



International 58th Meat Industry Conference “Meat Safety and Quality: Where it goes?”

## Control of food animals in their chains: Tools to detect unwanted substances and factors

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### Abstract

Food safety asks for zoonoses/animal health, residues/ contaminants, zoonotic agents/ resistance genes, also for wellbeing of animals. Food chains with animal categories, the presence of risk factors in the region, also local keeping techniques characterize the list of risk factors to be considered. Good Practices are intended to keep the chains safe (prevention), for verification, internal or external control tests are established for the absence/ presence of unwanted factors in daily work's performance (called “meat inspection” for slaughter animals). Consequently, for meat inspection, appropriate methods from different disciplines should be provided for any of inspection targets.

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### 1. Introduction

In human pre-history (hunting, domestication of animals, agriculture), also in historical times, human survival was focused on food security. Today's surveillance (“meat inspection”) asks for food safety, animal wellbeing, animal health and for hygiene along the technical chains including primary production.

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It appears, that the understanding of “meat inspection” is not undisputed, and a critical view on aims, instruments and organization of today’s inspection systems may be useful to find out pro’s and con’s and to identify the needs for the future.

## 2. Meat inspection: Background and function

### 2.1. *The complexity of technical food animal production*

Food chains comprise the animals with their entire life from birth to slaughter with their movement between different locations, food chains start somewhere by definition, in every case including incoming goods such as feedstuff or animals, including also outgoing waste materials from each involved location and the animals at the end of their staying at that place. Slaughter animals departing from the farm site change into meat during slaughter and further processing. Because of persons, who tend the animals at every stage, the human ecosphere is involved, too. The complexity of food chains requires deep insight in order to understand interrelations behind the procedures. Technical transparency is the first step finding risks.

### 2.2. *Risks in the food chains*

For each food animal category, hazards respectively risks are different (Table 1). In addition, local (geographical) situation, society requirements and tradition, politics, local risks, availability of analytical techniques, even economy are to be considered.

Table 1. Agents in the chains of food animals.

Swine	Cattle	Goats, sheep	Poultry
Hepatitis E Virus	Cysticercus	Echinococcus	Avian Influenza (HP)
Salmonella	Prion Proteins	Prion Proteins	Salmonella
Campylobacter	EHEC		Campylobacter
<i>E. rhusiopathiae</i>			
<i>Yersinia enterocolitica</i>			
<i>Streptococcus suis</i>			
<i>Mycobacterium avium intracellulare</i>			
<i>Trichinella</i>			
Cysticercus			
Toxoplasma			

### 2.3. *Risks in their time and projected against the background of society*

Globally, the number or quality of risks in food chains is not identical, and with times going by (vertical view) or looking into different regions (horizontal view), different risk profiles may be observed (Table 2, 3), determining priorities of surveillance.

Hence, continuous identification of global and/or local risks is required, with scientific analysis and result assessment.

Established inspection systems should be continuously adapted to given risks in order to prevent gaps between risks and the control system. Surveillance may then focus on such a list of high priority (risk-) factors.

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