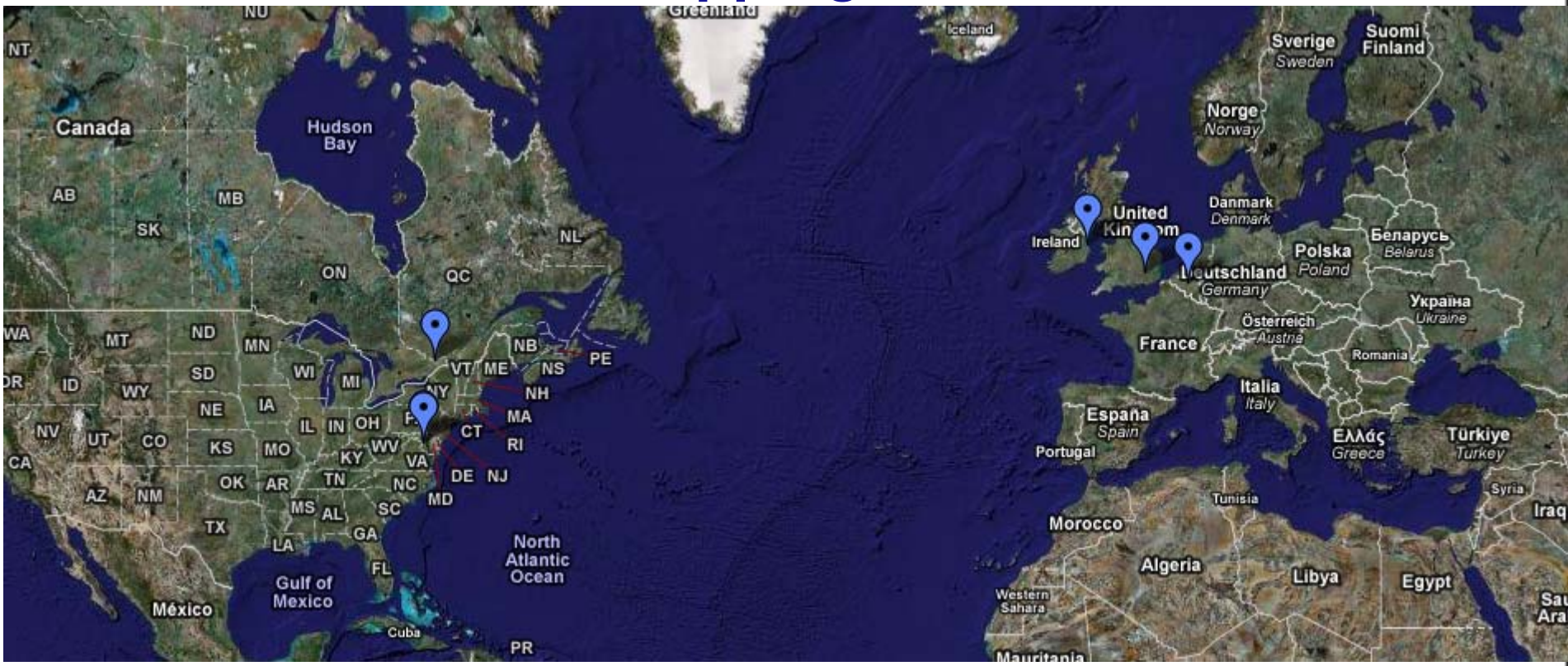
- **Gathered**
- **Filtered and classified**
- **Presented and visualized**
- **Analyzed for trend detection**
- **Alerts**

Emerging Risk Unit and JRC:

1) Refining the search strategy and keywords
2) Extending the searchable database
3) Pilot phase of an alert system with a newsletter
4) “Validation” of the system

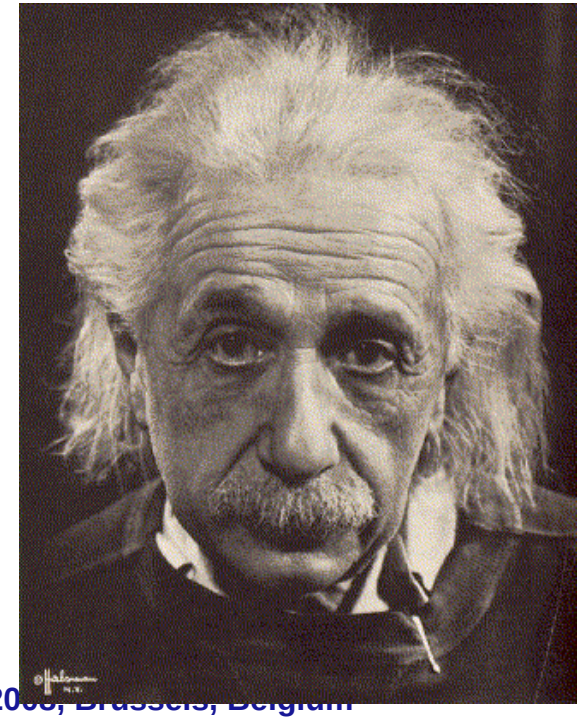
Future outputs

- **RASFF mapping tool**



- **Import surveillance**

Not everthing that can be counted counts, and **not everything that counts can be counted!**



Albert Einstein

Discussion

Grazie per la vostra attenzione!