Zoonoses in EU, trends, achievements and current developments

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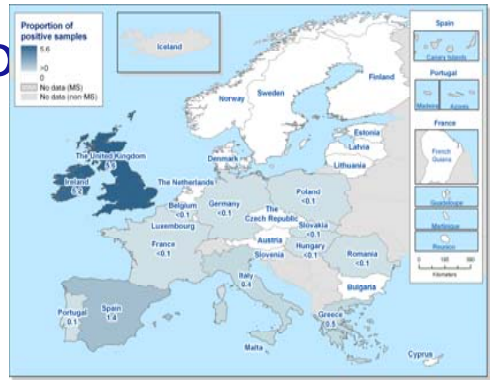
Biological monitoring unit

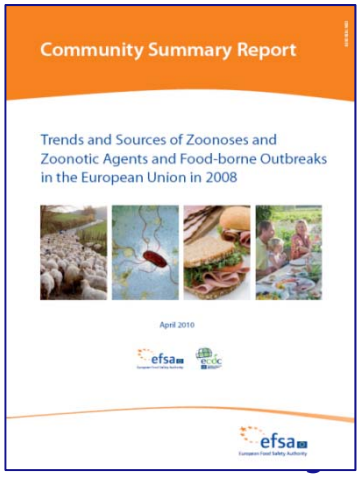
EFSA's activities related to zoonoses and food-borne diseases

- Biological Hazard (BIOHAZ) panel and unit provides for scientific opinions
- Biological Monitoring (BIOMO) Unit collects and analyses data from the Member States
- Most relevant items addressed by BIOHAZ and BIOMO are currently
  - *Salmonella*, *Campylobacter*, *TSEs*, *Listeria monoc*
    Trichinella
  - Modernisation of meat inspection as regards biological hazards
  - Rapid risk assessments of food-borne outbreaks

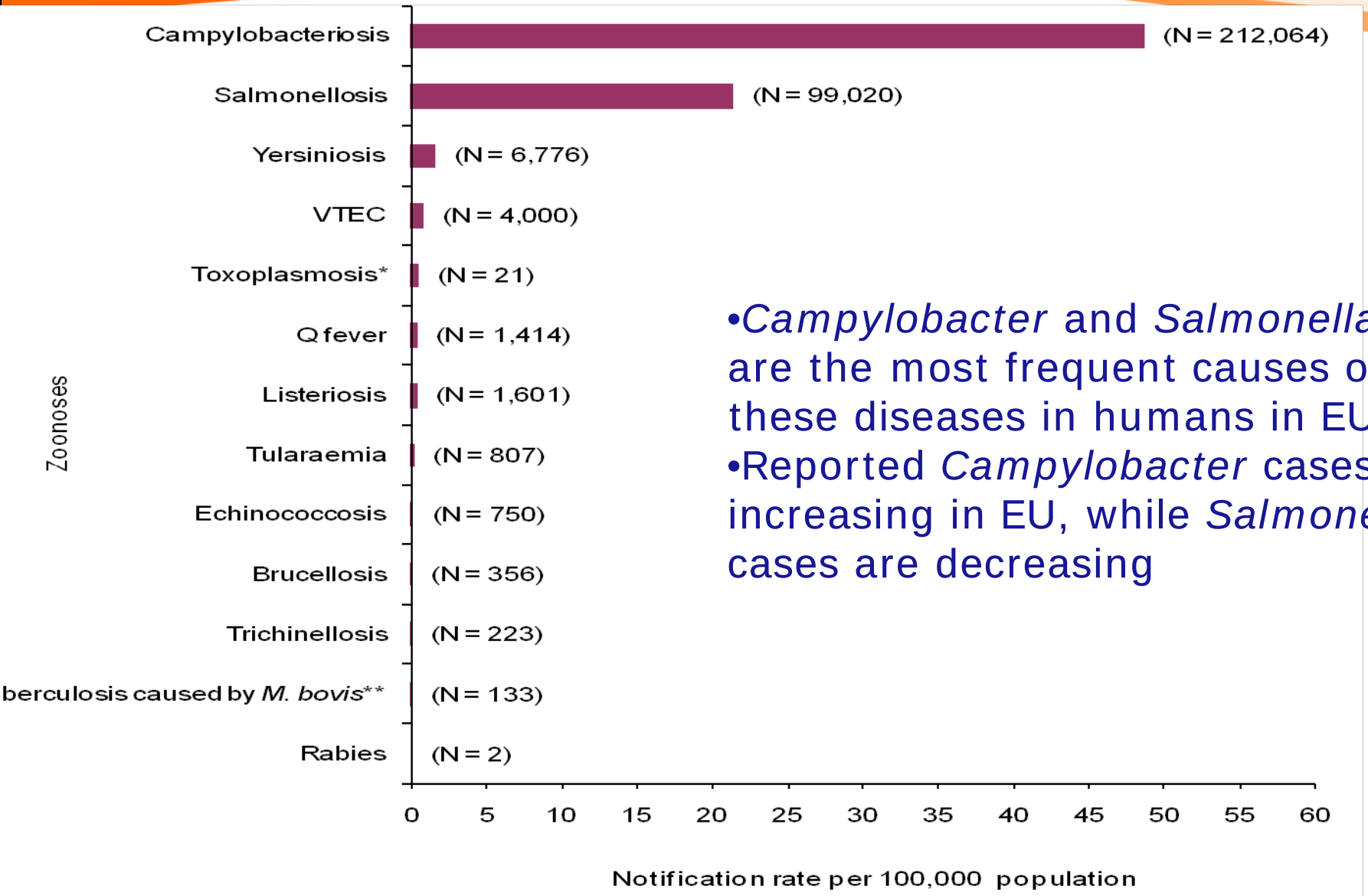
Monitoring of zoonoses and food-borne outbreaks in EU

- Based on harmonised EU legislation
- Member States are obliged to monitor zoono and food-borne outbreaks and to report to EU Commission (and EFSA)
- The data is used to support risk assessments and risk management
- EU Summary reports prepared annually in collaboration between EFSA and the European Centre for Disease Prevention and Control (ECDC) that provides for data from humans informs about the current situation, developments and trends



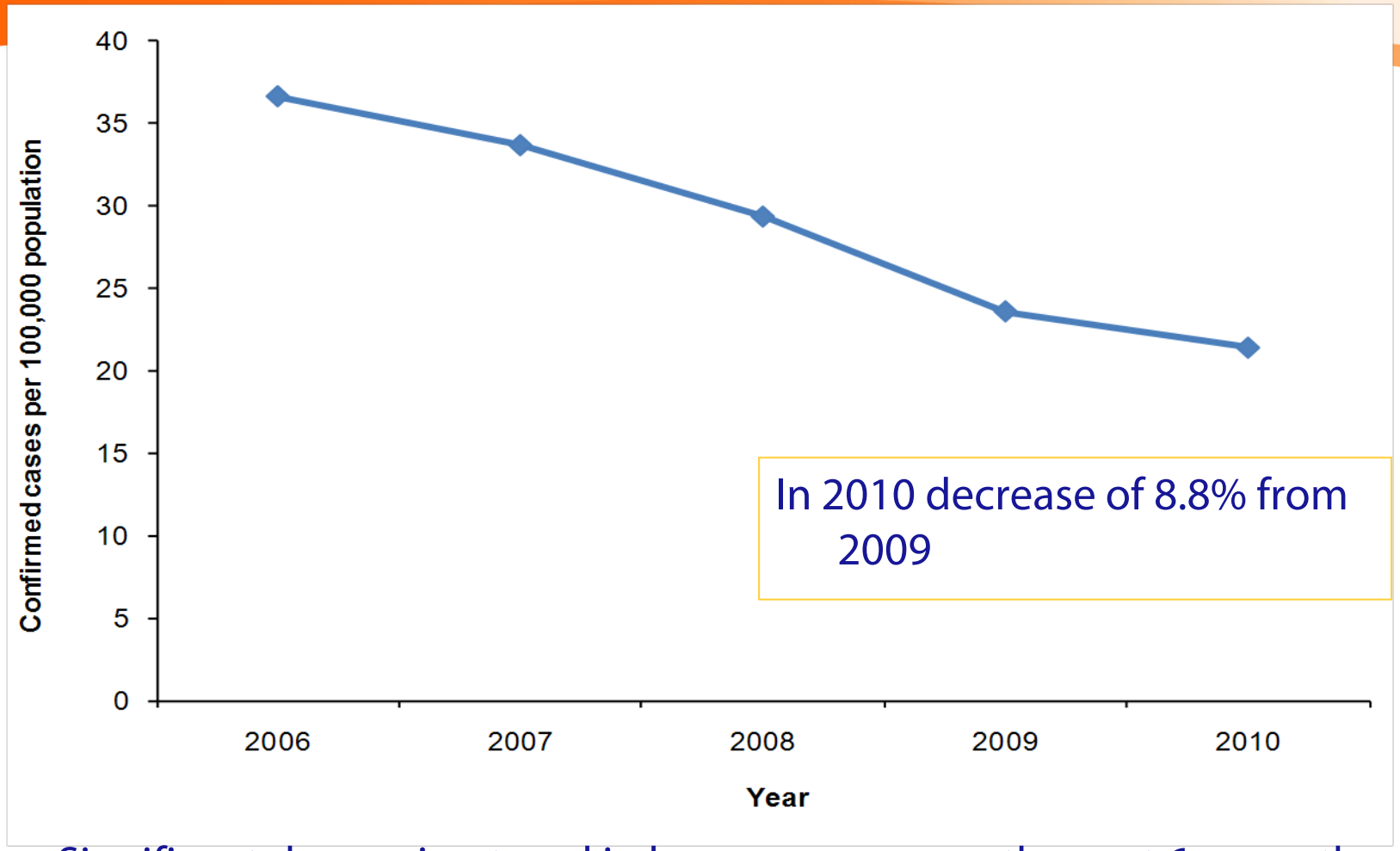


Human cases of zoonoses in EU, EUSR , 2010



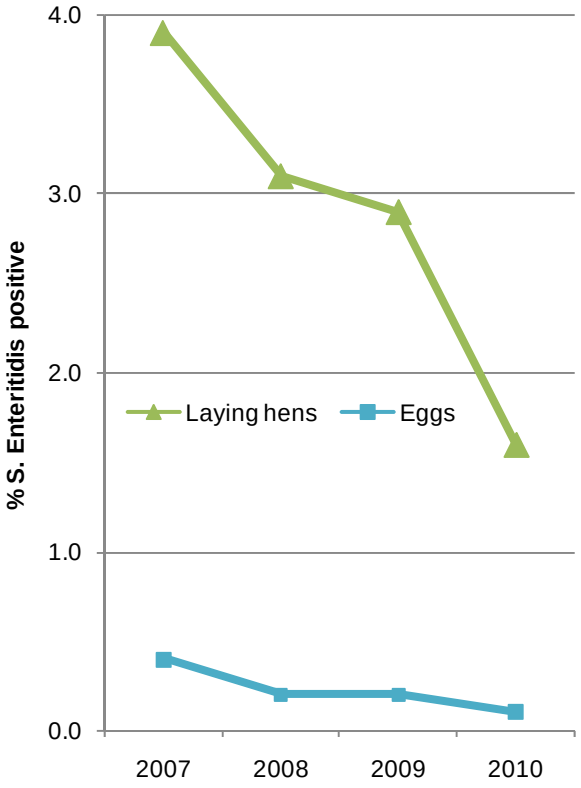
- *Campylobacter* and *Salmonella* are the most frequent causes of these diseases in humans in EU
- Reported *Campylobacter* cases are increasing in EU, while *Salmonella* cases are decreasing

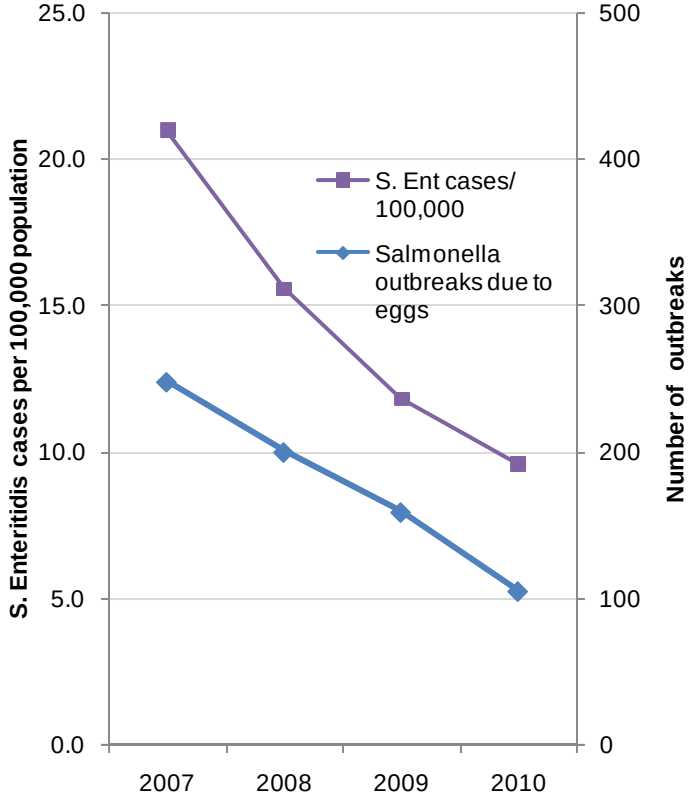
Human *Salmonella* cases in EU, 2006-2010



Significant decreasing trend in human cases over the past 6 years, the number of cases decreased almost by 50**%,** at the same *Salmonella* declined in poultry population (due to control programmes)

Salmonella Enteritidis is declining in humans, laying hens and eggs in EU, 2007-2010 – a success story!

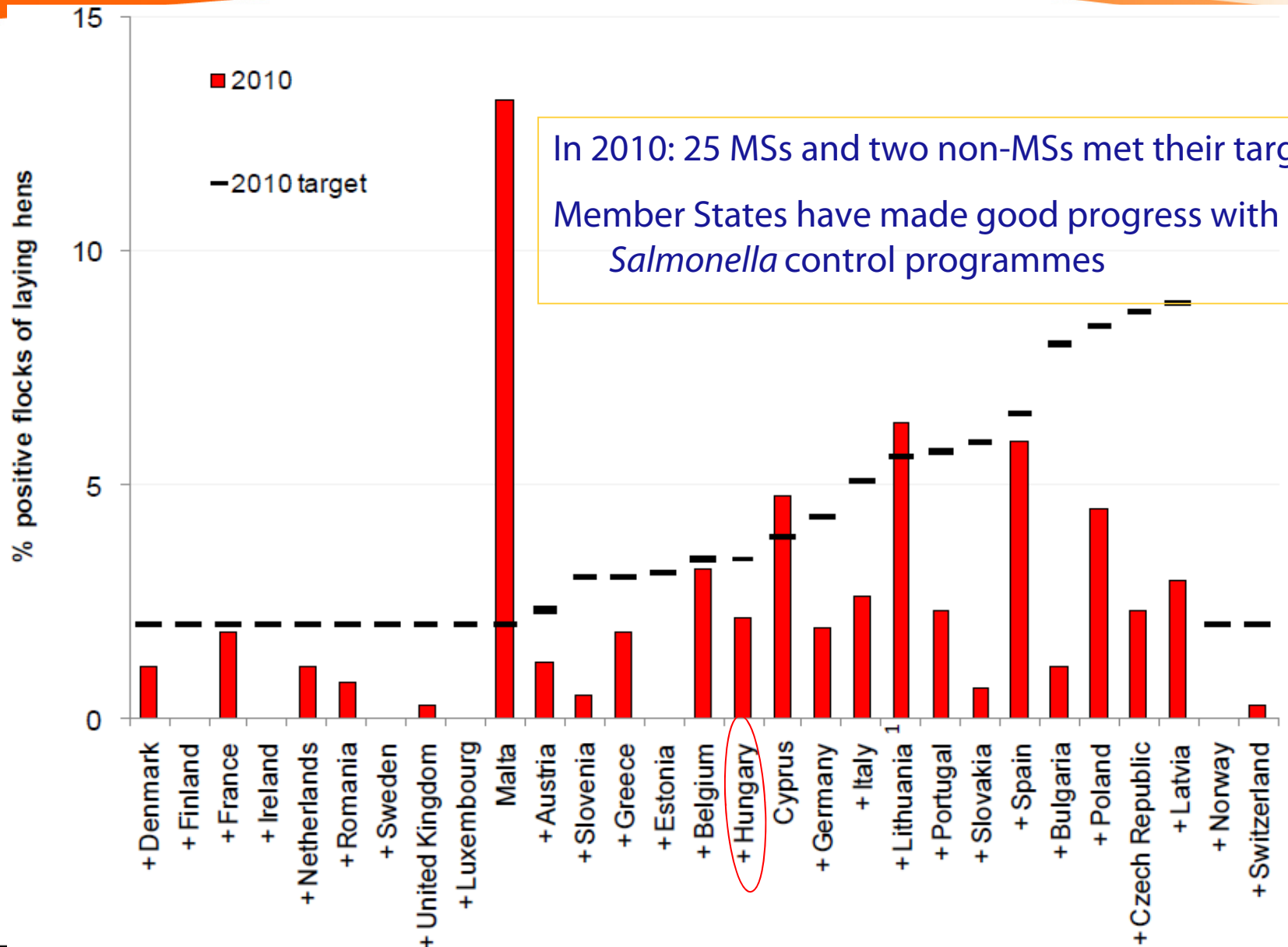




-Eggs have been the main source of human *Salmonella* cases in EU and *S.* Enteritidis the main serovar in laying hens, eggs and humans

-The control of S. Enteritidis in poultry is the likely reason for the decrease in human cases

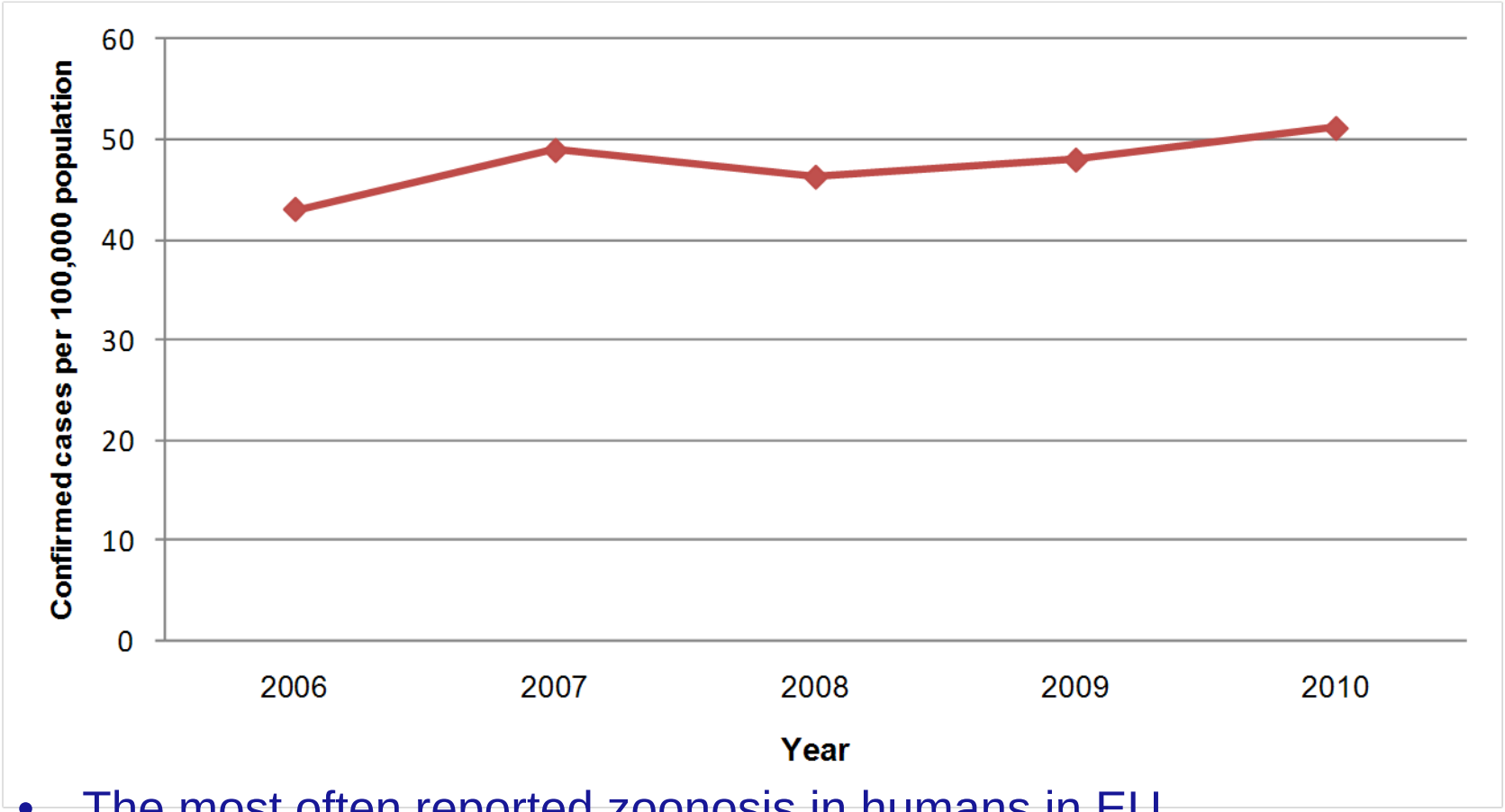
Meeting EU *Salmonella* reduction target in laying hen flocks in EU Member States, 2010, EUSR



In 2010: 25 MSs and two non-MSs met their targets

Member States have made good progress with *Salmonella* control programmes

Human *Campylobacter* cases in EU, 2006-2010

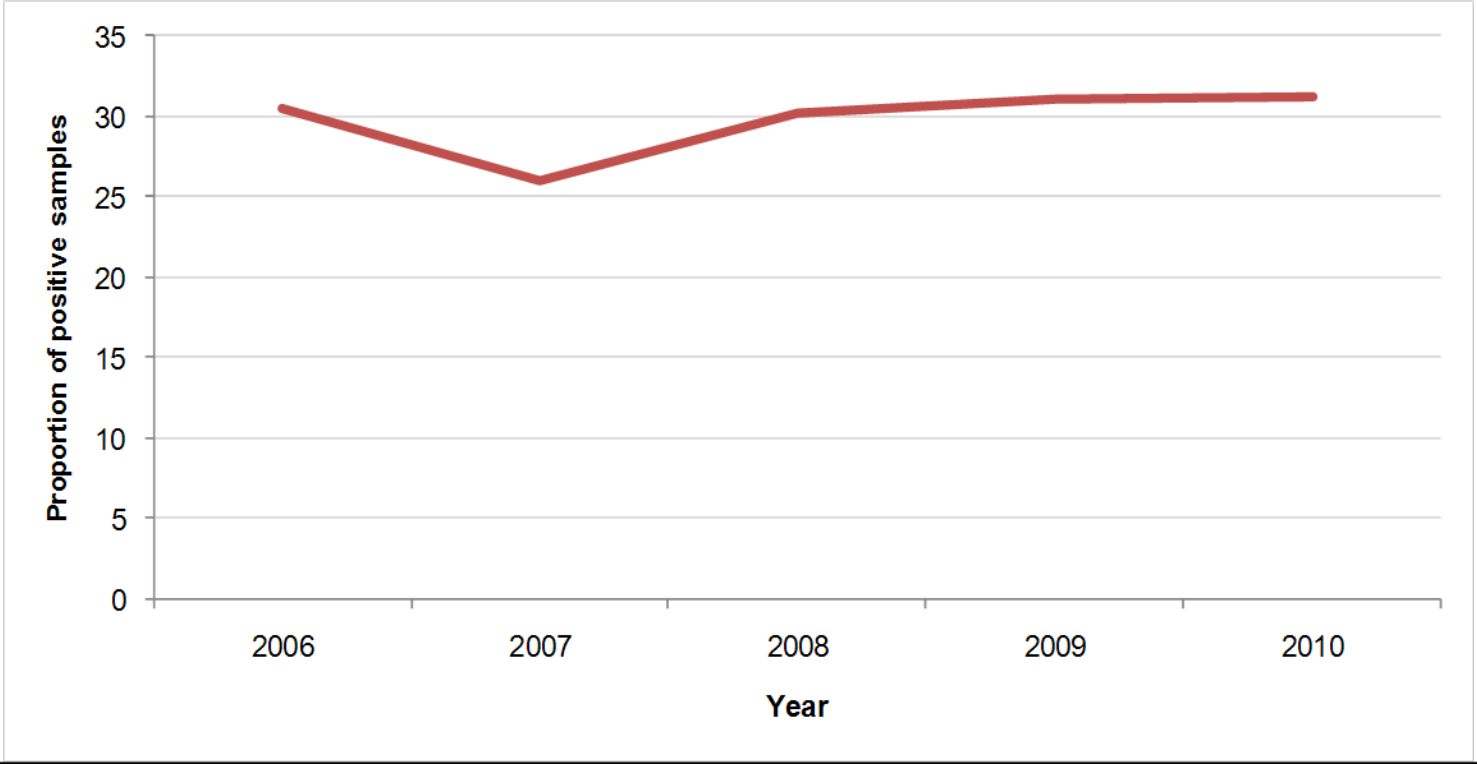


- The most often reported zoonosis in humans in EU
- The EU notification rate of cases of campylobacteriosis has a significant increasing trend in the last five years (2006-2010), more evident since 2008

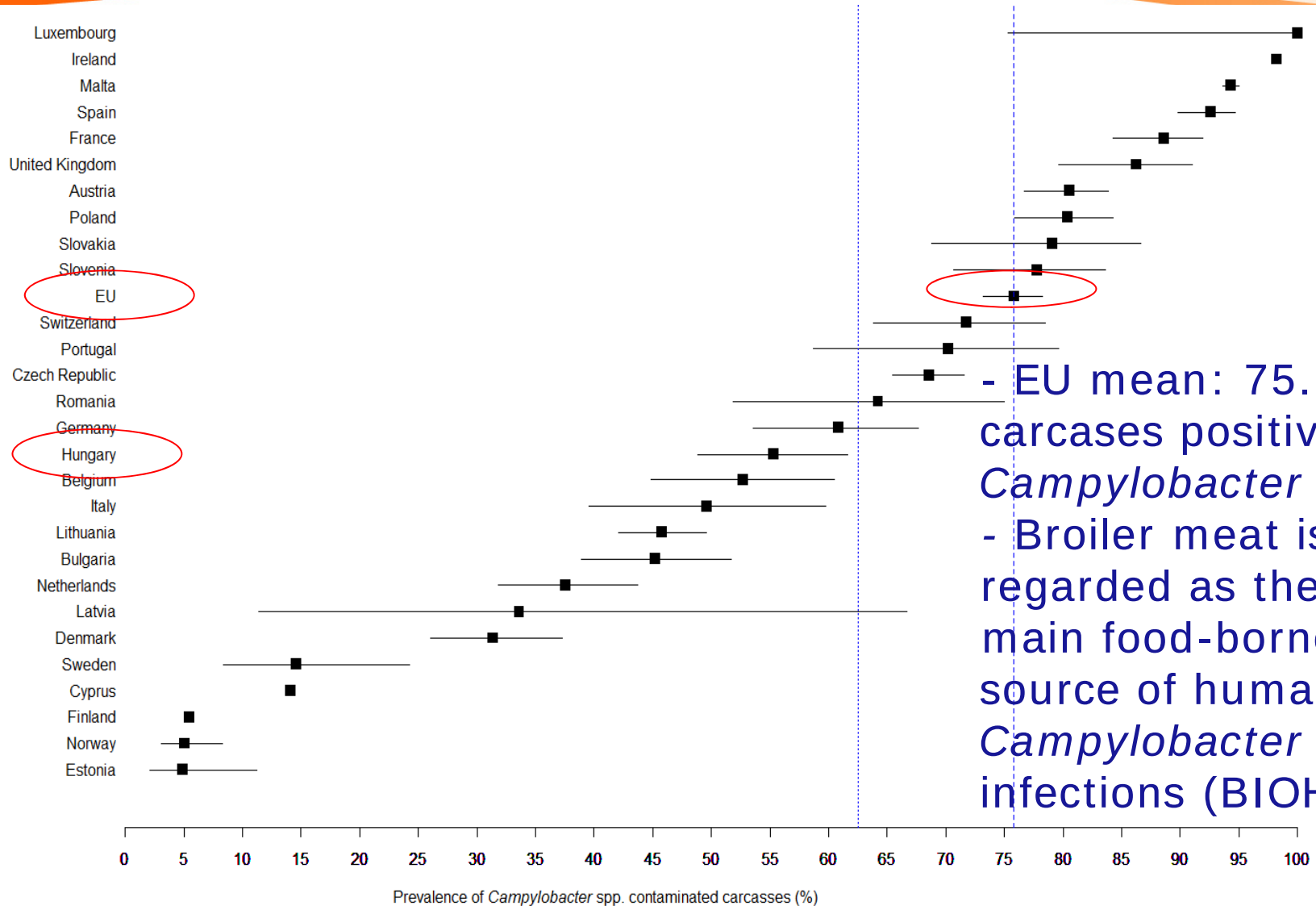
Campylobacter in food in EU, 2006-2010

- ***Campylobacter*** is most frequently reported in **fresh broiler meat** among foodstuffs, around 30% of samples reported positive each year

- The overall proportion of *Campylobacter*-positive broiler meat samples has remained at a **high level** in the reporting MSs group since 2006



Campylobacter in broiler carcasses in EU and the Member States, EU survey 2008



- EU mean: 75.8% carcases positive for *Campylobacter*
- Broiler meat is regarded as the main food-borne source of human *Campylobacter* infections (BIOHAZ)

Campylobacter in broilers

- **Scientific Opinion from BIOHAZ panel** on "*Campylobacter* in broiler meat production: control options and performance objectives and/or targets at different stages of the food chain" issued in 2009
- **A cost-benefit analysis** is presently being carried out on the initiative of the Commission in relation to measures for the control of *Campylobacter* in the broiler meat chain

- These documents will guide the risk managers in considering appropriate **measures** for the control of *Campylobacter* in broilers and broiler meat at EU level

European Food Safety Authority

EFSA Journal 2011; 9(4):2105

SCIENTIFIC OPINION

Scientific Opinion on *Campylobacter* in broiler meat production: control options and performance objectives and/or targets at different stages of the food chain[1]

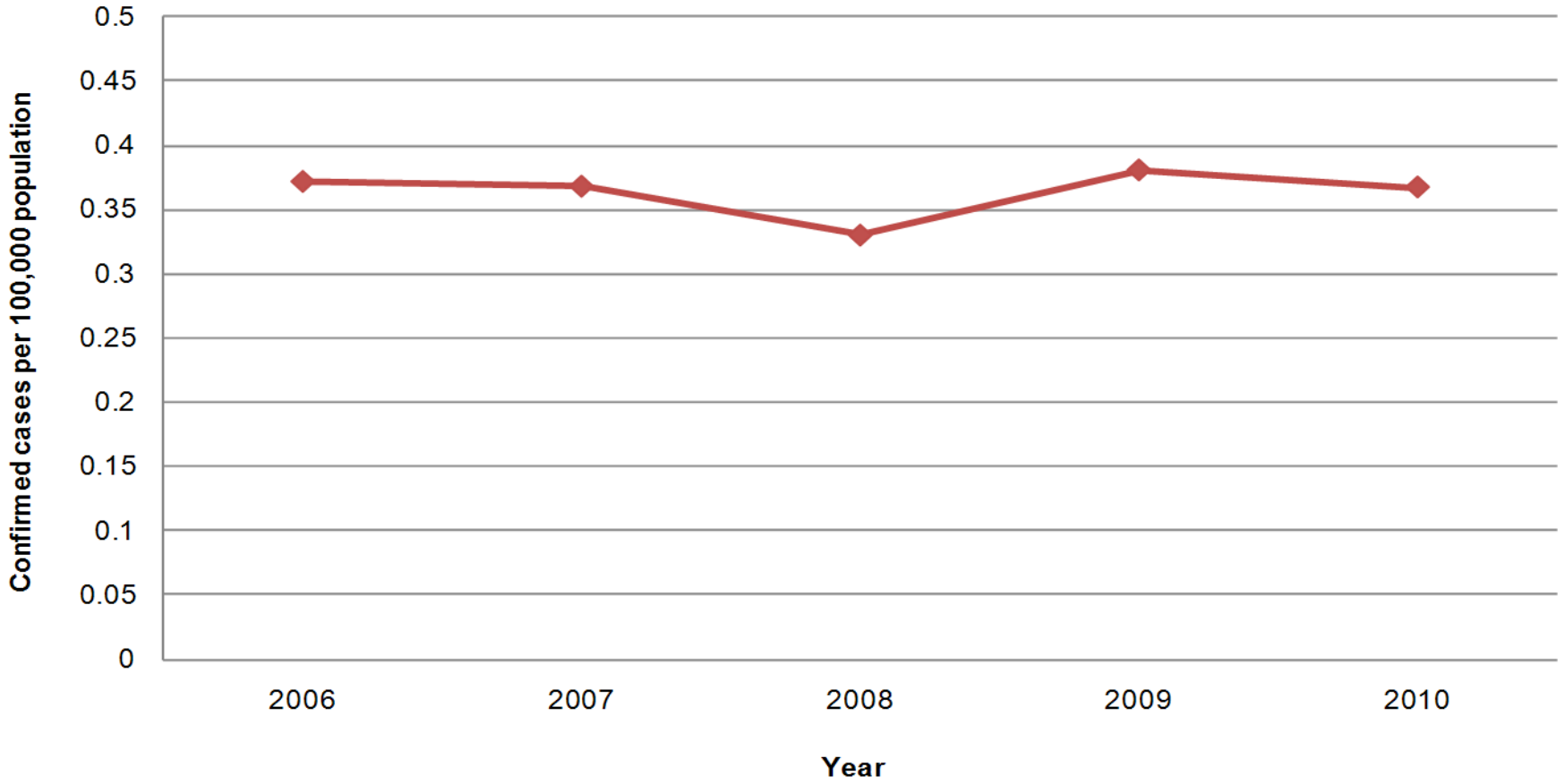
EFSA Panel on Biological Hazards (BIOHAZ)[2, 3]

European Food Safety Authority (EFSA), Parma, Italy

ABSTRACT

It is estimated that there are approximately nine million cases of human campylobacteriosis per year in the EU27. The disease burden of campylobacteriosis and its sequelae is 0.35 million disability-adjusted life years (DALYs) per year and total annual costs are 2.4 billion €. Broiler meat may account for 20% to 30% of these, while 50% to 80% may be attributed to the chicken reservoir as a whole (broilers as well as laying hens). The public health benefits of controlling *Campylobacter* in

Listeriosis in humans in EU, 2006-2010

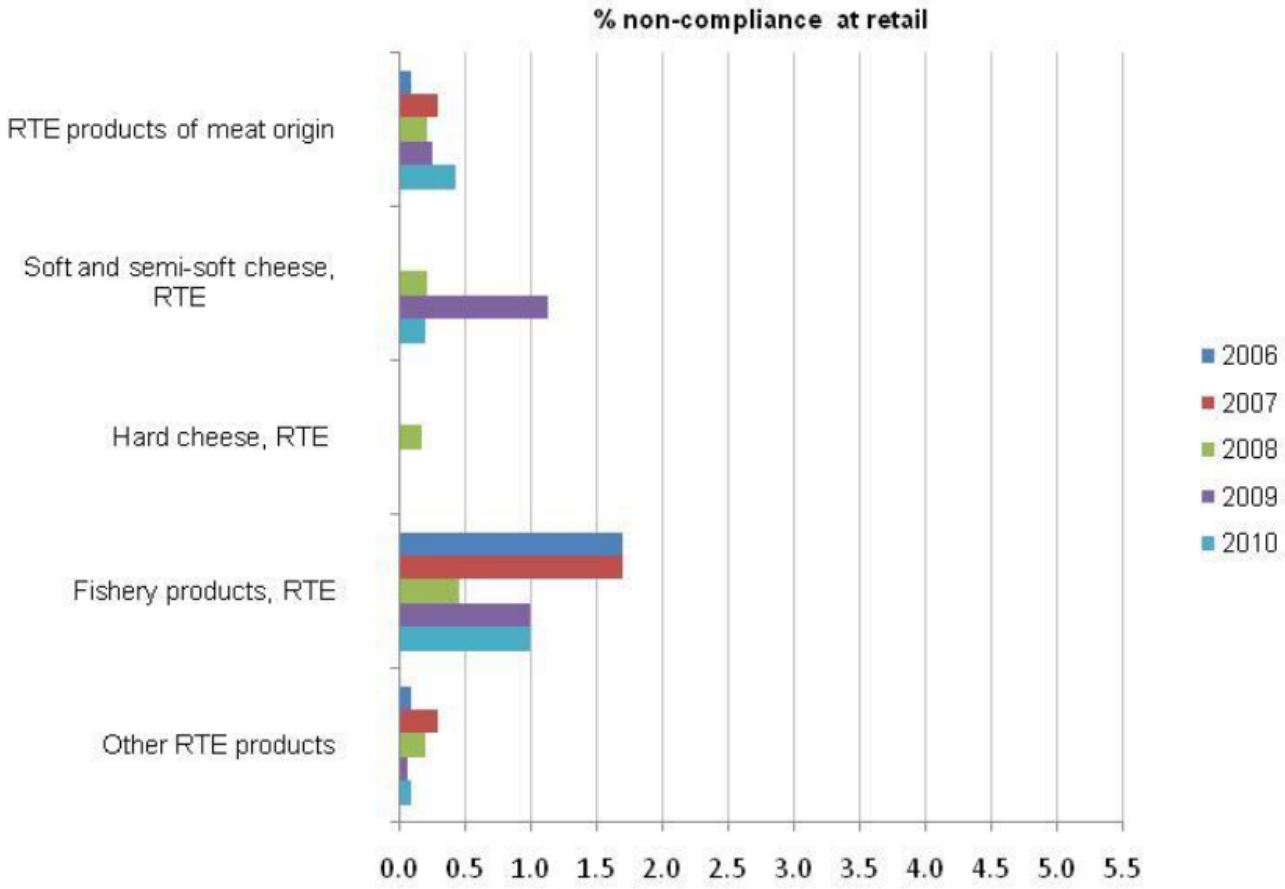


- High case fatality rate of 17 % in humans, listeriosis cases increasing in some Member States
- The highest notification rate in those aged over 65 years: covering 60 % of the reported cases

L. monocytogenes in ready-to-eat foods (RTE)

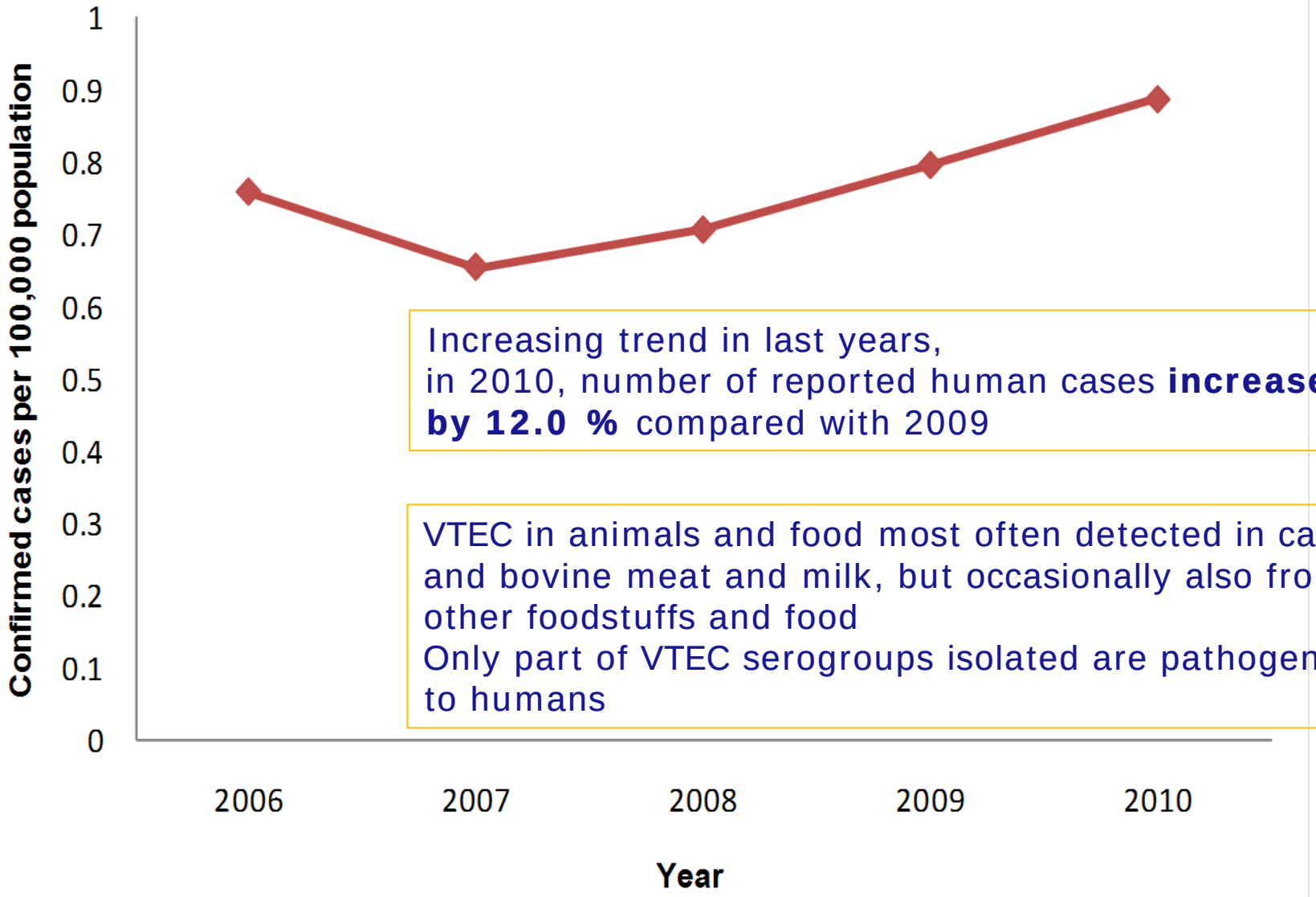
Samples exceeding the EU safety criterion of 100 cfu/g mainly found in RTE fishery products, cheeses and RTE meat products

An EU wide baseline survey on *Listeria* in these RTE products carried out in 2010-11, EFSA in process of analysing the results



ECDC, EFSA and EU Reference Laboratory for *Listeria* intend also to compare the PFGE profiles of the baseline survey *Listeria* isolates and human cases isolates ➡ indications which foods are the most important sources of human infection

VTEC cases in humans in EU, 2006-2010

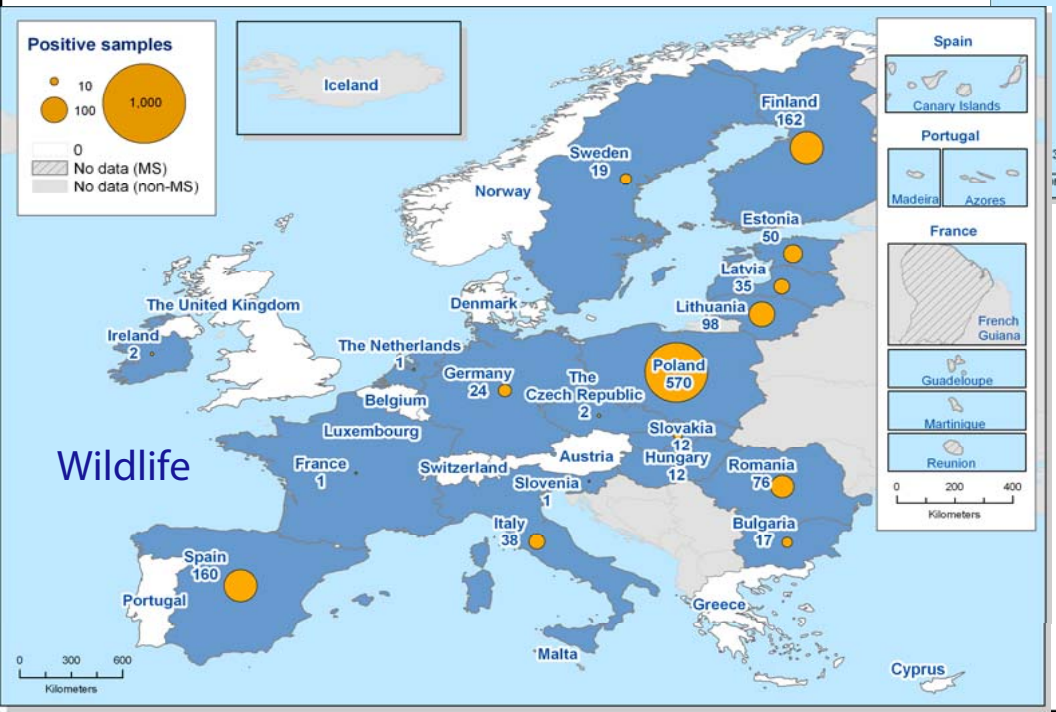


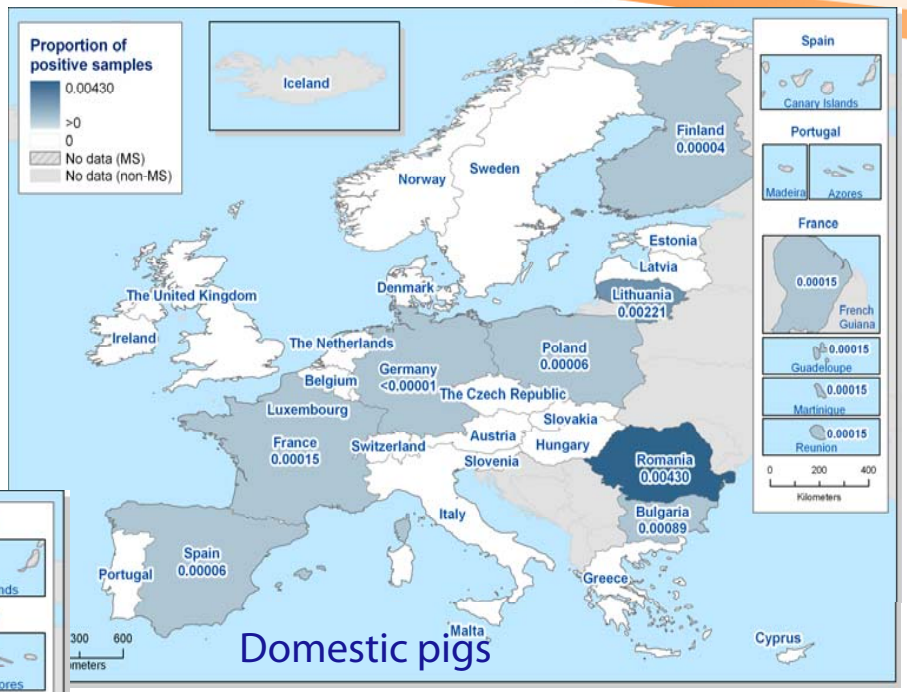
Increasing trend in last years,
in 2010, number of reported human cases **increased by 12.0 %** compared with 2009

VTEC in animals and food most often detected in cattle and bovine meat and milk, but occasionally also from other foodstuffs and food
Only part of VTEC serogroups isolated are pathogenic to humans

Trichinella in humans and animals in EU, 2010

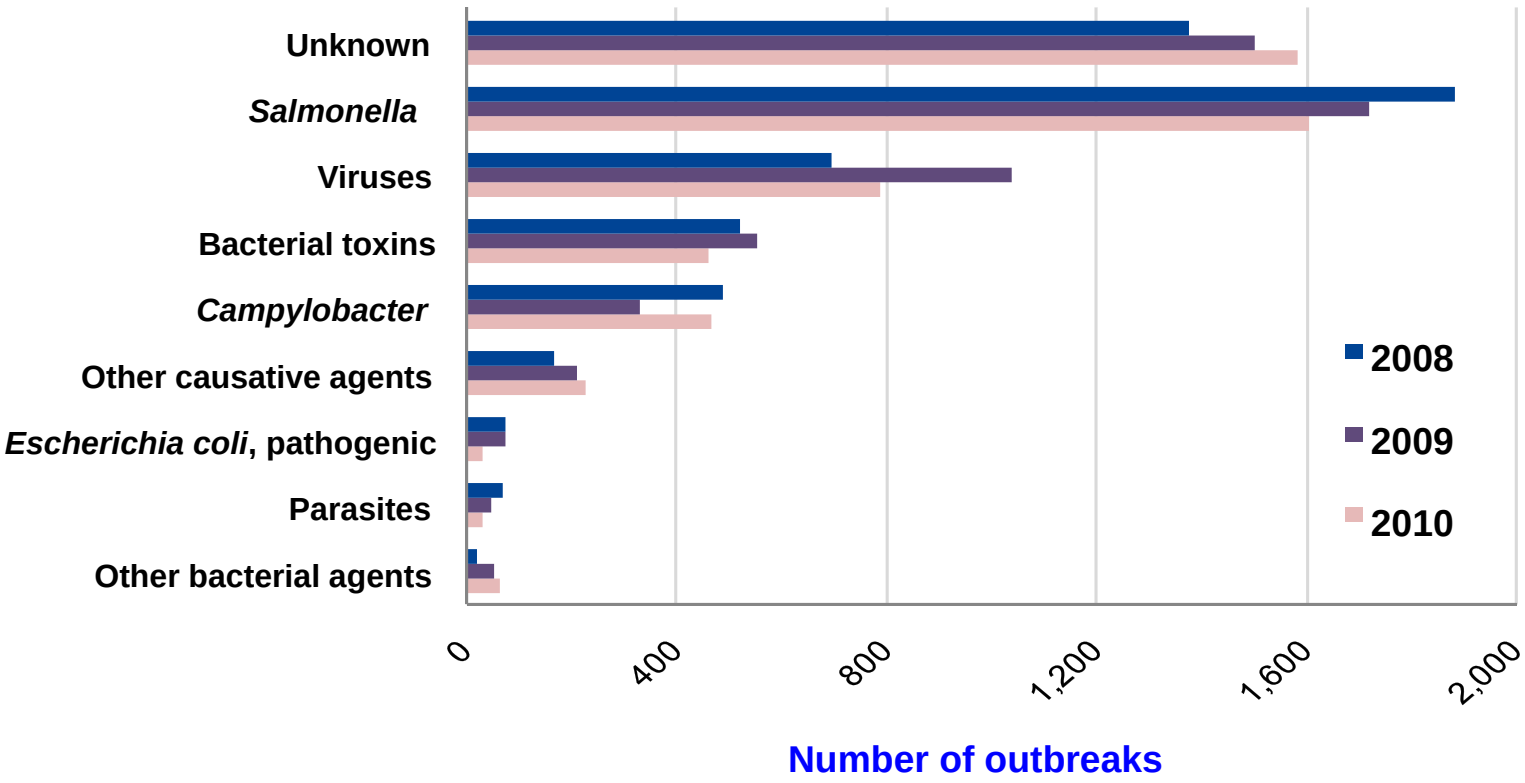
- Trichinellosis cases in humans declined in EU, 223 cases in 2010
- *Trichinella* seldom detected in domestic pigs and numbers of positive pigs decreased since 2008
- More common in wildlife





EFSA's opinion on meat inspection of pig has recommended a risk based testing of *Trichinella* and risk categorisations of the slaughter batches

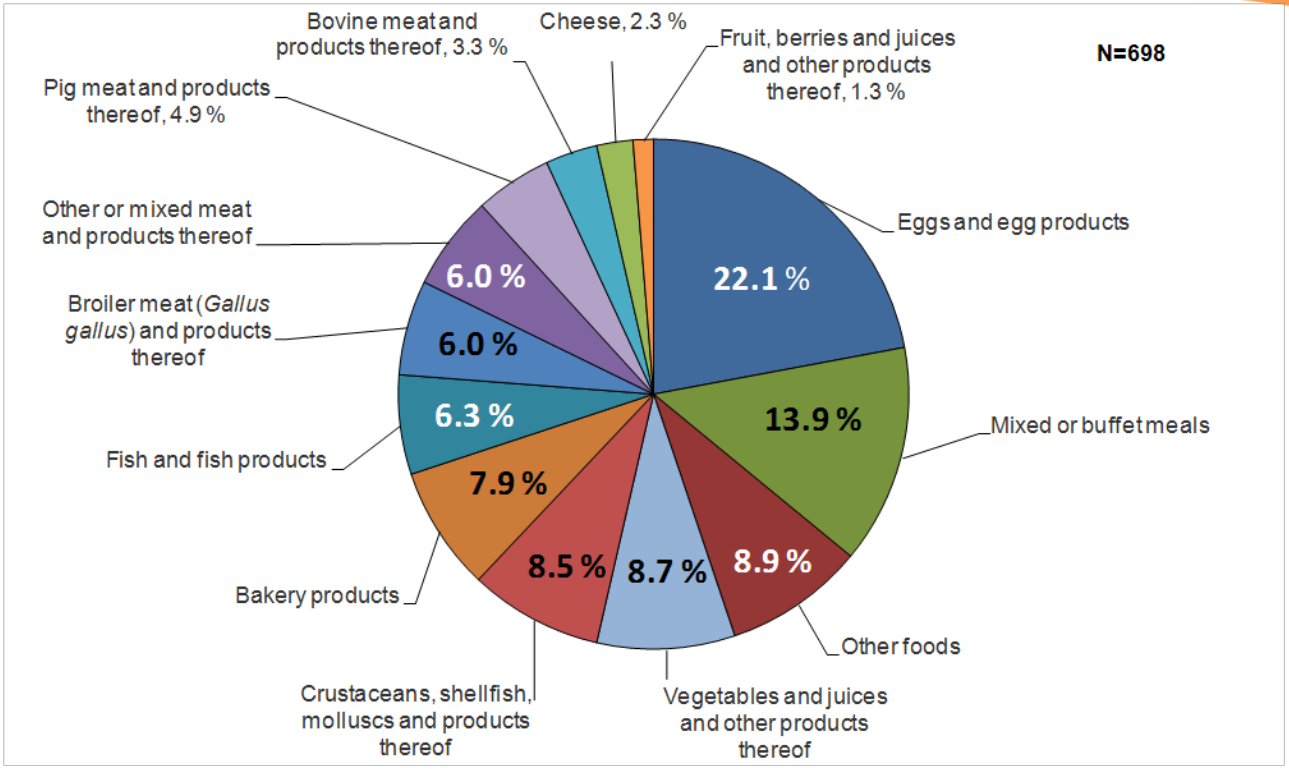
Foodborne outbreaks reported in EU, 2008-2010, EUSR



In total 5,262 foodborne outbreaks reported in EU in 2010; with 43,473 human cases and 25 deaths. Main causative agents: *Salmonella* (30%), viruses (15%) and *Campylobacter* (8.9%)

Salmonella outbreaks declining over the years

Food vehicles in 2010 food-borne outbreaks, EUSR



Main food vehicle categories were eggs and egg products (22%), mixed and buffet meals (14%), vegetables and products thereof (8.7%), crustaceans, shellfish and products thereof (8.5%)

EFSA's role in food-borne outbreak risk assessments

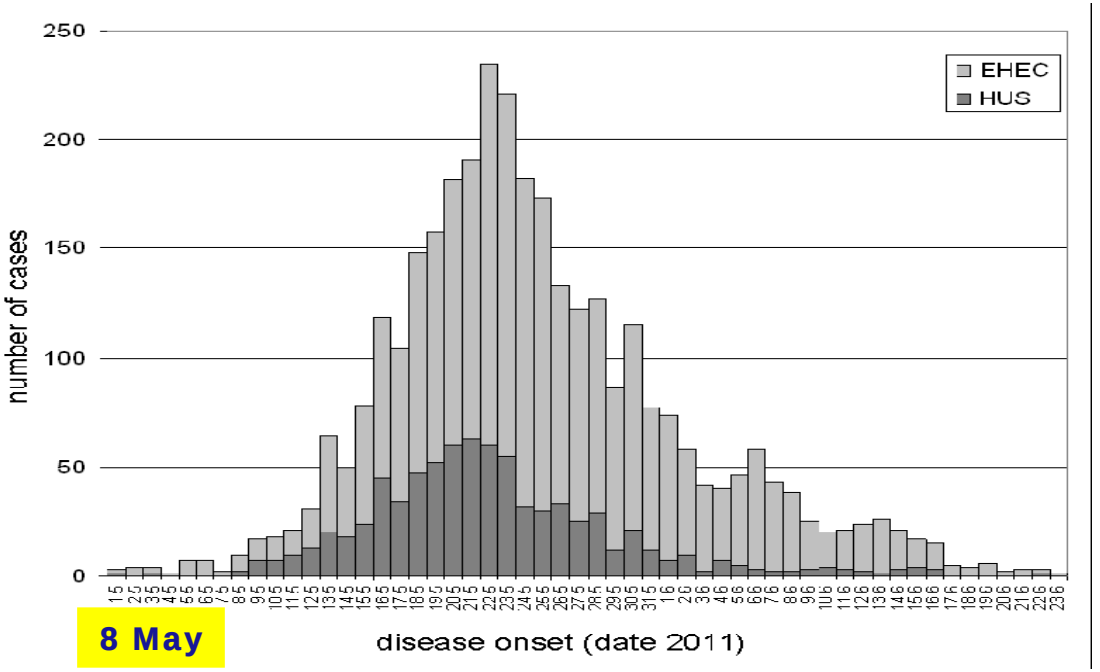
- EFSA is increasingly participating in rapid risk assessments / investigations of multi-country food-borne outbreaks in EU
- Done in close collaboration with ECDC, the Commission and the affected Member States
- A Standard Operating Procedure under development

- ECDC (humans) and EFSA (food and animals) are both establishing molecular typing data collections on food-borne pathogens, starting from *Salmonella*, *Listeria* and VTEC this will enable better identification of the outbreak clusters in humans and possible food and animal sources

STEC O104 outbreak in EU 2011 caused by fenugreek sprouts – EFSA's involvement

- EFSA/ECDC advice
- Literature Review on presence of pathogens in plant material
- ECDC/EFSA report on STEC/VTEC data in EU
- EFSA/ECDC/EC delegation sent to Germany

Source: Robert Koch Institute, Technical Report - EHEC/HUS O104:H4 Outbreak, 30.06.2011



- EFSA Task Force on common cause of French and German outbreaks – outcome a report
- Scientific opinion from BIOHAZ on the risk posed by STEC and other pathogenic bacteria in seeds and sprouted seeds

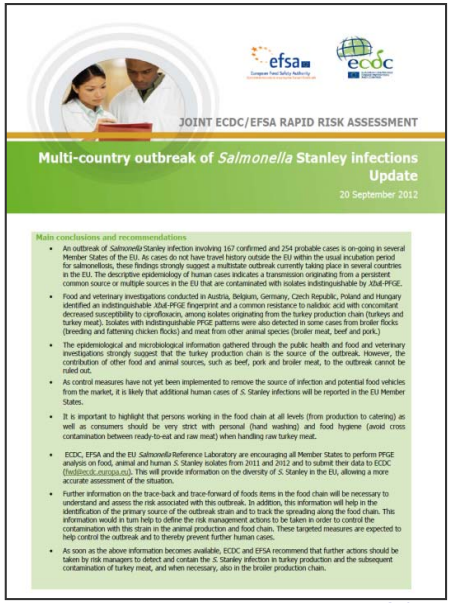
Rapid risk assessments of multi-country food-borne outbreaks in EU -example

European Food Safety Authority

Rapid risk-assessment of *S.* Stanley outbreak in EU in 2012

- **June**: human cases reported by Belgium
- **July-August**: cases in Germany, Hungary, Austria and Czech Republic
- **September**: Joint ECDC-EFSA risk assessment made on request of the Commission

- Turkeys and turkey meat found as the most likely source of the outbreak
- Simultaneous increase of *S.* Stanley in turkeys and humans
- Indistinguishable PFGE pattern found from human cases and turkey isolates


JOINT ECDC/EFSA RAPID RISK ASSESSMENT

Multi-country outbreak of *Salmonella* Stanley infections Update

20 September 2012

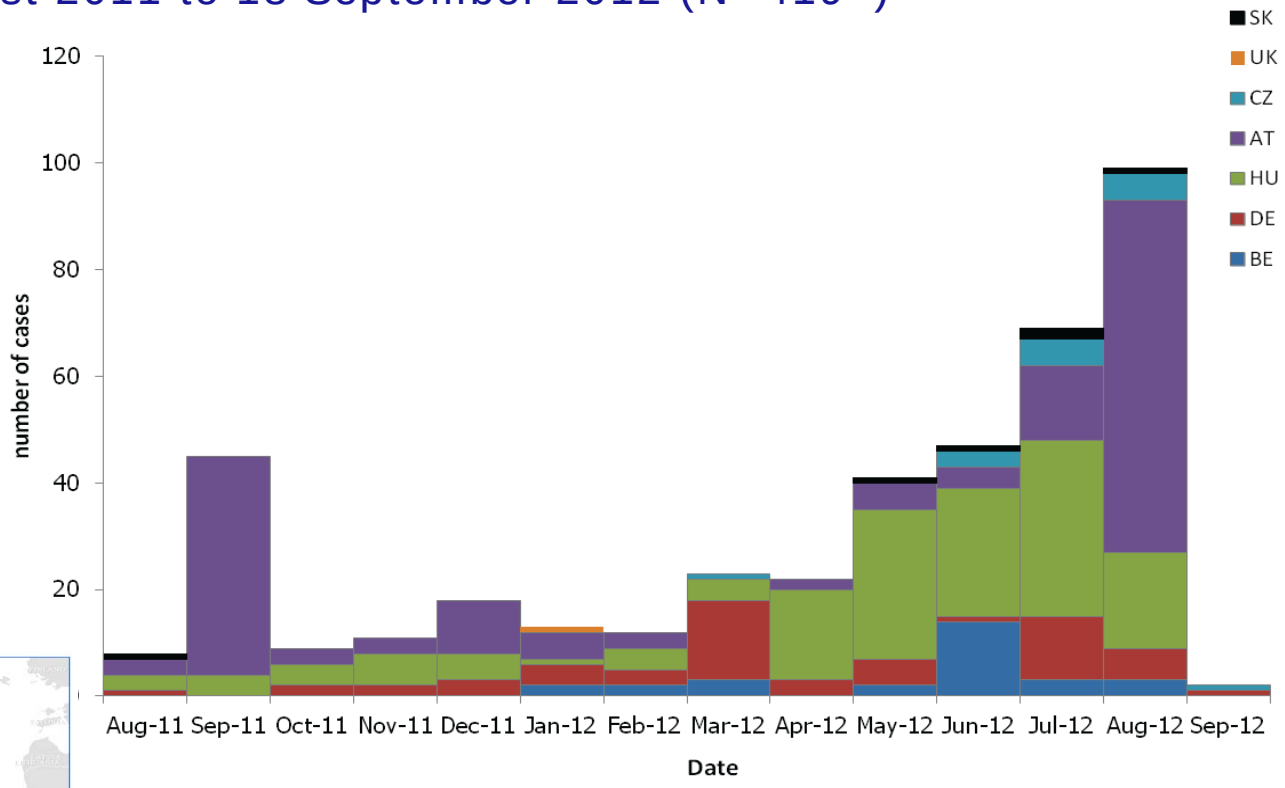
Main conclusions and recommendations

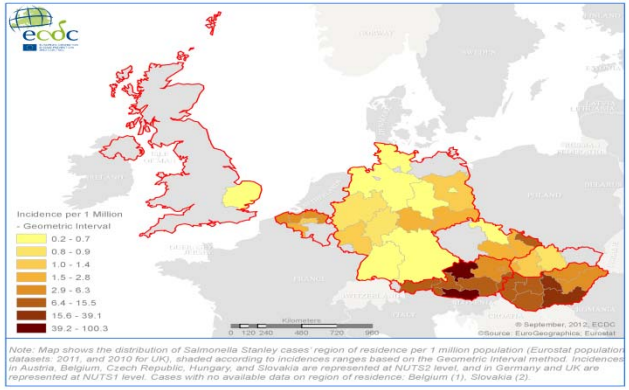
- An outbreak of *Salmonella* Stanley infection involving 167 confirmed and 254 probable cases is on-going in several Member States of the EU. As cases do not have travel history outside the EU within the usual incubation period for salmonellosis, these findings strongly suggest a multistate outbreak currently taking place in several countries in the EU. The descriptive epidemiology of human cases indicates a transmission originating from a persistent common source or multiple sources in the EU that are contaminated with isolates indistinguishable by XbaI-PFGE.
- Food and veterinary investigations conducted in Austria, Belgium, Germany, Czech Republic, Poland and Hungary identified an indistinguishable XbaI-PFGE fingerprint and a common resistance to nalidixic acid with concomitant decreased susceptibility to ciprofloxacin, among isolates originating from the turkey production chain (turkeys and turkey meat). Isolates with indistinguishable PFGE patterns were also detected in some cases from broiler flocks (breeding and fattening chicken flocks) and meat from other animal species (broiler meat, beef and pork.)
- The epidemiological and microbiological information gathered through the public health and food and veterinary investigations strongly suggest that the turkey production chain is the source of the outbreak. However, the contribution of other food and animal sources, such as beef, pork and broiler meat, to the outbreak cannot be ruled out.
- As control measures have not yet been implemented to remove the source of infection and potential food vehicles from the market, it is likely that additional human cases of *S.* Stanley infections will be reported in the EU Member States.
- It is important to highlight that persons working in the food chain at all levels (from production to catering) as well as consumers should be very strict with personal (hand washing) and food hygiene (avoid cross contamination between ready-to-eat and raw meat) when handling raw turkey meat.
- ECDC, EFSA and the EU *Salmonella* Reference Laboratory are encouraging all Member States to perform PFGE analysis on food, animal and human *S.* Stanley isolates from 2011 and 2012 and to submit their data to ECDC (fwd@ecdc.europa.eu). This will provide information on the diversity of *S.* Stanley in the EU, allowing a more accurate assessment of the situation.
- Further information on the trace-back and trace-forward of foods items in the food chain will be necessary to understand and assess the risk associated with this outbreak. In addition, this information will help in the identification of the primary source of the outbreak strain and to track the spreading along the food chain. This information would in turn help to define the risk management actions to be taken in order to control the contamination with this strain in the animal production and food chain. These targeted measures are expected to help control the outbreak and to thereby prevent further human cases.
- As soon as the above information becomes available, ECDC and EFSA recommend that further actions should be taken by risk managers to detect and contain the *S.* Stanley infection in turkey production and the subsequent contamination of turkey meat, and when necessary, also in the broiler production chain.

Rapid risk-assessment of S. Stanley outbreak in EU – 2012 by ECDC and EFSA

efsa
European Food Safety Authority

Distribution of cases of *Salmonella* Stanley by affected Member State and month, confirmed and probable cases, 1 August 2011 to 18 September 2012 (N=419*)





Note: Map shows the distribution of Salmonella Stanley cases' region of residence per 1 million population (Eurostat population datasets: 2011, and 2010 for UK), shaded according to incidences ranges based on the Geometric Interval method. Incidences in Austria, Belgium, Czech Republic, Hungary, and Slovakia are represented at NUTS2 level, and in Germany and UK are represented at NUTS1 level. Cases with no available data on region of residence: Belgium (1), Slovakia (2).

S. Stanley detected in 2011/12 in turkey flocks by HU, CZ, AT and SI

Conclusions

- EFSA provides for risk assessments and data collection on zoonoses and food-borne hazards at EU level
- The large reduction in numbers of human salmonellosis cases in EU is a great success, thanks to EC and MSs, EFSA contributed from its part
- Numbers of *Campylobacter*, VTEC and *Listeria* cases are increasing in humans at EU level
- ECDC, EFSA and the Commission putting in place a system for rapid risk assessments of food-borne outbreaks in EU supported by collection of molecular typing information on food-borne pathogens

Thank you for your attention!

All the opinions and reports available at www.efsa.europa.eu