



# **EHEC crisis in Europe 2011 - a food safety crisis and its lessons learned**

Dr. Anja Buschulte (BfR) and  
Dr. Milagros Nieto (AESAN)

**LARAS**  
LATIN AMERICAN  
RISK ASSESSMENT  
**SYMPOSIUM**



# Outline

Administrative background

Microbiological risk assessment (MRA) – general aspects

MRA using the EHEC crisis in Europe 2011 as a real example

Challenges for risk assessment and management

What about risk communication?

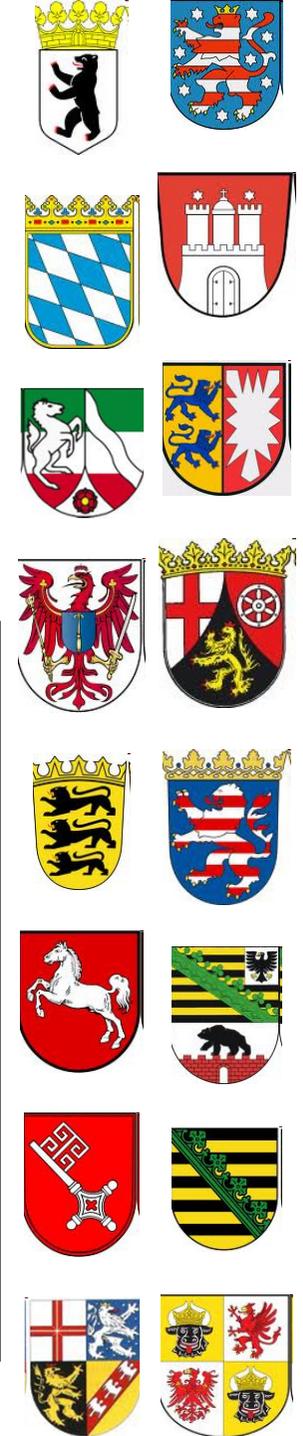
Lessons learned

# Administrative background - GERMANY

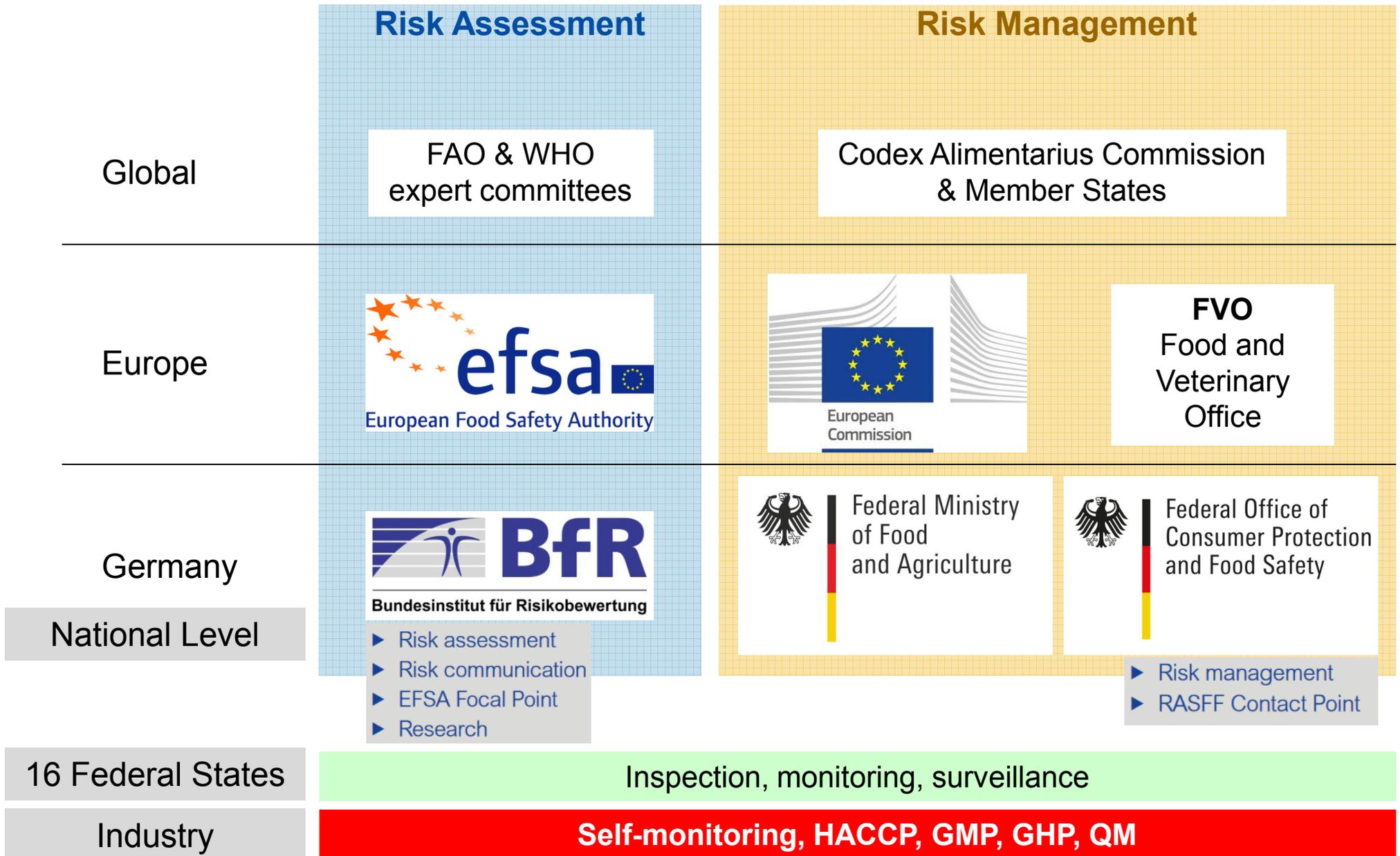


# Shared responsibility in Germany

- **Inspection, monitoring, surveillance** is within the responsibility of the 16 **federal states** (regional and local level).
- Their ministries and subordinate authorities act on their **own responsibility**.
- The 16 federal states coordinate their work in working groups and **invite** the **federal authorities** to **contribute** and **cooperate**.
- **Risk assessment** and **risk management** are **not divided**.



# Germany within the global food safety network





GOBIERNO  
DE ESPAÑA

MINISTERIO  
DE SANIDAD, CONSUMO  
Y BIENESTAR SOCIAL



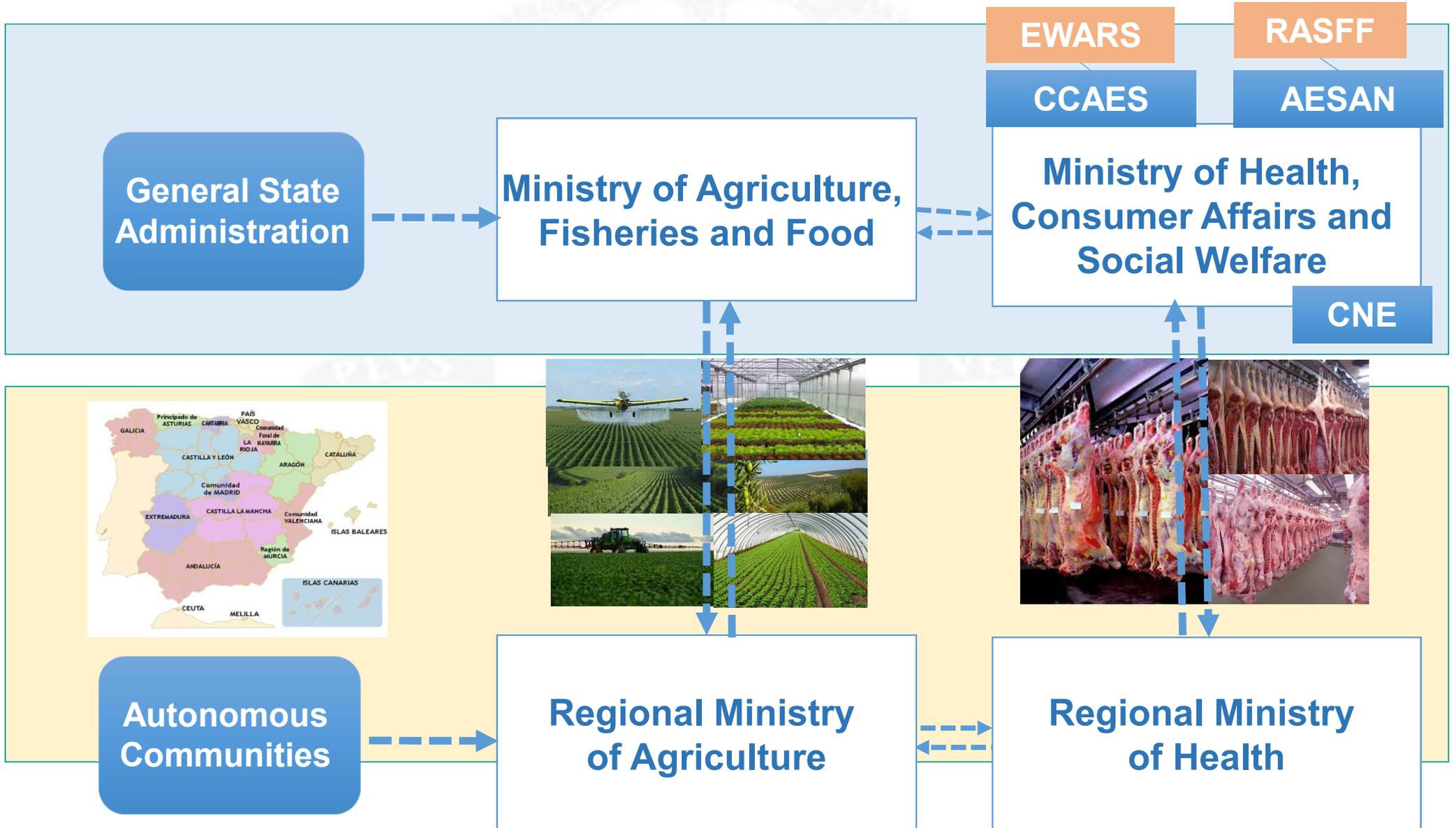
agencia  
española de  
seguridad  
alimentaria y  
nutrición

# Administrative context-SPAIN





# COMPETENT AUTHORITIES ON FOOD SAFETY





# Spanish Food Safety and Nutrition Agency (AESAN)

## Risk Assessment

**Scientific committee**

**Experts panels**

**Data bases**

**Food consumption**

**Food composition**

## Risk Management

**Legislation**

**Food register**

**Codex secretariat**

**RASFF/SCIRI**

**Official control & coordination**

## Risk Communication

**Webpage**

**Press office**

**Publications**

**Communication strategies**

**Risk Analysis**



- ✓ EFSA FOCAL POINT
- ✓ RASFF FOCAL POINT
- ✓ INFOSAN

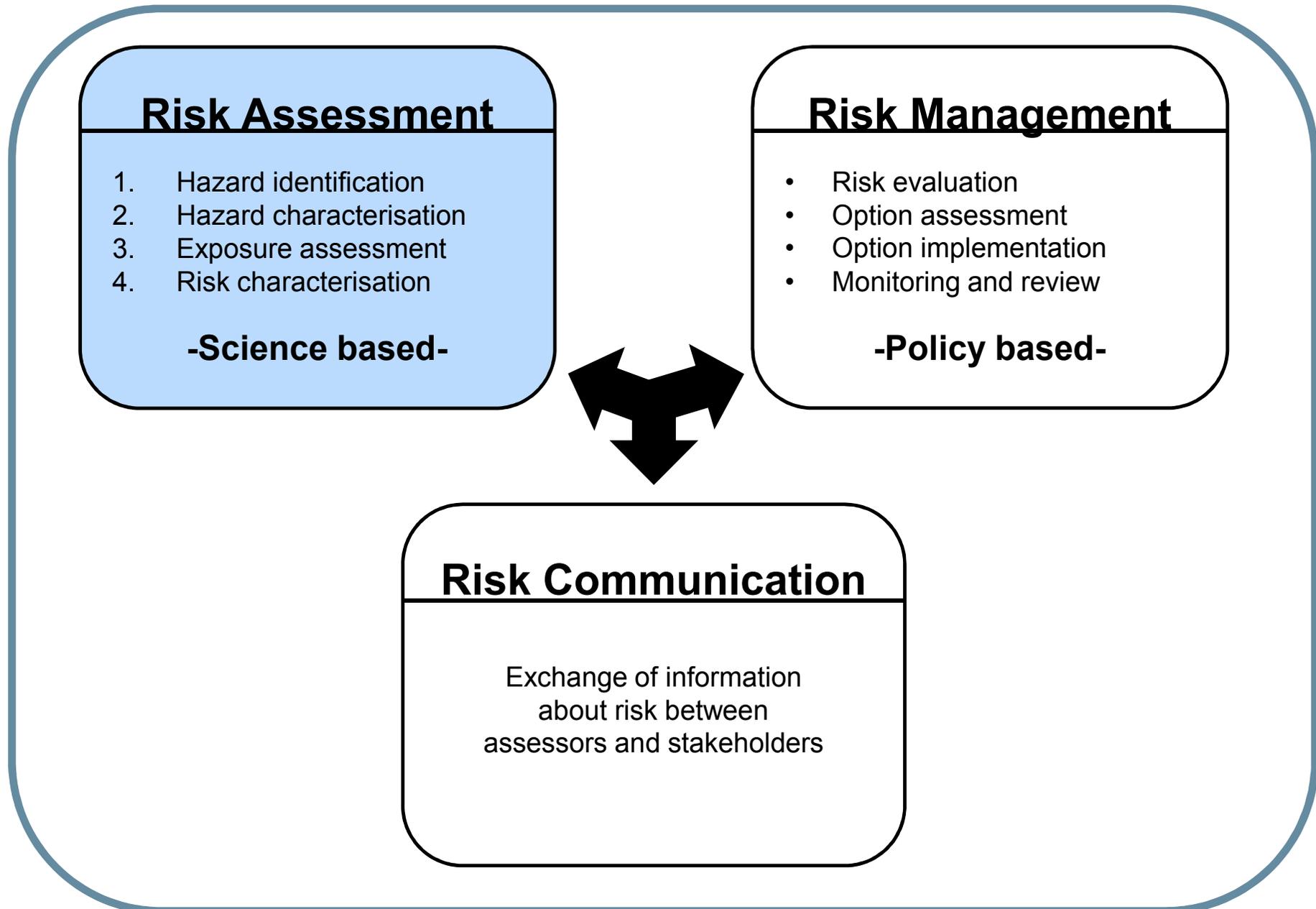


**EC**



# Microbiological risk assessment (MRA) – general aspects

# Risk Analysis framework



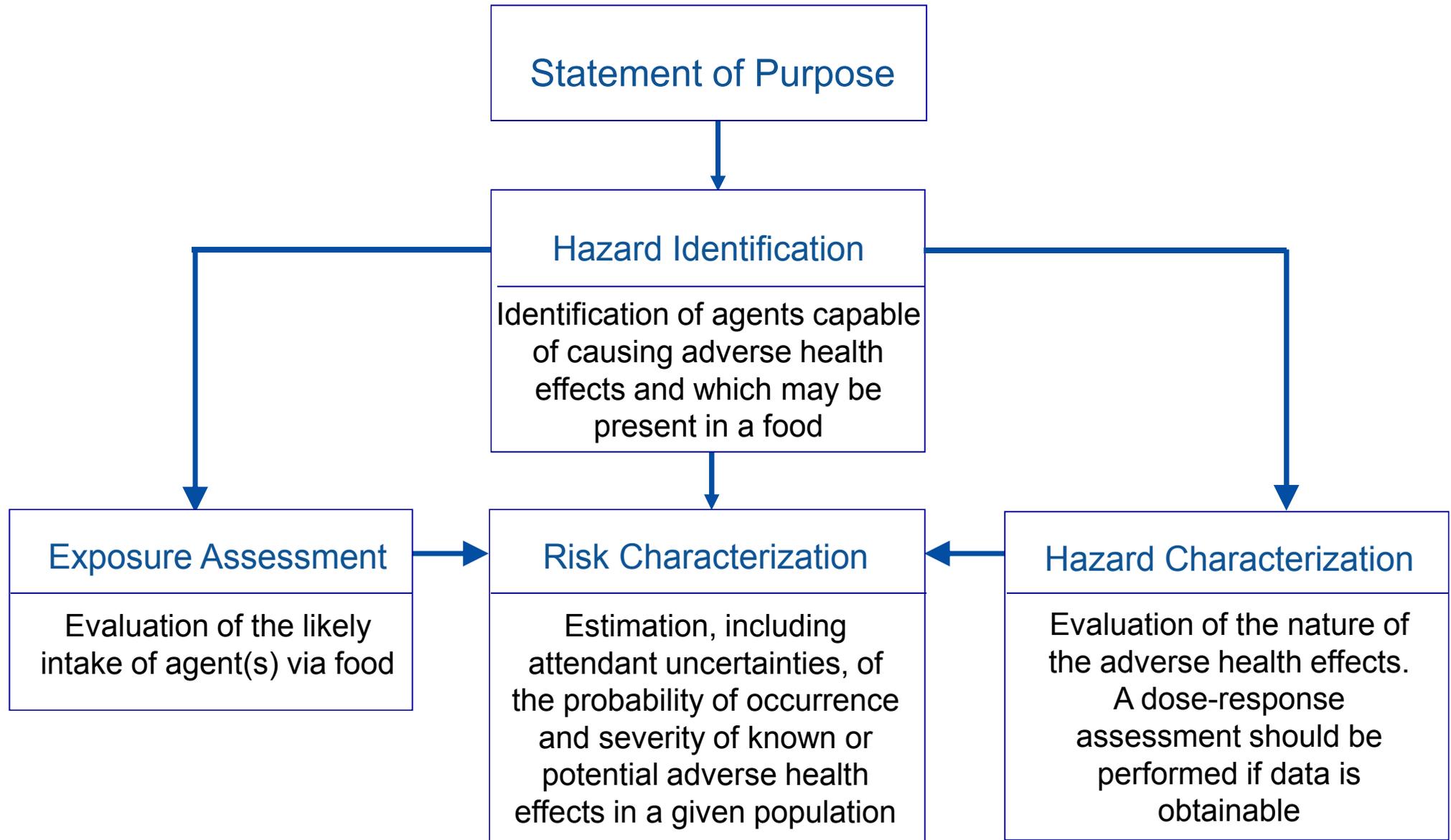
# Philosophy of Risk Assessment

- **Identify** potentially **hazardous** situations
- **Estimate** the **uncertainty** associated with the analysis
- **Provide** alternative **options** to **reduce** a possible risk
- Estimate the **adequateness** of those **options**
- Application of the **precautionary principle** which means:

Even when scientific knowledge is incomplete, consumer protection measures are frequently admissible and sometimes have to be taken very quickly!

**Particularly applicable during food-borne outbreaks**

# Microbiological Risk Assessment (MRA) scheme



# MRA using the EHEC crisis in Europe 2011 as a real example

# *E. coli* O104:H4 outbreak Germany 2011 – at a glance

**Cases:** **3.793** (2353 hospitalized, **53 death**) **cases** in Germany and cases in 12 EU Member States, Switzerland, Canada, USA (all with link to Germany)

**Setting:** **Disseminated** cases  
(restaurants, hotels, canteens, household)

**Evidence:** **Cohort-stud**, and **network analyses** (delivery chains of sprouts and seeds)

**Causative food:** **Sprouted fenugreek seeds from Egypt**



# Hazard identification

## *Activities in a foodborne outbreak:*

### **Characterisation** of the disease-causing **microorganism**

- ✓ **Characteristics** of the outbreak **strain**
- ✓ **Occurrence** of the agent in different matrices
- ✓ **Tenacity** of the agent and influence of food technology
  - no knowledge; assumption: comparable to EHEC O157:H7
- ✓ **Treatment** procedures for seeds
  - not all of them able to inactivate EHEC



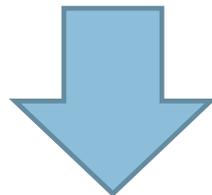
# Outbreak strain *E. coli* O104:H4 - characterisation

Hybrid pathogenicity characteristics EHEC/EAEC ► „EAHEC“

*stx2a* (Shigatoxin 2)-positive  
enteroaggregative (AAF/I fimbrial cluster)

} EAgg *E. coli* O104:H4

- Aggregative adherence (AA) means **effective** and **long colonization** of humans
- **Production of Stx2a associated** with effective and long intestinal **colonization**



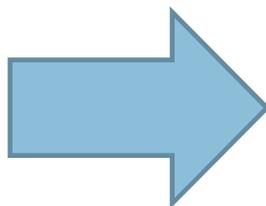
**High virulence**



## *E. coli* O104:H4 - occurrence

### Germany and Europe:

- Food: none
- Animals: none
- Environment: none
- Human: 1 case Finland (2010)  
2 cases Germany (2001)  
(2 cases Georgia (2009))



Very rare strain

Never found in animals or food so far

**Assumption:** reservoir in humans

# *E. coli* O104:H4 – occurrence during outbreak

## Hazard Identification

Identification of agents capable of causing adverse health effects and which may be present in a food

## Laboratory investigations

### Food samples

844 Cucumber  
805 Tomatoes  
947 Salad  
170 Strawberries  
165 Bell peppers  
64 Asparagus  
154 Seeds  
1043 Sprouts  
75 Milk  
3433 Other food

### Other samples

174 swab samples  
172 water (irrigation and processing)  
16 environmental samples

### Stage of sampling

- Food retail
- Whole sale
- Outbreak locations, e.g. restaurants, canteens



### Laboratory analyses at BfR

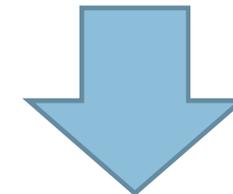
SampleType	Sample Number
DNA	14
Isolates	27
Vegetables*	73
Seeds	58
Sprouts	329
Swaps/environment	77
Water	41
Other	33

\*Vegetables including cucumbers, tomatoes and lettuce

## Total EU

10392 samples taken  
41 samples stx positive

**7 samples positive for O104:H4**



**Recontamination from patients**

## *E. coli* O104:H4 - dose response assessment

### **Activities in a foodborne outbreak:**

**Characterisation** of the **hazard potential** of the **microorganism** and the pathogenesis with consideration of the **intended use**

**Infective dose** of *E. coli* O104:H4: **unknown?**



### **EHEC O157:**

- infection dose is **very low** and
- amounts to **less** than **100 germs**

### **Assumption:**

no multiplication in the environment or in food needed to infect humans



## *E. coli* O104:H4 - severity and duration of disease

- **Severe** health **impairments**
- Symptoms: from **bloody diarrhoea**, **renal failure** with **dialysis** dependency to severe long lasting **neurological symptoms** and **death**
- During the acute phase, the **fatality rate** of HUS is approximately **2%**
- **How long** the damage to health continues, whether it leads to **chronic illness** (for example in the form of irreversible kidney damage) or whether the damage is **reversible** and what **long-term complications** can occur, could **not** be **assessed**

# Exposure assessment

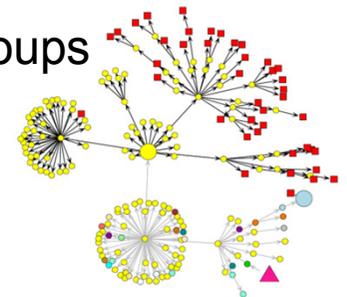
## *Activities in a foodborne outbreak:*

**Estimation** of the **exposure** through the consumption of food

## Goal

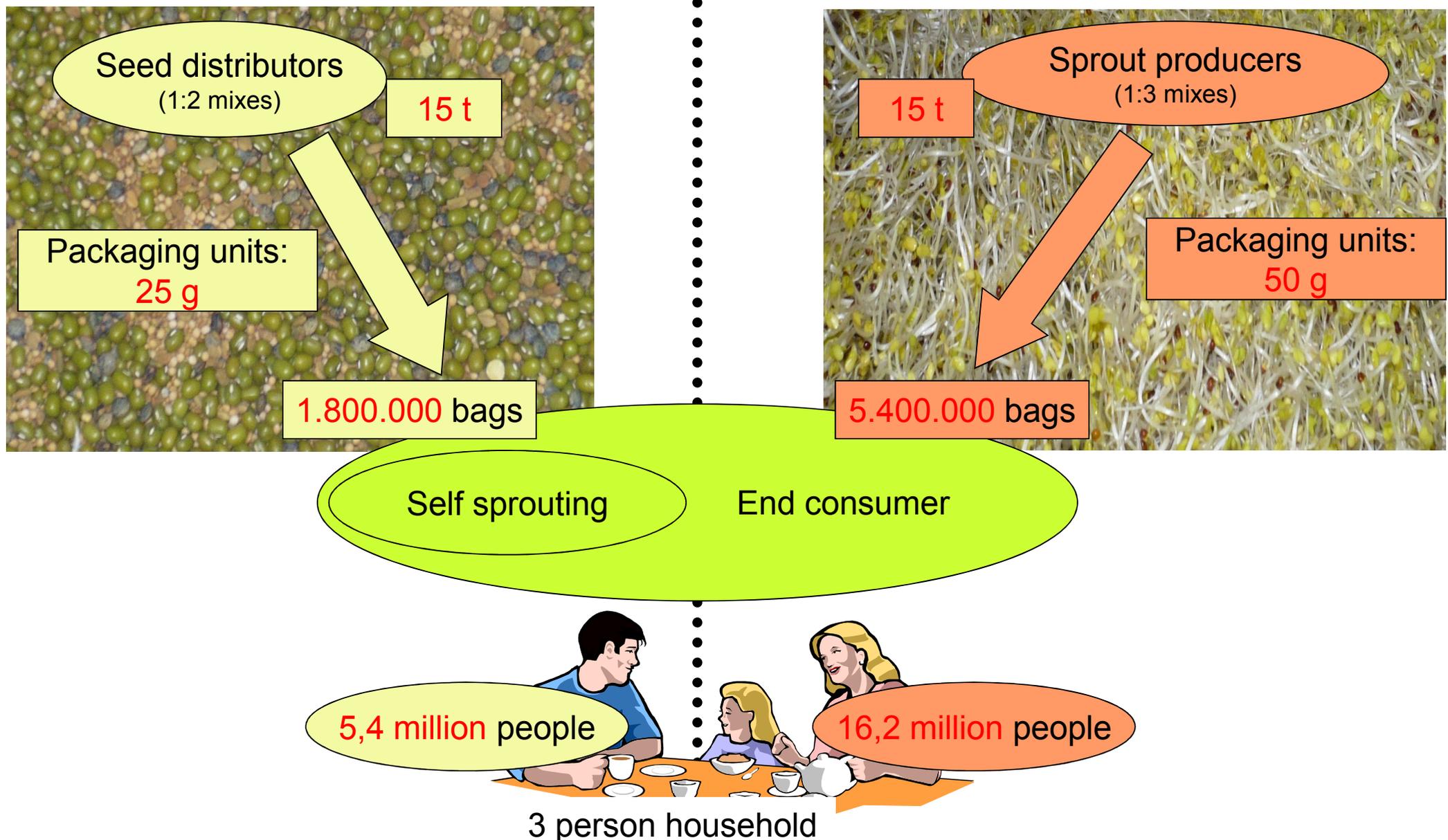
to **determine** the **route**, **frequency**, **duration**, and **magnitude** (amount) of **exposure**

- ✓ **Production** and **distribution channels** of the suspected seed batches
- ✓ **Intended usage** of the suspected seed batches – not complete known
- ✓ **Influence** of packaging **units** – **see example**
- ✓ **Influence** of eating **habits** - could not be limited to certain population groups



# Influence of packaging units

## 15 tons of seeds – target quantity



# Risk Characterisation

Is a process of **determining** the qualitative and/or quantitative **estimation**, including attendant **uncertainties**, of the **probability** of **occurrence** and **severity** of known or potential **adverse health effects** in a given **population** based on hazard identification, hazard characterization and exposure assessment (CAC, 1999)

## ***Activities in a foodborne outbreak:***

Encompass **summarised information** on all relevant topics

Estimation, including attendant uncertainties, of the probability of occurrence and severity of known or potential adverse health effects in a given population

# Risk characterisation



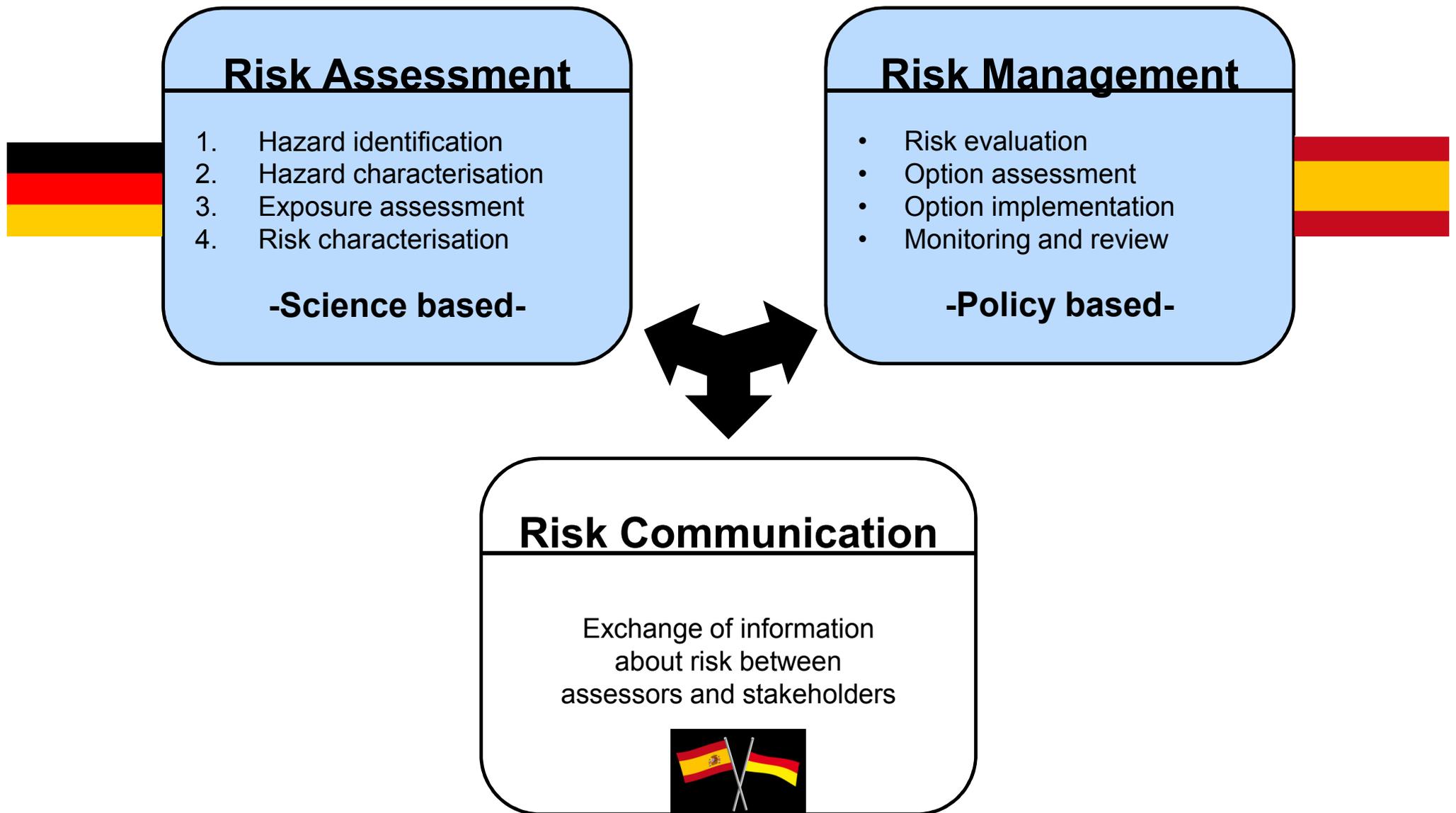
Available at:

<https://www.bfr.bund.de/cm/350/ehec-outbreak-2011-investigation-of-the-outbreak-along-the-food-chain.pdf>

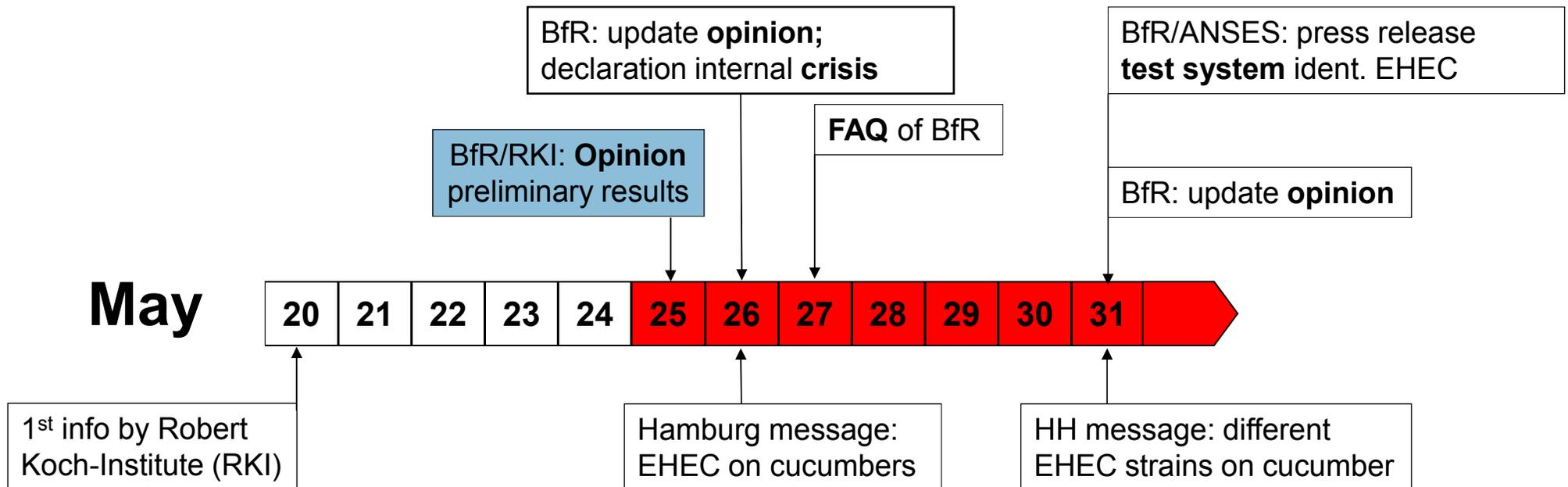
## Assessment of data quality

- The **quality** of the **data** relating to the outbreak strain was highly **insufficient**
- Microbiological **testing** of fenugreek **seeds** from Egypt for *E. coli* O104:H4 was marked by great **uncertainty** and could not be conclusively assessed
- The **information** on the subsequent **distribution** stages and on **intended uses** of the fenugreek seeds was **incomplete**
- BfR was therefore **unable** to **assess** what **quantities** of the seed batches were **returned, destroyed, sold** or **eaten**

# Challenges for risk assessment and risk management



# Chronology through the eyes of BfR



Consumption recommendations: **raw tomatoes, cucumbers and green salads**

# Consumption recommendation of 25 May 2011: regarding raw cucumbers, tomatoes, and green salads

## State of knowledge about the food source:

Results of a case control study conducted in Hamburg:

- **cases** have eaten raw **tomatoes**, **cucumbers**, and **green salads** significantly **more often** than healthy persons.
- Vehicle is eaten predominantly by adults and mainly in northern Germany.

www.bfr.bund.de



Bundesinstitut für Risikobewertung

EHEC: Consumers to continue to refrain from eating tomatoes, cucumbers and green salads

**Questions to be answered:**

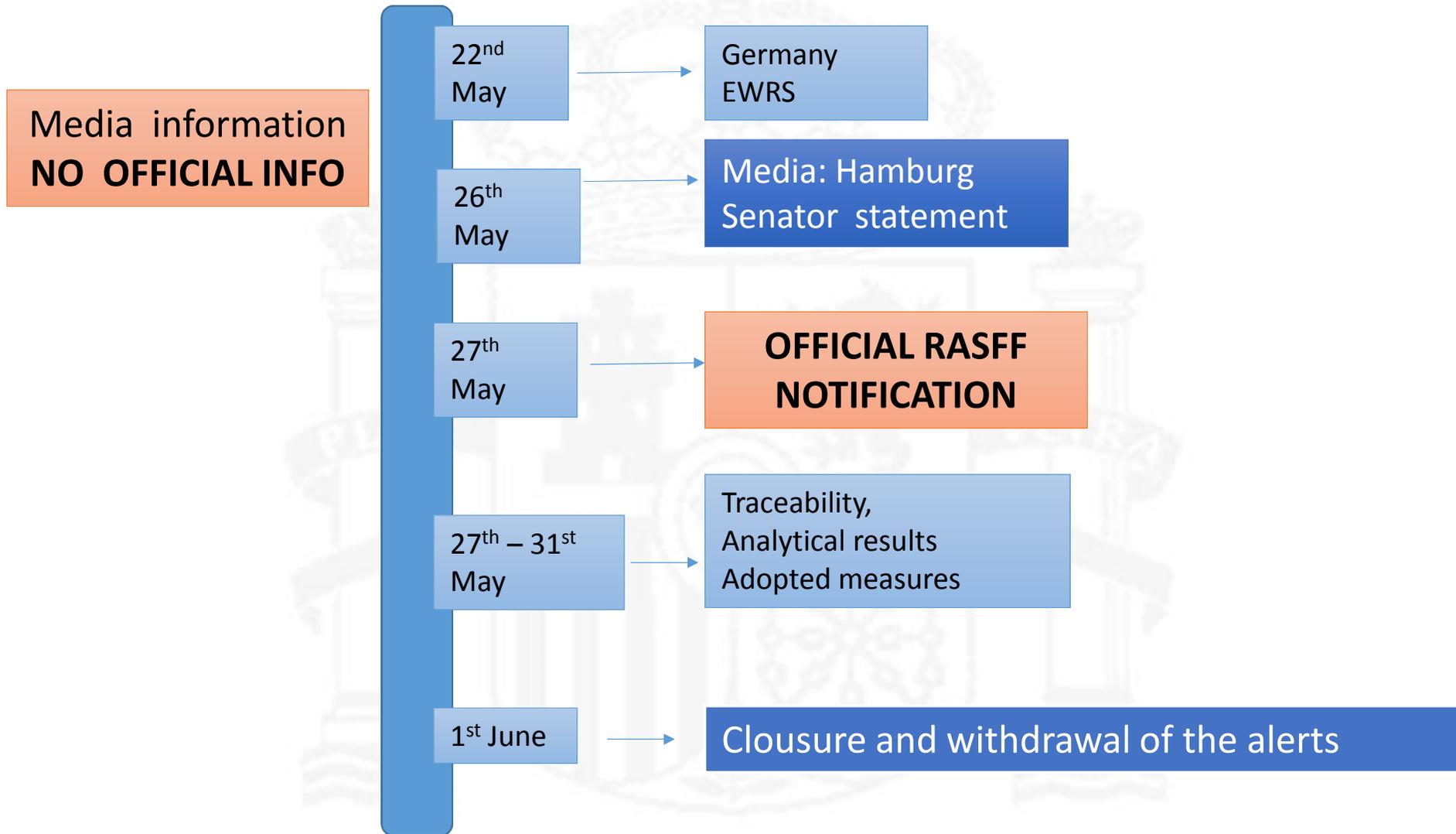
- Vehicle (all of them, only one, others?)
- ~~Origin and distribution?~~
- Source of infection?

...tion, continue  
...e, which con-  
...as long as the

Ac... of new cases of  
disease continues to rise, above all in Northern Germany. It has, therefore, to be assumed  
that the source of infection is still active. The detection of EHEC in cucumbers in Hamburg,  
which were, amongst others, imported from Spain, resulted in several warnings through the  
European Rapid Alert System. It has not yet been proven that the EHEC subtype on the ana-



# Chronology through the eyes of AESAN



No cases of HUS/STEC in Spain

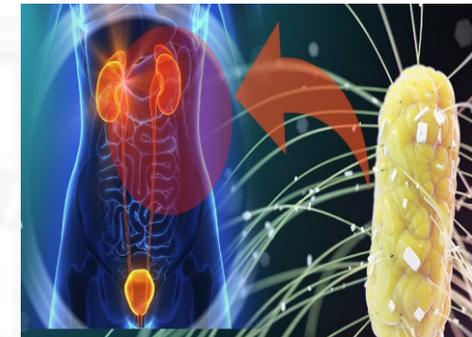
# Risk management

22<sup>nd</sup> May 2011:

Notification by Germany to the EWRS (alert and early response system) on a **significant increase in the number of patients with HUS and diarrhea caused by verotoxigenic E. coli.**

23<sup>rd</sup>-26<sup>th</sup> May 2011:

- ✓ Some **news** appeared in the **media.**
- ✓ **AESAN informed the Public Health Authorities of the Autonomous Communities.**



EL PAÍS SOCIEDAD

EDUCACIÓN MEDIO AMBIENTE IGUALDAD SANIDAD CONSUMO ASUNTOS SOCIALES LAICISMO COMUNICACIÓN

## Alemania culpa a los pepinos españoles de una bacteria mortal

Una peligrosa cepa ha causado la muerte de tres personas y decenas de infecciones intestinales en el norte del país

JUAN GÓMEZ | BERLÍN  
26 MAY 2011 - 13:24 CEST

La bacteria que ha causado tres muertes en Alemania salió de pepinos españoles, según las investigaciones de Instituto de Higiene de Hamburgo. La senadora (ministra) de Sanidad de Hamburgo, la socialdemócrata Cornelia Prüfer-Storcks (SPD), ha explicado que los científicos hanseníticos encontraron evidencias de contaminación en tres pepinos importados de España. Uno de ellos era de los llamados "orgánicos". La cepa peligrosa de *Escherichia coli* es una de las denominadas Ehec, tóxica para el ser humano. Ha hecho enfermar en unos 10 días a unas 600 personas en Alemania, de las cuales alrededor de 140 padecen el peligroso síndrome urémico hemolítico, más conocido por el acrónimo inglés HUS. El Instituto de Higiene de Hamburgo tiene un cuarto pepino contaminado cuya procedencia es, de momento, desconocida. Los resultados dados a conocer hoy deberán completarse con nuevos estudios. La senadora advirtió además de que "puede que otros productos estén también infectados".



Imagen tomada por un microscopio de una bacteria tipo EHEC, cepa peligrosa de la "Eso-hercha coli", facilitada por el Centro de Investigación de Infecciones Hamburgo.

NEWSLETTER  
Suscríbete a nuestra newsletter en tu bandeja de entrada.



# Risk management

26<sup>th</sup> May 2011 :

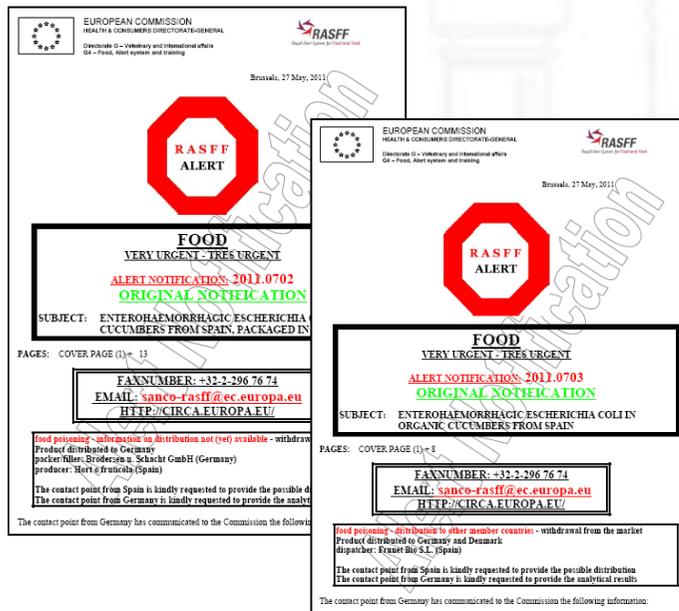
- ✓ A senator from Hamburg **made a media statement in Germany, implicating Spanish cucumbers** from Andalusia as responsible for the German outbreak.
- ✓ **Commission's phone call to AESAN.- Advance information.** Germany informed through RASFF that the cucumbers origin of the outbreaks came from Spain.
- ✓ **Coordination** at national level. **Request** for additional information to the German Authorities and **Press release in Spain** and statements to the media.

**Up until this moment, there was still no notification  
in RASFF**



# Risk management

## 27<sup>th</sup> May (11:39h): Official Notification through RASFF (2 alerts)



### ENTEROHAEMORRHAGIC ESCHERICHIA COLI IN CUCUMBERS FROM SPAIN, PACKAGED IN GERMANY:

- ✓ Non-organic cucumbers
- ✓ Batch L1803TD-TF
- ✓ 13 Greenhouses in Almería

### ENTEROHAEMORRHAGIC ESCHERICHIA COLI IN CUCUMBERS FROM SPAIN, PACKAGED IN GERMANY:

- ✓ Company of Málaga
- ✓ Ecological cucumbers
- ✓ Almería's Greenhouses



# Risk management

28<sup>th</sup> and 30 May 2011

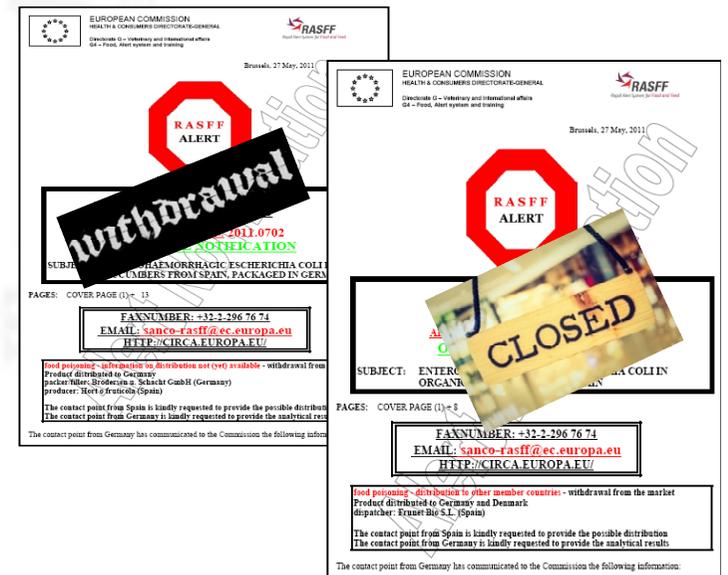
- German analytical results of Spanish cucumbers positive to E. coli enterohaemorrhagic
- New declaration in the media by the Hamburg senator reporting that **the pathogen causing the outbreak were not in Spanish cucumbers.**
- **Analytical results** of the samples taken (ground, irrigation waters and cucumbers): **All of them negatives to EHEC!**

There are no cases of HUS /STEC in Spain.

Daily Audioconferences with DG SANCO, ECDC, EFSA,MS

**1<sup>st</sup> June (20:00):**

The **Commission Services** announced through the RASFF the withdrawal of one alert and the closure of the other.





# Adopted measures - Spain

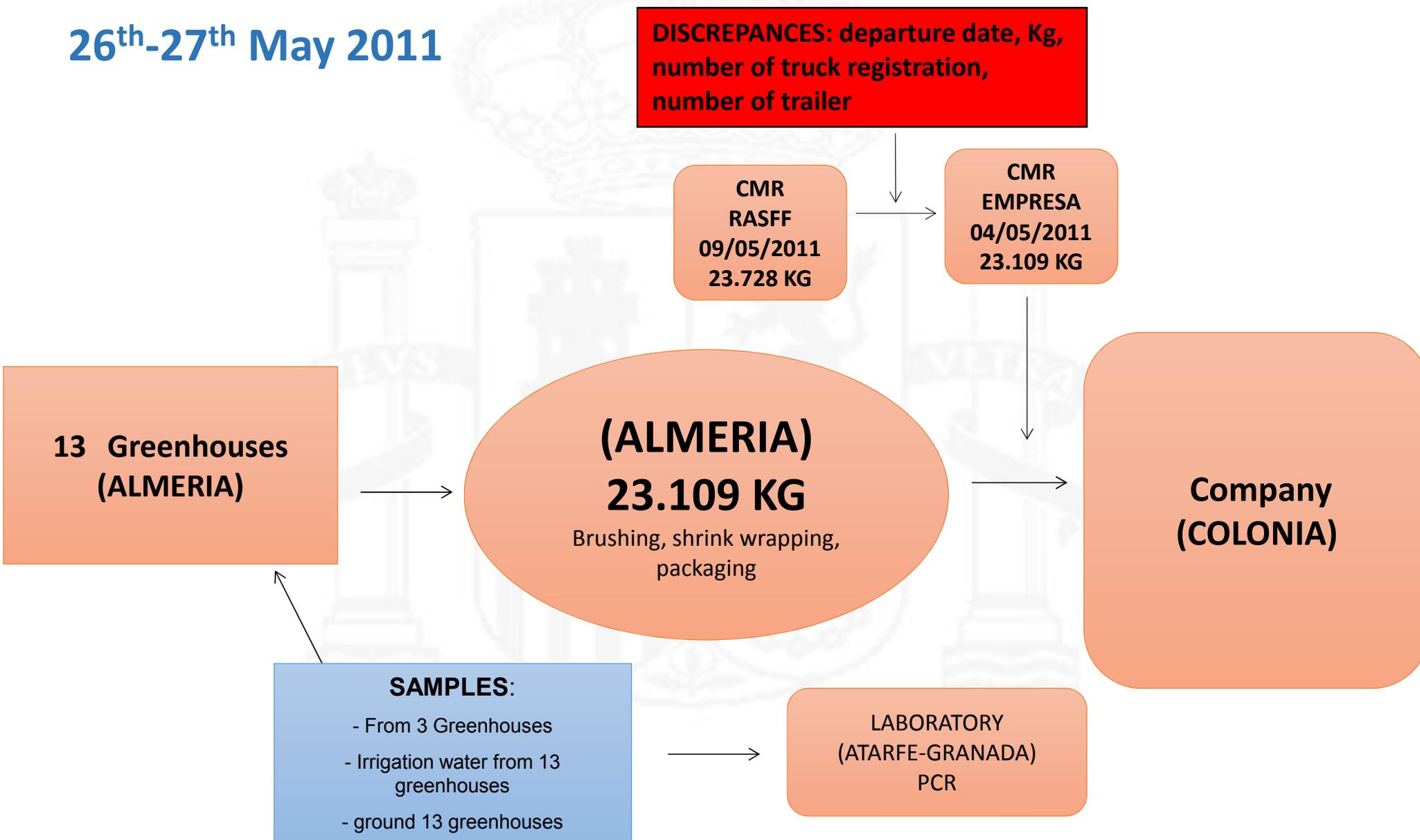
- ✓ Immobilization of cucumbers
- ✓ Investigations of traceability
- ✓ Sampling and analysis in the warehouses and greenhouses.





# Traceability

26<sup>th</sup>-27<sup>th</sup> May 2011



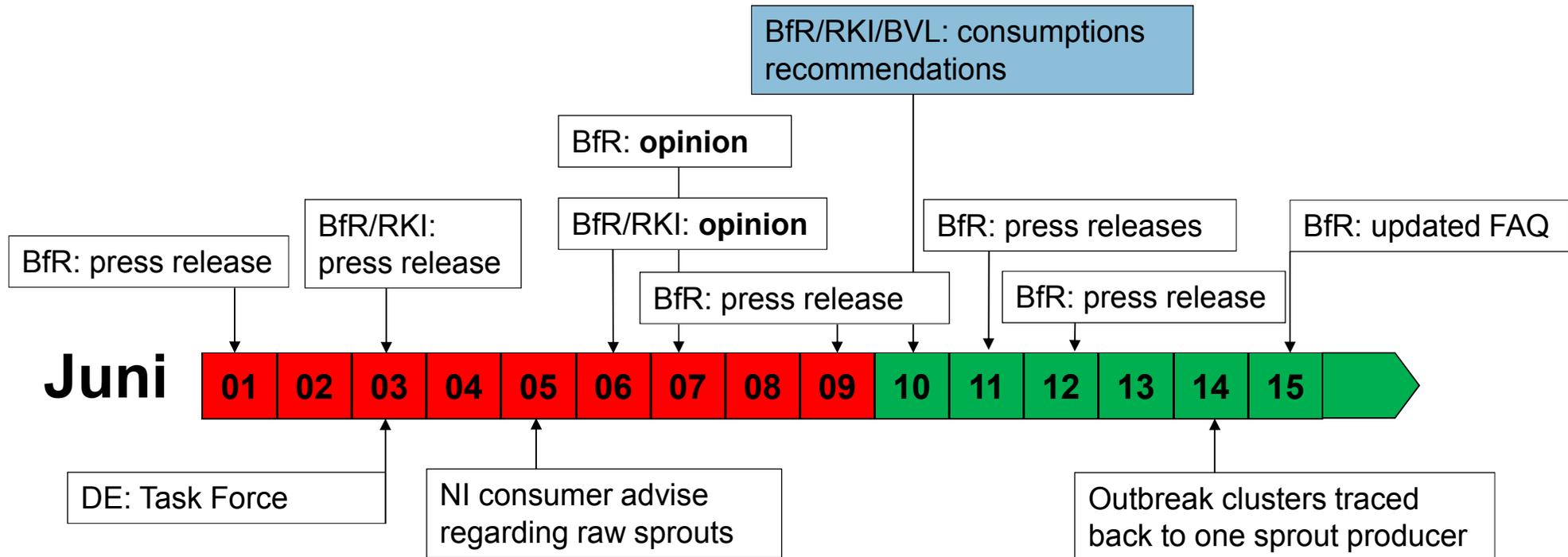


# Analytical results

SAMPLE	Nº	RESULTS	LABORATORY
CUCUMBERS	15	NEGATIVE TO E. COLI PRESENCE	AGRO ALIMENTARIO ATARFE, Lab. Lugo, AINIA Y TECNOLAB
TOMATOES (SAMPLE TAKEN BY BIO FRUNET)	5	NEGATIVE TO E. COLI PRESENCE	AINIA Y TECNOLAB
MACHINERY SURFACE(SAMPLE TAKEN BY BIO FRUNET)	4	NEGATIVE TO E. COLI PRESENCE	AINIA Y TECNOLAB
SOIL (OFFICIAL SAMPLE)	13	NEGATIVE TO E. COLI PRESENCE	AGRO ALIMENTARIO ATARFE Y LABORATORIO DE LUGO (4 MUESTRAS)
IRRIGATION WATER (OFFICIAL SAMPLE)	13	NEGATIVE TO E. COLI PRESENCE	AGRO ALIMENTARIO ATARFE Y LABORATORIO DE LUGO



# Chronology through the eyes of BfR



Consumption recommendations: **raw tomatoes, cucumbers and green salads**  
**raw sprouts**

# Consumption recommendation of 10 June 2011: regarding raw sprouts



## EHEC: Current State of Knowledge Concerning Illnesses in Humans

16/2011, 10.06.2011

Joint Declaration BfR, BVL, RKI

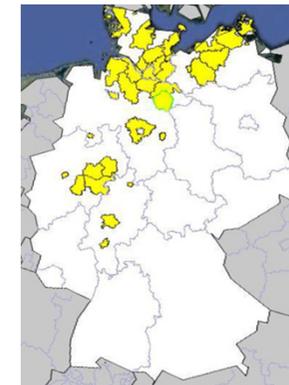
### Conclusions

1. The Federal Institute for Risk Assessment (BfR), Federal Office of Consumer Protection and Food Safety (BVL) and Robert Koch Institute (RKI) have come to the joint conclusion that the existing general recommendation not to consume cucumbers, tomatoes and leaf lettuce in northern Germany no longer has to be complied with.
2. As a precaution over and above customary hygiene measures, BfR, BVL, and RKI are recommending that sprouts should not be consumed raw. Households and catering businesses are advised to destroy any sprouts that may still have in stock along with any other foods with which they may have come in contact.

**in primary production.**

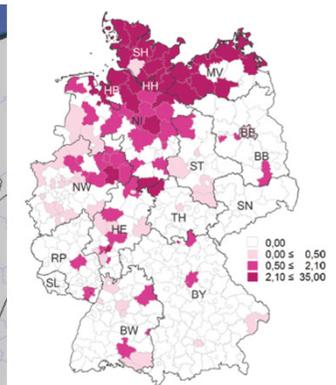
with **sprouts**

**accordance**  
**incidences.**



Sprout distribution

HUS incidences



restaurant was associated with an **8.6-**

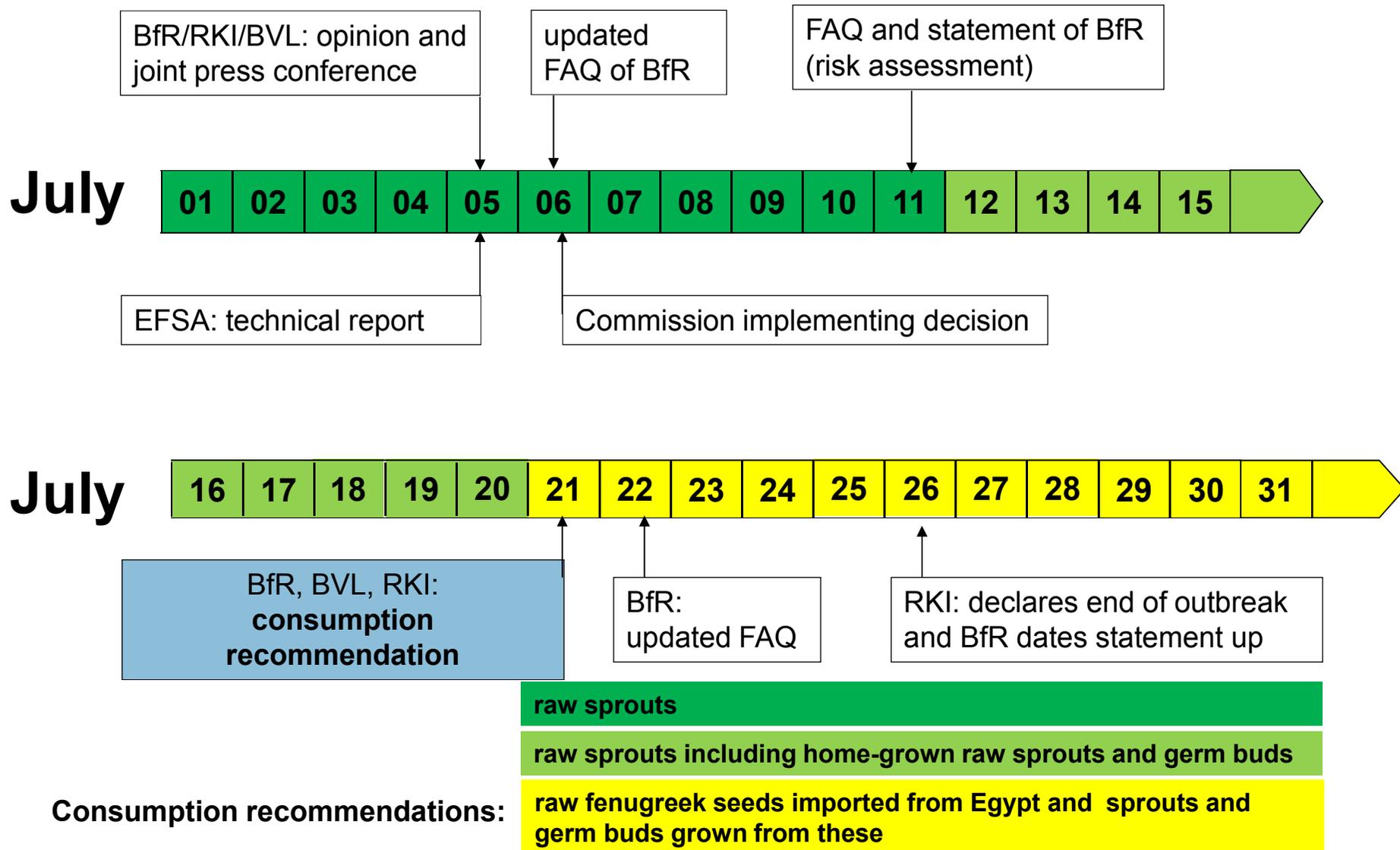
**samples from food operators nor**

## Questions to be answered:

Source of contamination (seeds, humans, animals, water)?

Other vehicles?

# Chronology through the eyes of BfR



# Consumption recommendation of 21 July 2011: regarding fenugreek seeds from Egypt



EHEC: BfR, BVL and RKI issue  
specified consumption  
recommendations for uncooked sprouts  
and shoots (germ buds)

23/2011, 21.07.2011

Consumers should continue to refrain from consumption of raw fenugreek seeds, sprouts and shoots imported from Egypt

According to the German federal authorities, further information made available by the Federal States has provided no grounds to continue to recommend that consumers generally refrain from the raw consumption of sprouts and shoots in order to protect against EHEC O104:H4 infections. The current investigation results provide no indications that other types of seeds besides fenugreek seeds are related to EHEC infections. However, consumers should continue to refrain from the consumption of fenugreek seeds imported from Egypt as well as sprouts and shoots (germ buds) that have been cultivated from these. After the trace back measures have been

eds

ers.

most finished.

ed types.

amples from food operators nor

## Questions to be answered:

Intended uses of suspected fenugreek seeds?

Source of contamination in Egypt (humans, animals, water)?

## Outbreak over?

## Risk Communication

Exchange of information  
about risk between  
assessors and stakeholders



# What about risk communication?

# At least 39 dead from killer bacteria outbreak: Germany

AFP | Jun 17, 2011, 03:44am IST

CNN World

Justice Entertainment Tech Health Living Travel Opinion iReport Money Sports

OUTBREAK

## At least 2 more people die in German E. coli outbreak

June 08, 2011 | By the CNN Wire Staff



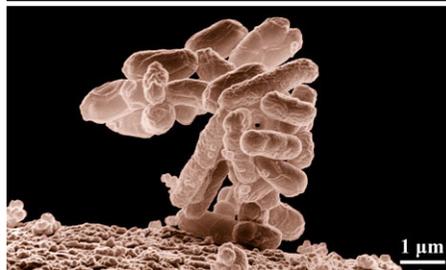
guardian.co.uk

**DATABLOG**  
Facts are sacred

### E coli outbreak: the different effects through the world

E coli figures show the effects of the bacteria through

• [Get the data](#)



The e coli bacterium has spread from Germany, with a total of over 1,600 people infected worldwide. Photograph: Erbe/Pooley/Rex Features

17 June 2011

EDITIONS: CHINA | EUROPE |

# CHINADAILY USA

中國日報

Home | China | US | World | Business | Opinion | Life | C

## China

Politics

### Low risk of EHEC outbreak in China

Updated: 2011-06-07 22:19

(inhua)

## BBC NEWS

### EUROPE

5 June 2011 Last updated at 03:01 GMT

### Signs that E. coli cases are stabilising, say doctors

## SPIEGEL ONLINE

06/10/2011 04:24 PM

### E. Coli Outbreak

### Scientists 'Find EHEC Bacteria at Sprout Farm'

## The Local

SWEDEN'S NEWS IN ENGLISH

### science & technology

Sign up for the editor's weekly newsletter

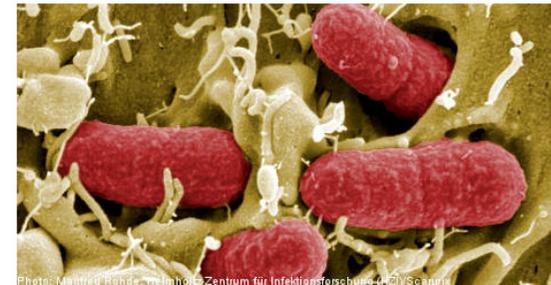


Photo: Manfred Hönke, Leibniz-Zentrum für Infektionsforschung, U.S. Science

### Dog show sparks new Swedish EHEC outbreak

Published: 16 Jun 11 11:10 CET

## Examples from the international press

## Media: example from the press – first information

### Hamburger Institut für Hygiene und Umwelt identifiziert Salatgurken als EHEC-Träger

66 HUS-ERKRANKUNGEN IN HAMBURG - VERDACHT AUF O104 IM EHEC-STAMM DURCH HU BESTÄTIGT

26. Mai 2011



26th May 2011



Hamburg Institute for Hygiene and Environment (HU) identifies cucumbers as contaminated with EHEC

66 HUS-cases in Hamburg - Suspicion of O104 in EHEC strain confirmed by HU

# Media: example from the press - reactions



*“The Spanish salad cucumber is to blame”*



26. Mai 2011

**STERN:** Gurken aus Spanien sind als Träger der Ehec-Keime identifiziert

*“Cucumbers from Spain have been identified as carriers of the Ehec germs”*

Ehec-Erreger

31. Mai 2011 16:15 Uhr

## Spanische Gurken sind unschuldig

Die Welle gefährlicherer Ehec-Keime hat keine Übereinstimmung mit den in Spanien gefundenen Keimen.

*“Spanish cucumbers are innocent”*

zurück. Forscher fanden keine Übereinstimmung mit den in Spanien gefundenen Keimen.

## Media: example from the press – reaction from BfR

"Weltweit größter Ausbruch von EHEC"

MORGENMAGAZIN, 30.05.2011 08:40



Professor Andreas Hensel vom Bundesinstitut für Risikobewertung schätzt die Welle der EHEC-Erkrankungen als "sehr untypisch" ein, da zahlreiche Erwachsene erkrankten. Normalerweise treffe es Kinder.

„ We have indeed found a so-called EHEC pathogen on cucumbers.

But that doesn't mean they're responsible for the entire outbreak now.“

Prof. Dr. Dr. Hensel on TV (morgenmagazin, 30.05.2011 08:40)



# Communication: Media

## Pepinos españoles provocan un brote letal de 'E. coli' en Alemania

- ▶ La infección ha causado al menos tres muertos y cientos de hospitalizaciones
- ▶ Las autoridades europeas apuntan a dos empresas andaluzas como responsables

**EL MUNDO** | Salud Nutrición | Madrid °C

Líder mundial en español | Lunes 06/06/2011. Actualizado 10:56h.

Google Salud

España Mundo Europa Op-Blogs Deportes Economía Vivienda Cultura Toros Ciencia Salud Tecnología Medios TV Multimedia Solidaridad

Portada Cáncer Sida y hepatitis Neurociencia Mujer Biociencia Corazón y diabetes Tecnología Nutrición Código salud Piel sana | elmundo.es AMÉRICA

ORIGEN | Tres muertos

### Un análisis relaciona el brote infeccioso en Alemania con una partida de pepinos españoles



Pepinos en un supermercado de la ciudad de Hamburgo | Reuters | Morris Mac Matzen

- Un análisis señala estas verduras como origen de al menos parte de los casos
- Estarían contaminadas con una cepa especialmente agresiva de 'E. coli'
- 'No se descarta que otros alimentos estén también detrás de la infección'
- En España no se han registrado infecciones. La AESAN pide tranquilidad

1. Los cinco enemigos de la piel en verano

---



---



---



---



---

Ver lista completa

EL PAÍS | SOCIEDAD

EDUCACIÓN MEDIO AMBIENTE IGUALDAD SANIDAD CONSUMO ASUNTOS SOCIALES LAICISMO COMUNICACIÓN

### Alemania culpa a los pepinos españoles de una bacteria mortal

Una peligrosa cepa ha causado la muerte de tres personas y decenas de infecciones intestinales en el norte del país

JUAN GÓMEZ | BERLÍN

26 MAY 2011 - 13:24 CEST

La bacteria que ha causado tres muertes en Alemania salió de pepinos españoles, según las investigaciones de Instituto de Higiene de Hamburgo. La senadora (ministra) de Sanidad de Hamburgo, la socialdemócrata Cornelia Prüfer-Storcks (SPD), ha explicado que los científicos hanseáticos encontraron evidencias de contaminación en tres pepinos importados de España. Uno de ellos era de los llamados "orgánicos". La cepa peligrosa de *Escherichia coli* es una de las denominadas Ehec, tóxica para el ser humano. Ha hecho enfermar en unos 10 días a unas 600 personas en Alemania, de las cuales alrededor de 140 padecen el peligroso síndrome urémico hemolítico, más conocido por el acrónimo inglés HUS. El Instituto de Higiene de Hamburgo tiene un cuarto pepino contaminado cuya procedencia es, de momento, desconocida. Los resultados dados a conocer hoy deberán completarse con nuevos estudios. La senadora advirtió además de que "puede que otros productos estén también infectados".



Imagen tomada por un microscopio de una bacteria tipo EHEC, cepa peligrosa de la 'Escherichia coli', facilitada por el Centro de Investigación de Infecciones Helmholtz

NEWSLETTER  
Reciba la mejor información en tu bandeja de entrada

## Contaminación por estiércol

R. S.

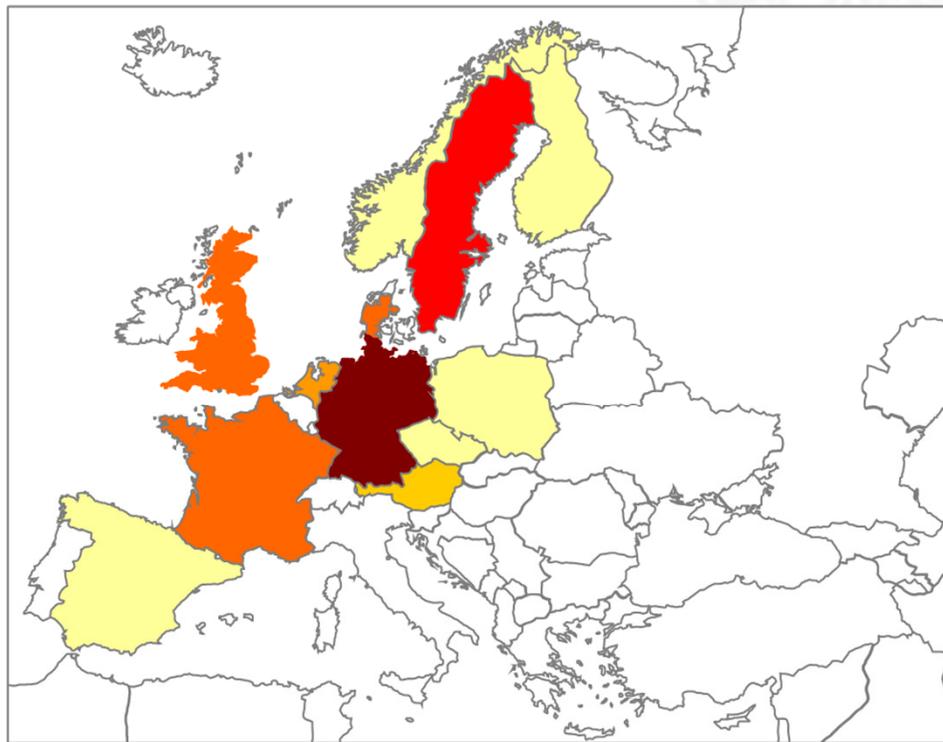
Es una de los cientos de cepas de la 'Escherichia coli', bacteria intestinal habitualmente inocua en el estómago de ruminantes y que se contagia a través de la leche o las heces. Produce una potente toxina que ocasiona el síndrome urémico hemolítico, con dolores intestinales agudos, diarrea sanginolenta, y en el transcurso de pocas horas insuficiencia renal o anemia. La particularidad de esta cepa es la rapidez de su desarrollo y transmisión. El Instituto Robert Koch de Berlín considera que se está transmitiendo a través de alimentos crudos abonados con estiércol, lo que apunta a los productos bio. No obstante, los expertos de este centro de investigación han subrayado que por el momento no está clara la causa del contagio. En este sentido, un portavoz ha subrayado que podría haber otras vías de contagio, como el agua.



# The real crisis

## EHEC CRISIS: CASES NUMBER EHEC

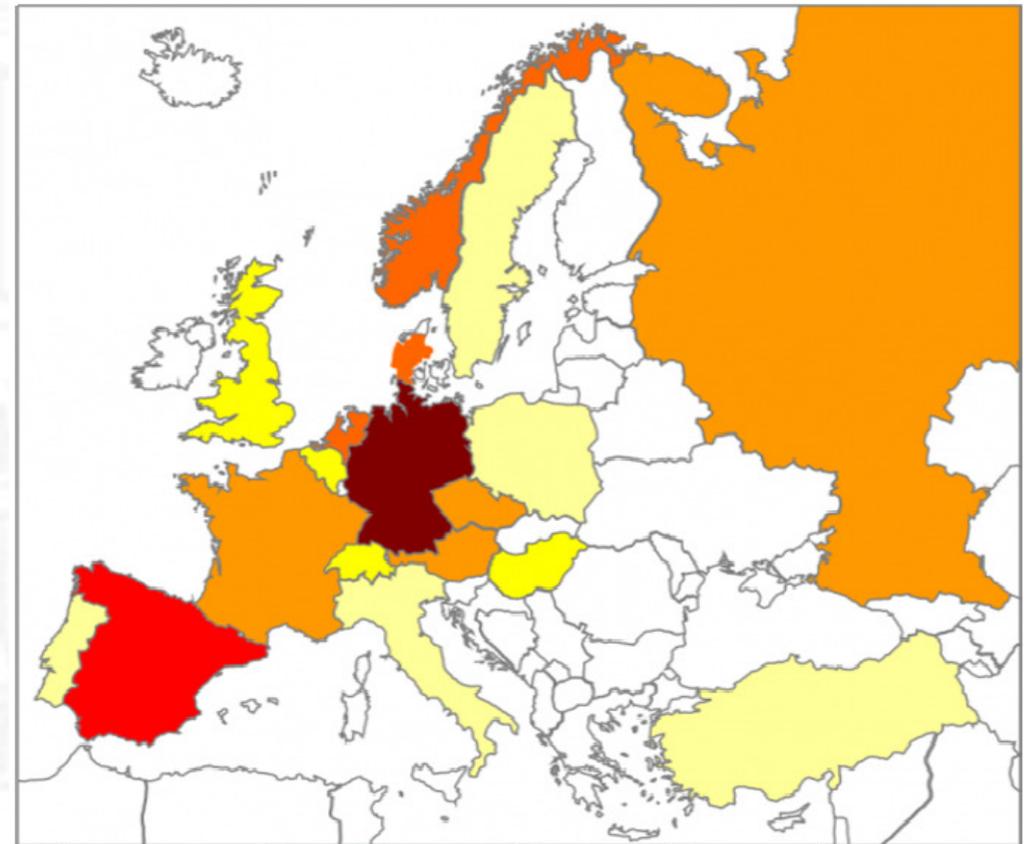
E Coli Crisis by Number of Reported Cases (4 June 2011)



By MRI Universidad de Navarra  
(source ECDC)

## EHEC CRISIS: MEDIA IMPACT

E Coli Crisis by Media Impact Index (2 June 2011)

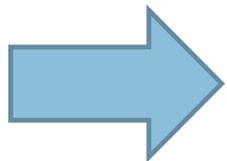


By MRI Universidad de Navarra

# Conclusions regarding investigation and risk assessment

## High requirements:

- clear competences and communication paths
- multidisciplinary outbreak investigation team
- joint analysis of investigation results
- adequately qualified staff
- adequate laboratory capacities
- appropriate analysis methods
- appropriate information management systems



**MRA** is a **challenge** in the light of **data lacks**,  
an **ongoing outbreak** and the **media pressure**



# Conclusions or: What went wrong?

- ✓ Loss of confidence in RASFF
- ✓ Politics
- ✓ Media driven crisis
- ✓ Difficulties to identify this pathogen





# Impact and Consequences

## Consumers:

- ✓ Loss of confidence in the competent authorities because of the different messages provided by Spain and Germany.
- ✓ Low consumption of salads, cucumbers and raw tomatoes regardless of their origin.

## Sector:

- ✓ Damage of the image of the fresh vegetable products (MARCA ESPAÑA)
- ✓ Economic losses up to millions of euro per day
- ✓ Thousands of jobs lost
- ✓ Andalusia and, in particular, the province of Almeria, was the most affected region, which exports more than 62% of its fruit and vegetable production and sells more than 40% of the vegetables exported by Spain.

## Trade:

- ✓ Massive trade restrictions for European vegetables : Russian Federation, USA, Ukraine and Saudi Arabia banned the trade of vegetables.

# Impact and Consequences

## SECTOR: Exceptional measures

### 47 millions of euro:

- Andalucía (32, 97 millions),
- Murcia (7,68 millions),
- Valencia (4,61 millions),
- Navarra (706.448 euros),
- Extremadura (279.246 euros),
- Canarias (260.751 euros),
- Baleares (236.015 euros),
- Castilla-La Mancha (137.178 euros),
- Cataluña (33.131 euros),
- Aragón (2.761 euros), y Castilla y León (2.515 euros).

» Noticias » Economía

### La UE concede a España 3,5 millones de euros adicionales por la crisis de pepino

- ▶ El dinero financiará la mitad de los programas de promoción
- ▶ Se animará a consumir alimentos con denominación de origen

18.11.2011 | actualización 12:45 horas | Por RTVE.es/AGENCIAS



# Lessons learned at European level – sprouts related



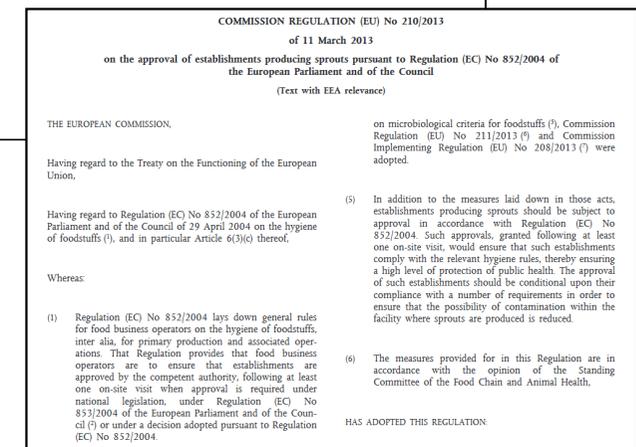
Implementing **Regulation (EU) No 208/2013** ... on **traceability** requirements for sprouts and seeds intended for the production of sprouts

**Regulation (EU) No 209/2013** ... as regards **microbiological criteria** for sprouts

**Regulation (EU) No 210/2013** ... on the **approval** of **establishments** producing sprouts

**Regulation (EU) No 211/2013** ... on **certification requirements** for **imports** into the Union of **sprouts** and **seeds** intended for the production of sprouts

**Missions** from de HFAA unit of the Commission to **gather information** about **sprouts productions**



# Lessons learned at European level

- ✓ EFSA prioritized the work on the risk of pathogens in food of non-animal origin (FoNao) in coordination with ECDC (Listeria)
- ✓ Regular use and standardization of Rapid Outbreak Assessments (ROA) by EFSA and ECDC
- ✓ Publication of several scientific opinions of FoNao



European Food Safety Authority

EFSA Journal 2013;11(11):3075

## SCIENTIFIC OPINION

Scientific Opinion on the risk posed by pathogens in food of non-animal origin. Part 1 (outbreak data analysis and risk ranking of food/pet combinations)<sup>1</sup>

EFSA Panel on Biological Hazards (BIOHAZ)<sup>2,3</sup>

European Food Safety Authority (EFSA), Parma, Italy



European Food Safety Authority

EFSA Journal 2014;12(6):3706

## SCIENTIFIC OPINION

Scientific Opinion on the risk posed by pathogens in food of non-animal origin. Part 2 (*Salmonella* and Norovirus in berries)<sup>1</sup>

EFSA Panel on Biological Hazards (BIOHAZ)<sup>2,3</sup>

European Food Safety Authority (EFSA), Parma, Italy



JOINT ECDC-EFSA RAPID OUTBREAK ASSESSMENT

# Lessons learned at European level

## Training

- ✓ BTSF trainings on Food borne outbreaks.
- ✓ BTSF on hygiene of primary production



## Analytic

- ✓ Efforts on the development of the analytical technics for pathogens in Food of non-animal origin (proficiency test, methods and validation by the EURLs)
- ✓ **WHOLE GENOME SEQUENCE** Data molecular database to link human, food and animal isolates

Whole genome sequencing in food safety: the state of play



EFSA has published two reports which provide a picture of how whole genome sequencing (WGS) can be used in food safety and how extensively such techniques are used in Europe.



# Lessons learned at European level – crisis related

- ✓ **Commission implementing Decision 2019/300, to establish a general plan for crisis management in the field of safety of food and feed.**
- ✓ **Reactivate the EU crisis coordinator group (periodical meetings, audios to share good practices, etc.).**
- ✓ **Intersectorial preparedness exercises on outbreak coordination and response involving Public Health and Food Safety (EDESIA y JIFEE).**

21.2.2019

ES

Diario Oficial de la Unión Europea

L 50/55

DECISIÓN DE EJECUCIÓN (UE) 2019/300 DE LA COMISIÓN

de 19 de febrero de 2019

por la que se establece un plan general para la gestión de crisis en el ámbito de la seguridad de los alimentos y los piensos

(Texto pertinente a efectos del EEE)

## Lessons learned at national level



**Revisions** of the **national rules** on **cooperation** between health and food control authorities

New federal-Länder **agreement** for **crisis management**

**Update** of consumer **recommendations**

Further development of **software tools**

**Ring trials** and **proficiency** tests

**Research projects** on pathogens in plant based food

Improvement of **detection methods**

Additional Nomination of the University of Santiago de Compostela as National Reference Laboratory (**NRL**) for **E. coli**

**Updated** of the national **Crisis Management** and **Communication Procedures**

**Reinforcing** the **collaboration agreements** between national **Public Health** and **Food safety authorities**



## Thank you for your attention

Dr. Anja Buschulte (BfR) and Dr. Milagros Nieto (AESAN)

German Federal Institute for Risk Assessment  
Max-Dohrn-Str. 8–10 • 10589 Berlin, GERMANY  
Phone +49 30 - 184 12 - 24102  
anja.buschulte@bfr.bund.de • www.bfr.bund.de/en

**LARAS**  
LATIN AMERICAN  
RISK ASSESSMENT  
**SYMPOSIUM**

