



# **Modernisation of meat inspection in the EU: EFSA activities**

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**Unit on Biological Hazards**

- EFSA and the risk analysis process
- Background for meat inspection mandate
- Progress in the development of Scientific Opinions and Technical assistance
  - Swine (Adopted 31 August 2011)
  - Poultry
  - Other species



- Nov 2008: CVOs agreed on conclusions on modernisation of meat inspection
- July 2009: EC issued a report considering CVO conclusions
- Nov 2009: EU Council invited the EC to prepare proposals for a modernised sanitary inspection in abattoirs using a 'risk-based approach'
- May 2010: EC requested EFSA to issue scientific opinions and technical assistance related to inspection of meat in different species

Mandate from the European Commission (EC)

- Annex 1 – Provision of Scientific Opinions
- Annex 2 – Provision of Technical Reports

Covering: domestic swine, poultry, bovine, domestic sheep and goats, farmed game and domestic solipeds

Scientific Opinions for the different species to be delivered in a staggered manner from September 2011 to June 2013

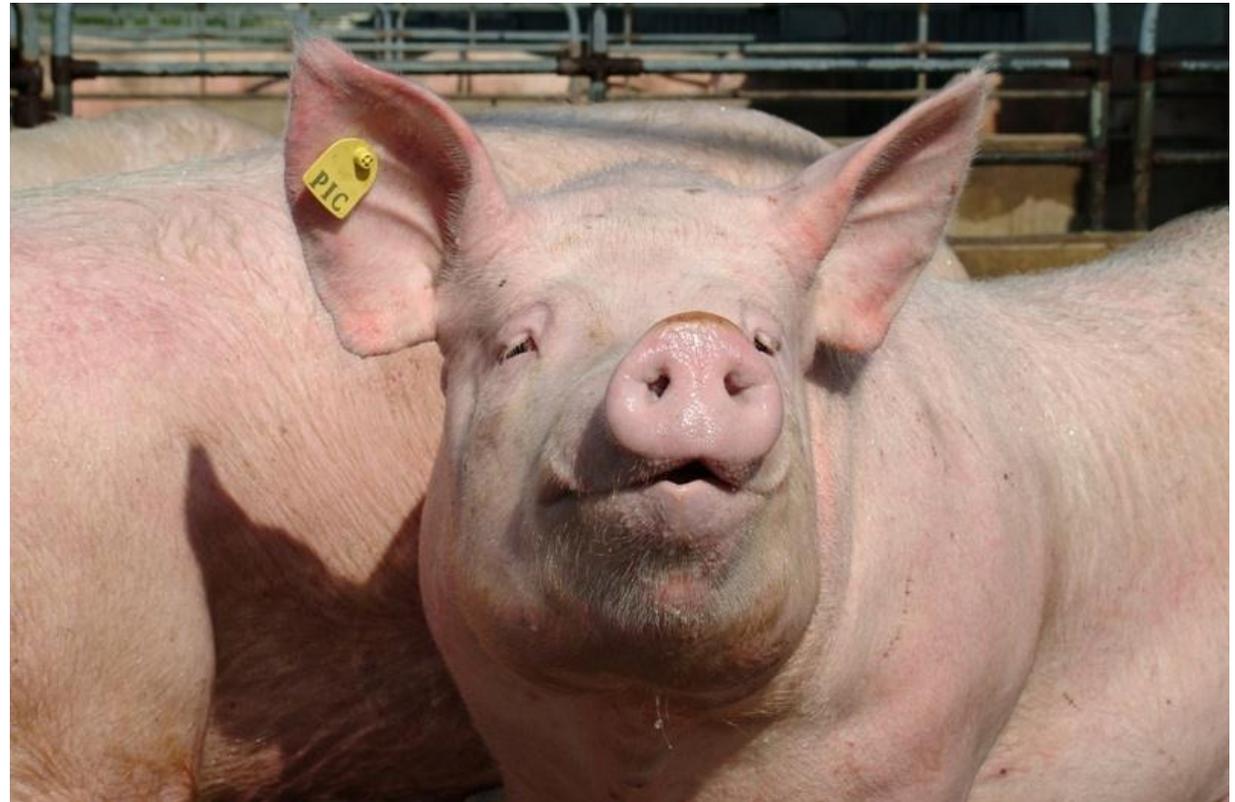
- Annex 1:
  - Addressing biological and chemical hazards, as well as the potential impact on animal health and welfare of any proposed changes to meat inspection
  - EFSA asked the BIOHAZ, CONTAM and AHAW Panels to deliver these Scientific Opinions
  - Each Panels have set up *ad hoc* working groups to assist developing the draft Opinions
- Annex 2:
  - EFSA asked the Biological Monitoring Unit to deliver the Technical Reports defining harmonised epidemiological criteria

- Identify and rank the main risks for public health (PH) that should be addressed by meat inspection at EU level.
- Assess the strengths and weaknesses of the current meat inspection methodology and recommend possible alternative methods, taking into account implications for animal health and welfare.
- Recommend additional inspection methods in case other previously not considered hazards have been identified above (e.g. salmonellosis, campylobacteriosis).
- Recommend possible alternative methods and adaptations of inspection methods and/or frequencies of inspections that provide an equivalent level of protection within the scope of meat inspection or elsewhere in the production chain that may be used by risk managers in case they consider the current methods disproportionate to the risk.
  - e.g. based on the risks or on data obtained using harmonised epidemiological criteria. When appropriate, food chain information should be taken into account.

- Issues outside the scope of the mandate:
  - TSEs
  - Issues other than those of PH significance that compromise fitness of meat for human consumption (e.g. sexual odour)
  - Impact of changes to meat inspection procedures on occupational health of abattoir workers, inspectors, etc
  - The definition of the responsibilities of the different actors (official veterinarians, official auxiliaries, staff of food business operators)

# Meat inspection

## **SWINE**

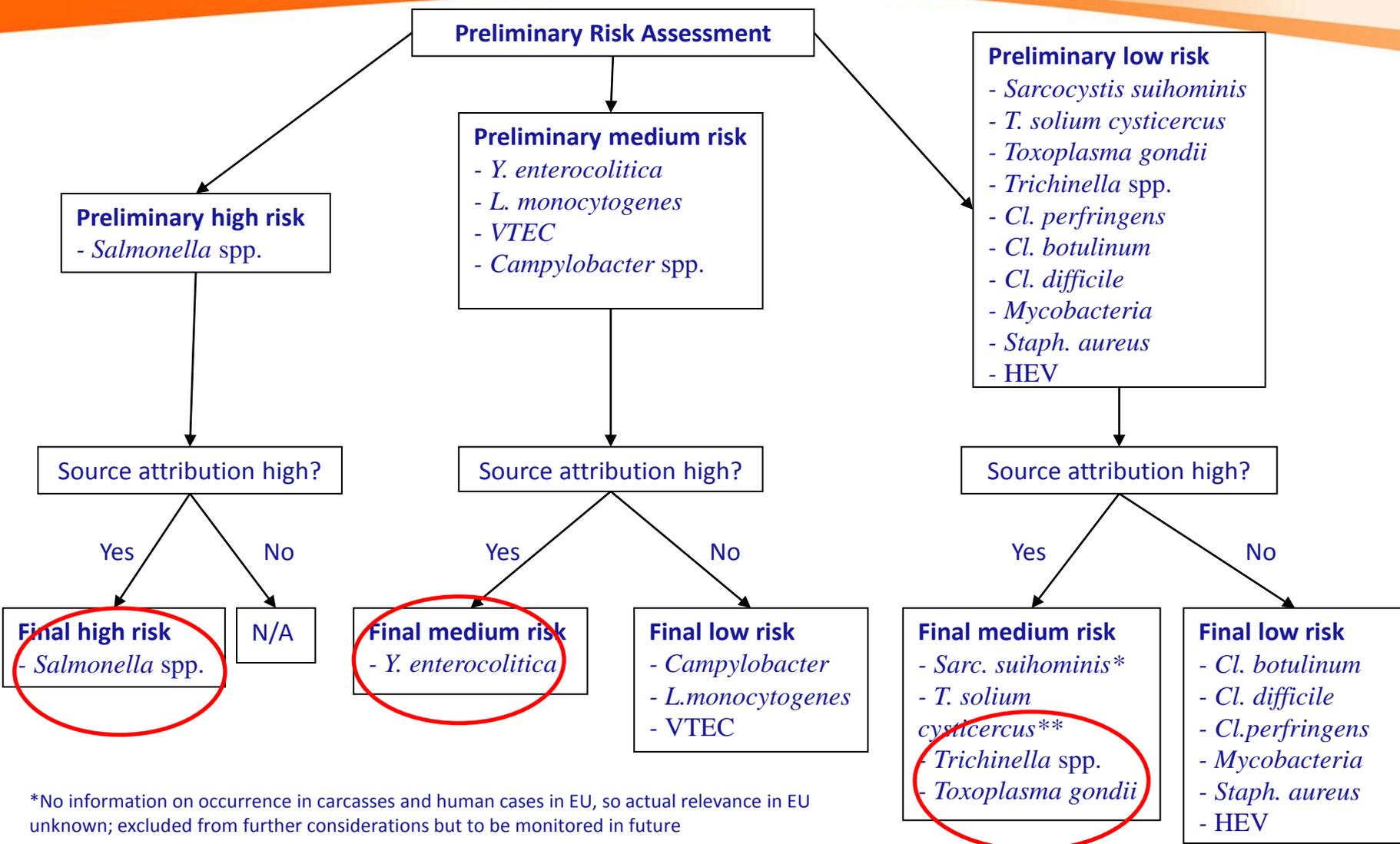


- Opinion adopted by BIOHAZ, CONTAM and AHAW Panels, published October 2011
- Structure of Opinion mirrors the TORs (plus Introduction)
  - Body of Opinion consists of conclusions and recommendations from the three Panels
  - The background docs from each Panel are attached as Appendices
  - Cross-references the Technical Report on harmonized epidemiological indicators (HEI) produced by the BIOMO Unit (published jointly)

- Hazards from scientific literature were ranked qualitatively based on:
  - their prevalence in carcasses,
  - source attribution of human cases to pork
  - incidence and severity in humans

→ **Resulting in a shortlist of hazards**
- Following an assessment of current meat inspection, alternatives/improvements were recommended
  - Including how to address hazards not covered by current methods

# BIOHAZ - Final classification of hazards



\*No information on occurrence in carcasses and human cases in EU, so actual relevance in EU unknown; excluded from further considerations but to be monitored in future

\*\*Not currently considered relevant in the EU pig population; excluded from further considerations but to be monitored in future

# Biological hazards: *strengths and weaknesses of the current meat inspection system*

## ***Ante-mortem inspection enables:***

## **Strengths**

Using food chain information (FCI)

Detection of clinically observable zoonoses

Animal identification and traceability, and evaluation of cleanliness of pigs.

## ***Post-mortem inspection enables:***

Detection of visible faecal contamination, macroscopic lesions caused by some zoonotic agents

To detect *Trichinella* spp. by laboratory examination.

## ***Current ante- or post-mortem inspection cannot:***

## **Weaknesses**

macroscopically detect the food-borne hazards of most relevance

The use of palpation/incision techniques during post-mortem inspection mediates cross-contamination

# Biological hazards: *inspection methods fit for new hazards currently not covered by the meat inspection system*

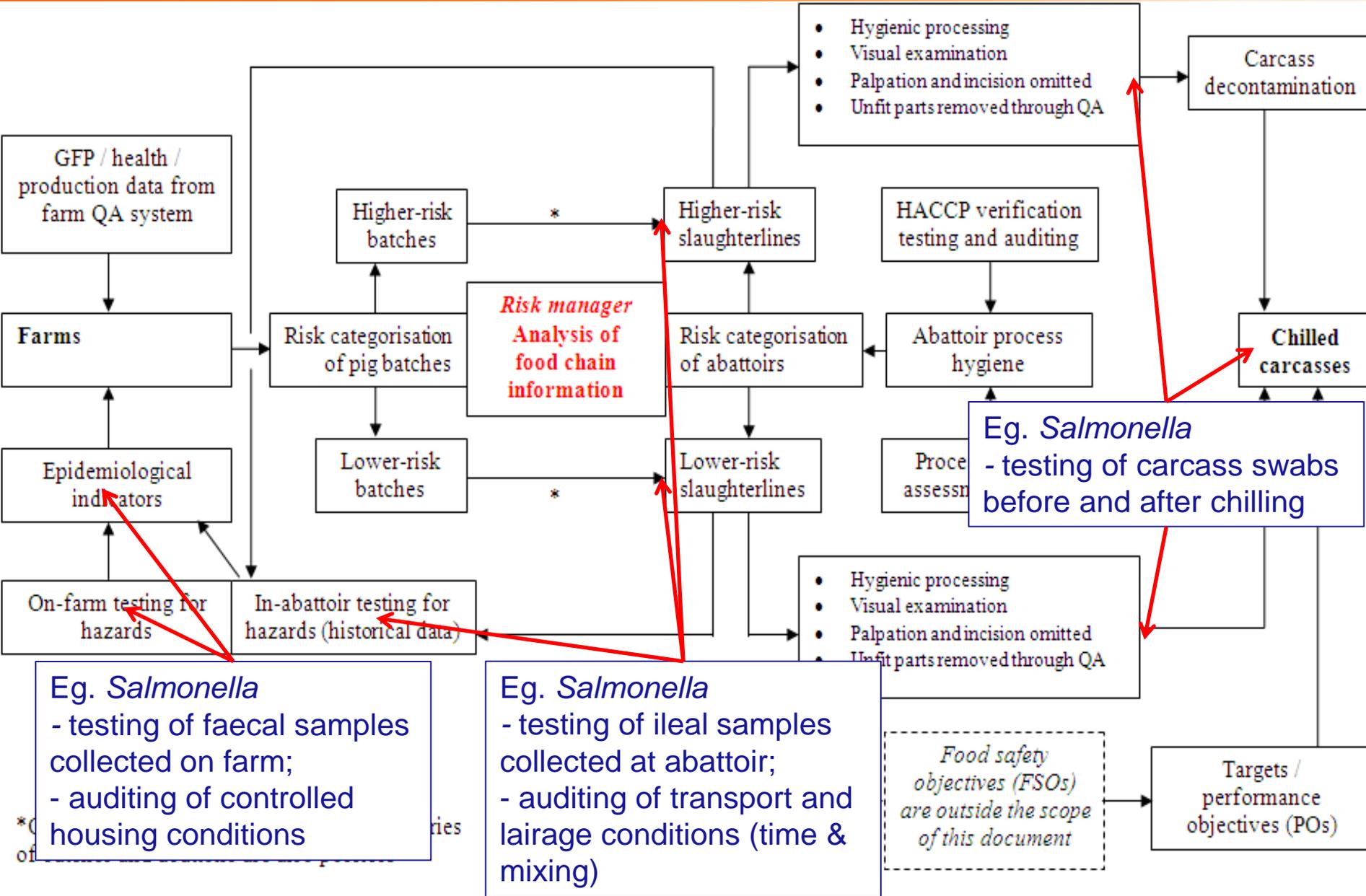
- The only way to ensure effective control of the hazards of relevance identified is to establish:

**A comprehensive pork carcass safety assurance, combining measures applied on-farm and at-abattoir**

- A prerequisite for this system is setting targets for these hazards to be achieved on carcasses.
- These targets would also inform what has to be achieved earlier in the food chain.

- Appropriate targets for abattoirs for each of the main hazards would:
  - provide a measurable and transparent focus for the abattoir meat safety assurance system,
  - enable differentiating between “acceptably” and “unacceptably” performing abattoirs,
  - represent the basis for setting “backwards” appropriate targets for supplier pig farms, and/or indicators for risk categorisation of incoming pigs,
  - enable meeting of the pre-determined Food Safety Objectives, hence providing also an Appropriate Level of Protection.

# Main elements of generic pork safety assurance with respect to *Salmonella* spp. and *Y. enterocolitica*



**At abattoir level**, the risk reduction for these hazards can be achieved through programs based on GMP/GHP and HACCP, including:

- hygienic and technology-based measures aimed at avoiding cross-contamination; with additional interventions such as surface decontamination of carcasses if necessary;
- heat- or freezing-based treatments of carcass meat to inactivate parasites if necessary, and as alternative to laboratory testing of carcasses;
- Information from sampling for hazards at farms/abattoirs can be used to: differentiate incoming pigs in respect to risk; and differentiate risk-reduction capacity of abattoir (hygiene during the process).

**At farm level**, the risk reduction for the main hazards can be achieved through measures such as:

- herd health programs, closed breeding pyramids, GHP and GFP
- categorisation of animals based on the carrier state for the hazard.

# Biological hazards: adaptations of current methods

- Palpation/incisions used in current *PM* inspection should be omitted **in pigs subjected to routine slaughter**. The risk of microbial cross-contamination is high.
- The use of palpation/incisions during *PM* examination should be limited to **suspect pigs identified** through FCI/AM inspection, or *PM* visual detection of relevant abnormalities.
- *PM* examination involving palpation and incision, where necessary, should be **performed separately from the slaughter line** operation and accompanied with laboratory testing as required.
- Elimination of abnormalities on aesthetic/meat quality grounds can be ensured through **meat quality assurance systems**.

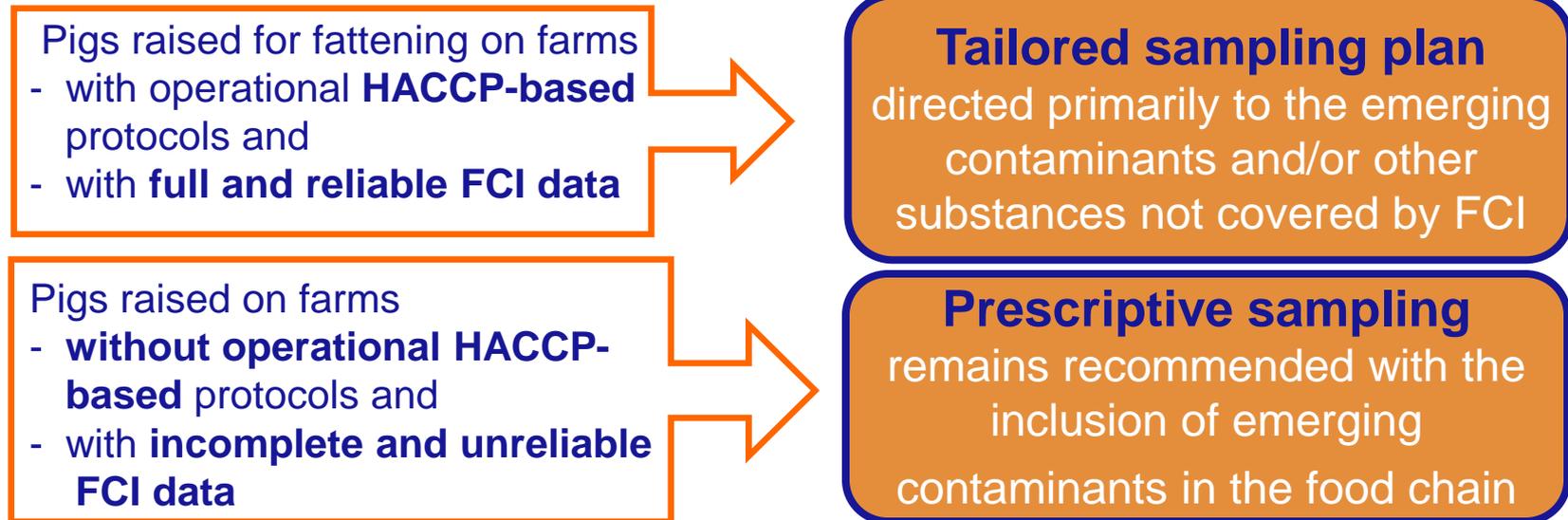
# CONTAM - Ranking of potential concerns for chemical compounds

<div style="text-align: right;"><b>Group</b></div> <div style="text-align: left;"><b>Category</b></div>	<b>Prohibited substances</b>	<b>Veterinary Medical Products</b>	<b>Contaminants</b>
<b>Negligible potential concern</b>	<ul style="list-style-type: none"> <li>•Chloroform</li> <li>•Colchicine</li> </ul>	<ul style="list-style-type: none"> <li>•VMPs below MRLs</li> </ul>	<ul style="list-style-type: none"> <li>•Dyes</li> </ul>
<b>Low potential concern</b>	<ul style="list-style-type: none"> <li>•<i>Aristolochia</i> spp.</li> <li>•Thyreostats</li> <li>•Stilbenes</li> <li>•Steroids</li> <li>•Resorcylic acid lactones</li> <li>•Beta-agonists</li> <li>•Chlorpromazine</li> <li>•Dapsone</li> </ul>	<ul style="list-style-type: none"> <li>•VMPs exceeding MRLs</li> </ul>	<ul style="list-style-type: none"> <li>•Organochlorines (OCs)</li> <li>•Organophosphates (OPs)</li> <li>•Perfluorinated compounds (PFCs)</li> <li>•Toxic secondary plant metabolites</li> <li>•Mycotoxins (except ochratoxin A)</li> </ul>
<b>Medium potential concern</b>	<ul style="list-style-type: none"> <li>•Nitroimidazoles</li> <li>•Nitrofurans</li> </ul>		<ul style="list-style-type: none"> <li>•Non-dioxin-like polychlorinated biphenyls (NDL-PCBs)</li> <li>•Chemical elements (cadmium, mercury and lead)</li> <li>•Ochratoxin A</li> </ul>
<b>High potential concern</b>	<ul style="list-style-type: none"> <li>•Chloramphenicol</li> </ul>		<ul style="list-style-type: none"> <li>•Dioxins, and dioxin-like polychlorinated biphenyls (DL-PCBs)</li> </ul>

- Chemical substances in pork are **unlikely to pose an immediate or short-term health risk** for consumers.
- However, certain **bioaccumulating compounds** are of potential concern as they will contribute to the overall exposure.
- **Dioxins and DL-PCB** which bioaccumulate in the food chain and ranked as high potential concern. These are considered as **new hazards** (not included in Dir. 96/23/EC).
- The current prescriptive system of sampling for residues and contaminants is well established. However it **lacks flexibility**, and there is **insufficient integration** between results on controls on feed, and foods.

# Main recommendations – Chemical hazards

- Risk-based sampling strategies taking into account FCI:



- To include efficient *ante-* and *post-mortem* inspection criteria for the identification of illicit use of substances, and to encourage analyses at the farm level.
- Any measures taken to improve the efficacy of meat inspection protocols need to address the compliance of imports from third Countries into the EU.

- Focus on the implications of the changes proposed to the current meat inspection system:
  - implications relate principally to **monitoring and surveillance during meat inspection**
  - it also considers direct impact of the proposed changes on the **health and welfare of animals**
- Methods
  - Qualitative: literature review, expert opinion
  - Quantitative: modeling (magnitude of the changes)

- Meat inspection is a **key component** of the overall surveillance system for pig health and welfare, but information is currently under-utilized.
- Proposed changes to the pig meat inspection will lead to **some reduction in the probability of detection of diseases and welfare conditions**:
  - minimal difference for diseases/conditions that affect several organs
  - substantial difference for early cases of a range of diseases
- To mitigate the effect of the proposed changes, **palpation and/or incision** should be conducted as a **follow-up to visual inspection when relevant abnormalities are seen**.
- **Risk categorisation (using FCI on pig health and welfare)** may provide opportunities for improved surveillance and monitoring:
  - however this may result in surveillance being conducted on a biased sample (not representative of the entire population).

- To assess the relative contribution of meat inspection to the overall system of surveillance and monitoring of pig health and welfare.
- To evaluate the effects of risk categorisation of animals (based on FCI on AHAW) in the surveillance and monitoring.
- To develop and apply standards (indicators of welfare conditions and major endemic diseases) to evaluate the quality of AHAW surveillance during meat inspection.
- To examine options to better utilise existing abattoir data (records on pig health and welfare).



Meat inspection

**TECHNICAL ASSISTANCE**

# Terms of reference for technical assistance

- Define **harmonised epidemiological criteria** for hazards already covered by current meat inspection (trichinellosis, tuberculosis, cysticercosis, ...) and for possible additional hazards identified in the scientific opinion presented, which can be used to consider adaptations of meat inspection methodology.
- Provide **a summary of comparable data** from Member States based on the above defined harmonised epidemiological criteria, if existing, e.g. from ongoing monitoring in humans, food or animals.
- Recommend **methodologies and minimum monitoring / inspection requirements** to provide comparable data on such harmonised epidemiological indicators, if comparable data are missing.

- **Harmonised epidemiological indicator (HEI):**  
prevalence or incidence of the hazard at a certain stage of food chain, or an indirect measure of the hazards (such as farm audits) that correlates to a public health risk.
- **HEIs** to be used by the EC to:
  - classify farms/slaughter batches/ slaughterhouses according to risks,
  - set targets in the newly proposed pork carcass safety assurance framework.

# Technical assistance to Commission on epidemiological indicators (criteria)

- HEIs proposed include
  - prevalence of the hazard in animal populations or on carcasses
  - auditing of farms, or animal transport, or slaughterhouse conditions
- A set suggested for each hazard, they can be used by risk managers alone or in combinations, at national, regional or at herd/ farm level
- HEI were selected following a harmonised approach:
  - list of the most important risk factors related to the hazard throughout the entire meat chain (farm to fork)
  - taking into account proposed changes in meat inspection, identify the possible indicators for public health
  - scoring system to evaluate the candidate HEI based on quality, appropriateness, data availability and feasibility.

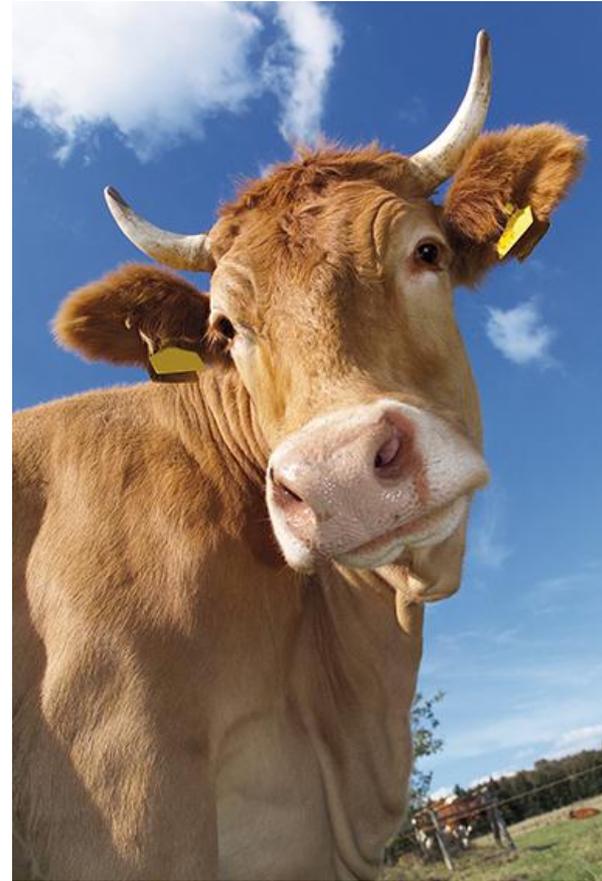
# Suggested indicators for *Salmonella*

Hazard: ***Salmonella***

<b>Indicators (animal/ food category/other)</b>	<b>Food chain stage</b>	<b>Analytical method</b>	<b>Specimen</b>
HEI 1 Breeding pigs	farm	Microbiology - serotyping	Pooled faeces
HEI 2 Fattening pigs prior to slaughter	farm	Microbiology - serotyping	Pooled faeces
HEI 3 Controlled housing conditions at farms	farm	auditing	
HEI 4 Transport and lairage	Transport- Slaughterhouse	Auditing	Time, mixing
HEI 5 Fattening pigs – in coming to slaughter process	Slaughterhouse	Microbiology - serotyping	ileal contents
HEI 6 Fattening pigs –carcass after slaughter process prior to chilling	Slaughterhouse	Microbiology - serotyping	Carcass swab
HEI 7 Fattening pigs –carcass after slaughter process after chilling	Slaughterhouse	Microbiology - serotyping	Carcass swab

# Meat inspection

## **OTHER SPECIES**



<b>Species</b>	<b>Adoption</b>
<b>Swine</b>	September 2011
<b>Poultry</b>	June 2012
<b>Bovine/ Small Ruminants</b>	June 2013
<b>Domestic solipeds and farmed-game</b>	June 2013

- We are grateful to:
  - the BIOHAZ and CONTAM Panels,
  - their working groups on meat inspection,
  - the BIOMO working group on meat inspection

for the effort put into developing these Opinions  
and Technical Reports