Farm-level controls

from reporting abnormalities to identifying risks

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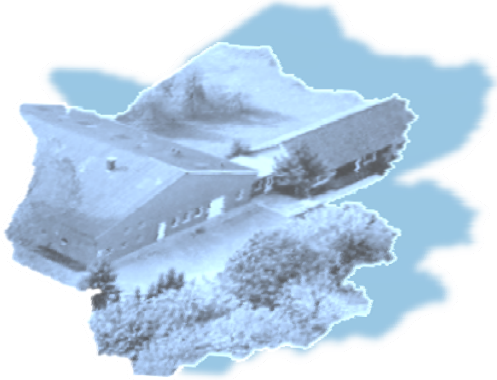

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ECPHM EUROPEAN COLLEGE OF PORCINE HEALTH MANAGEMENT

The „White Paper on Food Safety“

triggered by Salmonella outbreaks and BSE in the 80‘s

- The „White Paper“ was a precise analysis of the state of the food safety system in the end of the 20th century, published in 2000:
  - „fit for consumption“ based on lesions is not sufficient any more: the risks of today do not cause visible lesions
  - risks can stem from each stage of the food chain (feed, animal husbandry, transport, slaughter, processing, retail)
  - in contrast to other products, food producers feel too little responsibility for the safety of the food (the state fixes it)
  - feed producers, farmers, animal transporters do not understand that they are indeed food producers as well

The paradigm shift in 2002
Reg. (EC) 178/2002

- From traditional meat inspection

  Sole **end product inspection** (carcasses) to **decide** whether the product **is** „fit for consumption“ or needs to be „condemned“

- To risk-based meat inspection

  Monitoring and **optimizing the production process** „from farm to table“ to **make** the product „fit for consumption“ by concentrating on the risks at each stage of the food chain

  = Preventing risks instead of removing unsafe food

The (new) European food safety strategy

Reg. (EC) 178/2002 and „Hygiene Package“ (2004)

- **improvement of food safety, animal health and animal welfare**

food safety

animal health

animal welfare

- **enhancement of the food producers´ responsibility (i.e. feed producers, livestock owners,** food business operators, etc**.)**
- **process control along the whole food chain as tool for continuous improvement measures (“backward” food chain information = feedback to farmers)**
- **risk-based meat inspection according to “forward” food chain information (inspection intensity adapted to indicated risks)**
- **Goal: Safe meat from totally healthy and “happy” animals**

What we have done so far

- Reg. (EU) No. 853 and 854/2004…
  - mainly foreward and backward information along the food chain – deciding if „visual“ Yes or No
- Reg. (EU) No. 1244/2007
  - Controlled housing conditions and integrated production systems (the idea: animals from controlled husbandry delivers safe meat)
- Reg. (EU) 219/2014
  - visual meat inspection as standard
- Reg. (EU) No. 2017/625
  - e.g. mandatory reports to the authorities

Slow to lacking implementation

- The principles of this paradigm shift sound reasonable to everybody, but yet:

- In the first years nobody started to change anything
  - the **meat industry** claimed lower costs for the inspection**,**
  - the **state veterinarians at the slaughter line** feared loss of control although still responsible for the safety of the meat,
  - the **farmers** did not provide freely the needed information
  - **everybody** waited for legal instructions on a standardized implementation

- Scandinavia and Denmark ahead, NL and D partly

- EFSA Scientific Opinion on… (2011):
  Not lesions, but zoonoses and residues !!!

What we have achieved

- Definitively a growing understanding that we need to have the entire food chain under control
- …and that not visible lesions but zoonotic agents need to be faught against

- But: neither information exchange nor keeping animals under controlled conditions guarantee safe meat, but only:

  Healthy and clean animals free from zoonotic bugs slaughtered under clean conditions

Why are information exchange and controlled conditions „toothless“

- Information exchange:
  - the FCI as it is does not really inform about the actual health status of the animals for slaughter

  (especially nothing about the infectious status of a herd)
  - the reports backwards are only „reporting fire“ instead of „identifying the risk of fire“

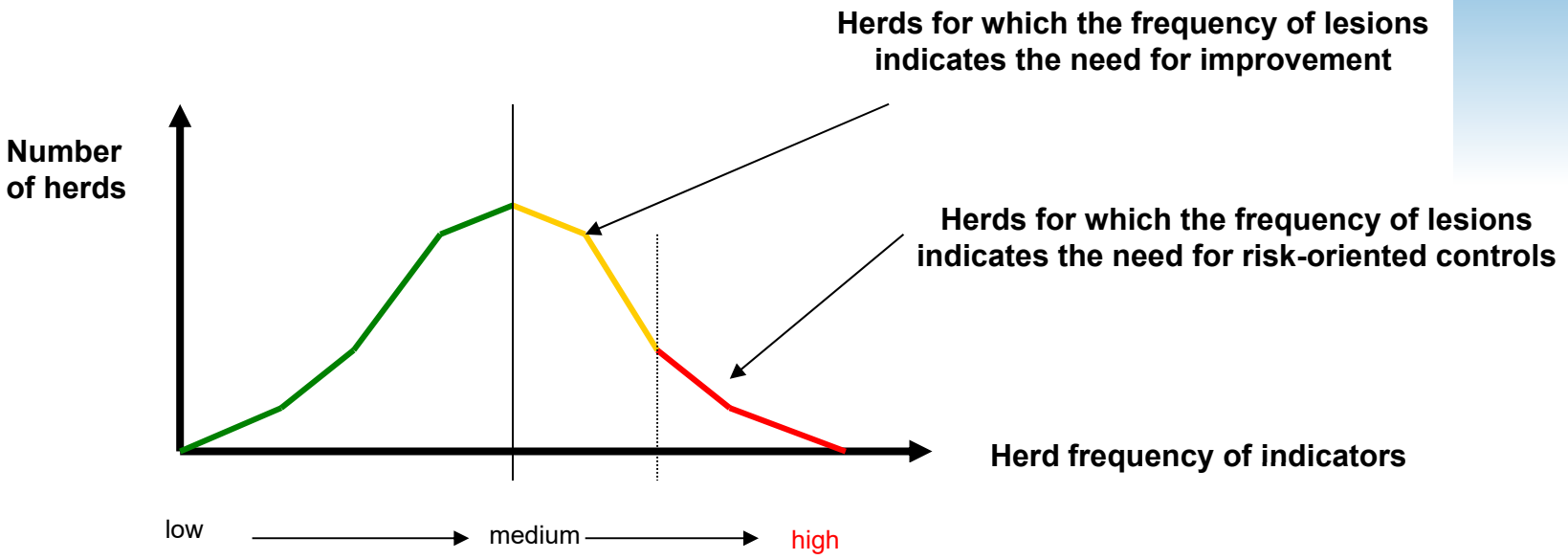
  (only abnormalities are reproted, not the risk indicators)
- Controlled conditions:
  - they also don‘t say anything about actual health and infectious status of the animals for slaughter

  (the analogy is: husbandry-oriented vs. animal-oriented animal welfare indicators… the first of them did not work)

Can we increase the use of our data for a more meaningful information about the health (and wellbeing) status of pig supplying herds?

Benchmarking pig herds

Ranking according to animal-oriented health indicators



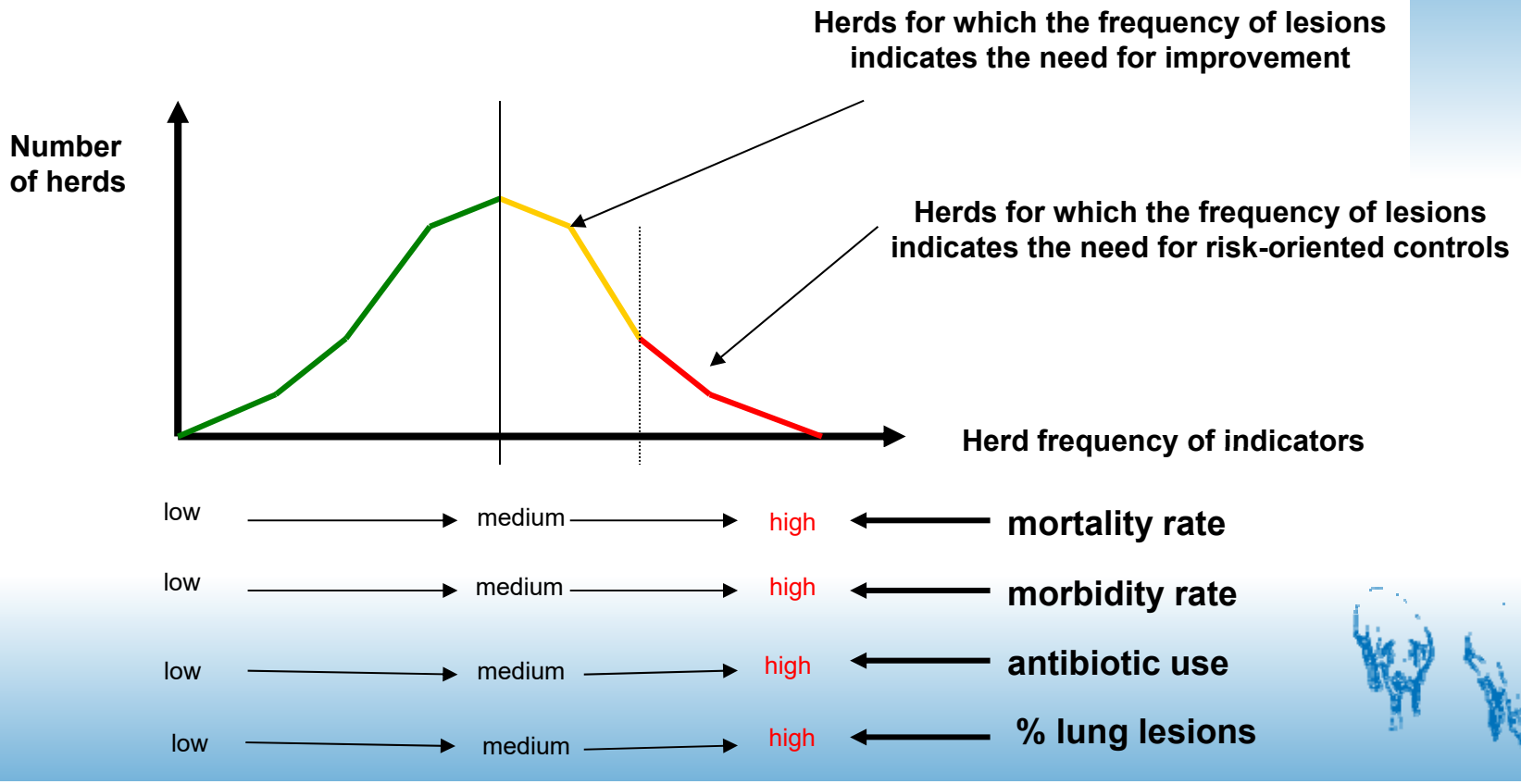
Which indicators ?

- Anything that gives plausible hints to impairments of the health of the herd, i.e. in epidemiological terms = not only the severe abnormality in single animals, but the frequency of abnormalities in the herd
- The need for choosing different indicators may be due to various challenges for individual slaughter enterprises (different pig populations or different targets in the quality assurance programmes)
- For national benchmarkings, focussing on 3 to 4 indicators as „mandatory“ and allowing various „voluntary“ indicators may be helpful

Benchmarking pig herds

Ranking according to animal-oriented health indicators

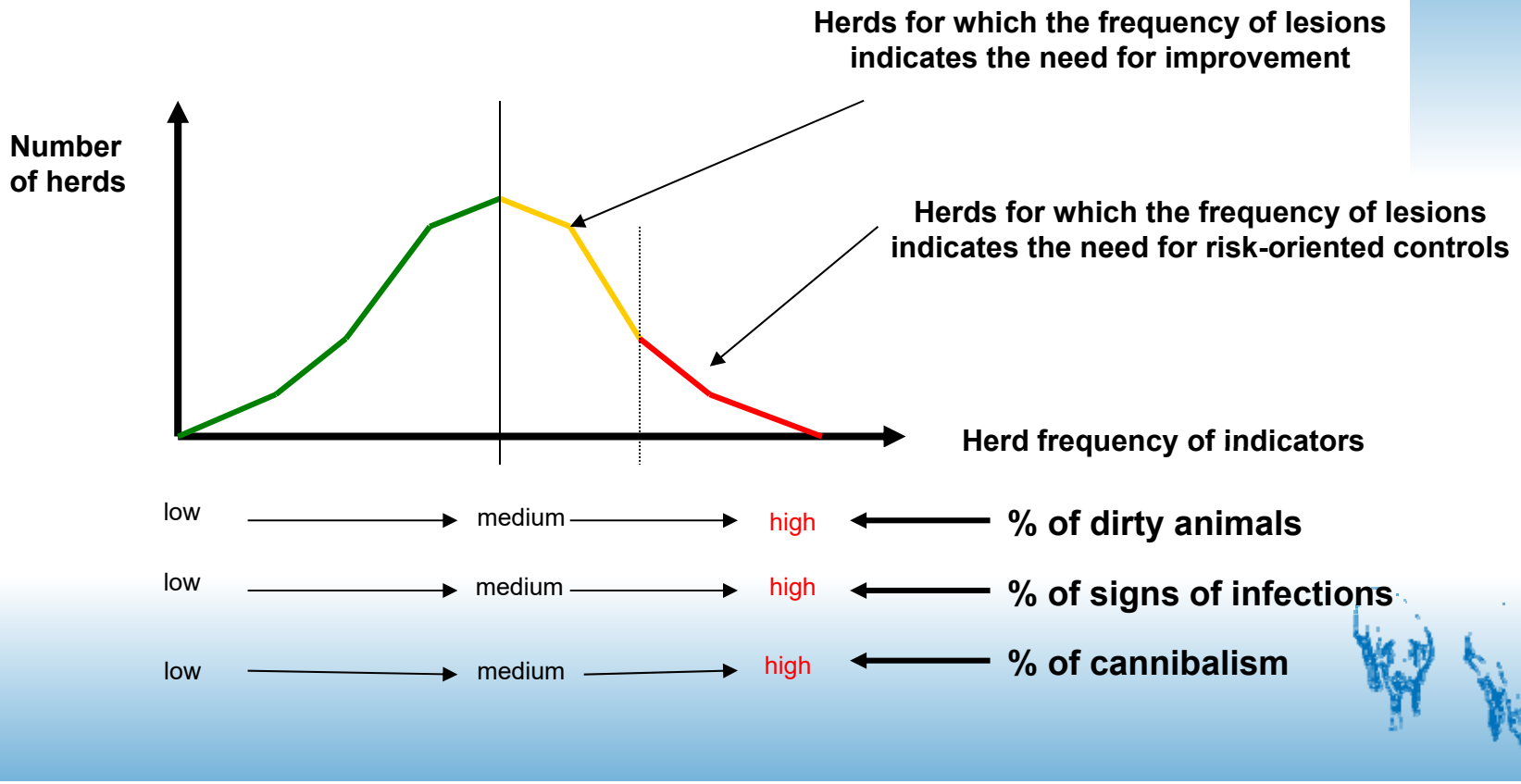
very basic indicators – may serve as mandatory indicators



Benchmarking pig herds

Ranking according to animal-oriented health indicators

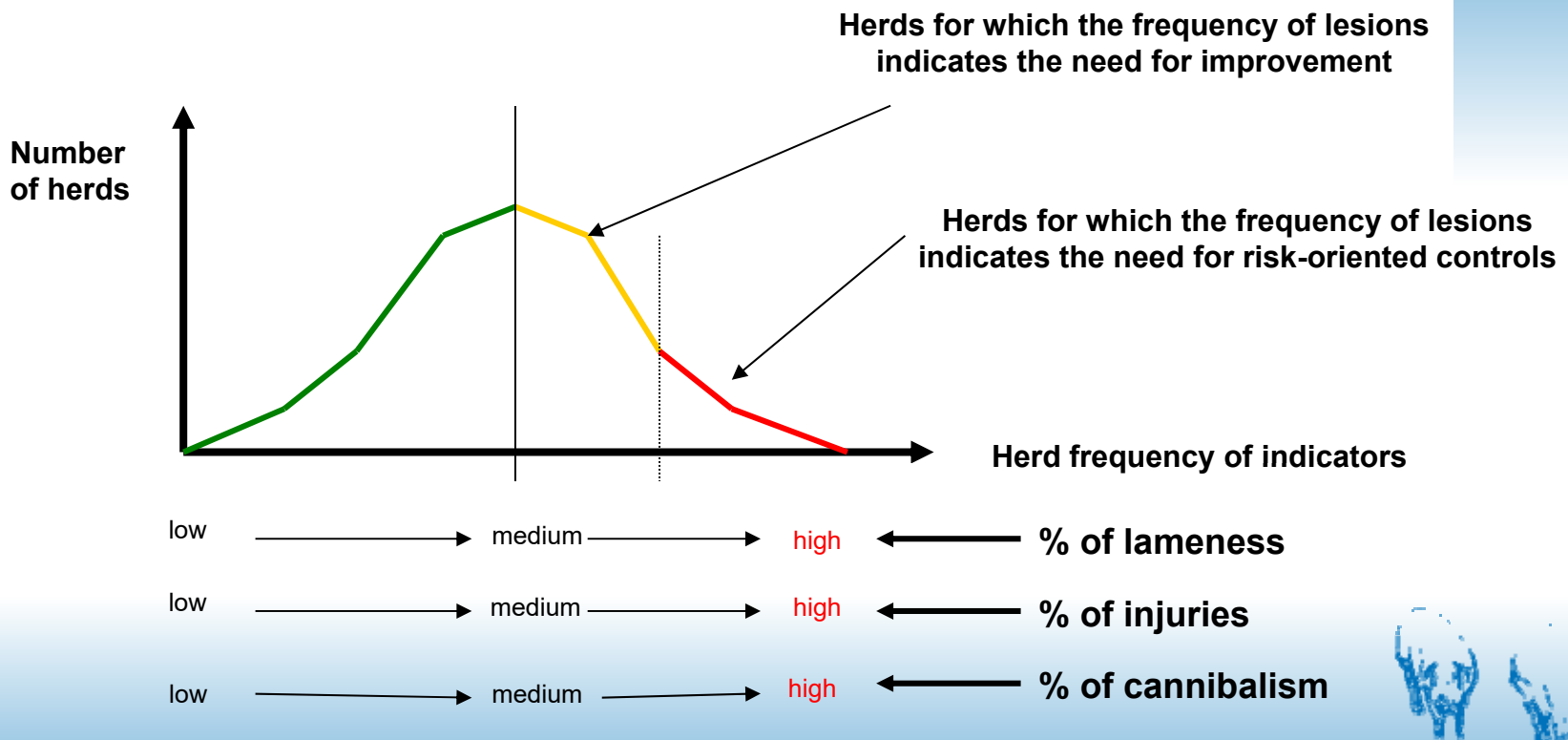
indicators for programmes to increase slaughter hygiene



Benchmarking pig herds

Ranking according to animal-oriented health indicators

Indicators for improving the animal welfare in supplier herds



Don‘t expect „one fits all“

The implementation of this principle should be tailored to the actual needs and objectives (at meat producing enterprise or regional or national level)

In case of complex and quantitative indicators, indexing is helpful

- Dickhaus, C.P., Meemken, D., and Blaha, T. (2009). Attempts to quantify the health status of pig herds: developing and validating a Herd Health Score (HHS). In Aland, A. and Madec, F. Sustainable Animal Production The Challenges and Potential Developments for Professional Farming Academic Publishers, Wageningen, 191 - 201
- Kelly, P. C., More, S. J., Blake, M., & Hanlon, A. J. (2011). Identification of key performance indicators for on-farm animal welfare incidents: Possible tools for early warning and prevention. Irish Veterinary Journal, 64(1). doi:10.1186/2046-0481-64-13
- Wadepohl, K. Blaha. T., Van Gompel L, Duarte ASR, Nielsen CL, Saatkamp H, Wagenaar JA, Meemken D; Development of a simplified on-farm animal health and welfare benchmarking tool for pig herds; Berl Münch Tierärztl Wochenschr (2019). In press

Can we increase our knowledge about the infectious state of pig supplying herds?

The concept of the „meat juice multi-serology

Meemken u. Blaha (2011)

1. Collecting muscle samples (60/hrd/yr)

Using the salmonella monitoring

2. Producing meat juice

Freezing/Thawing

3. Microarray-Technique

Up to 100 antigen spots

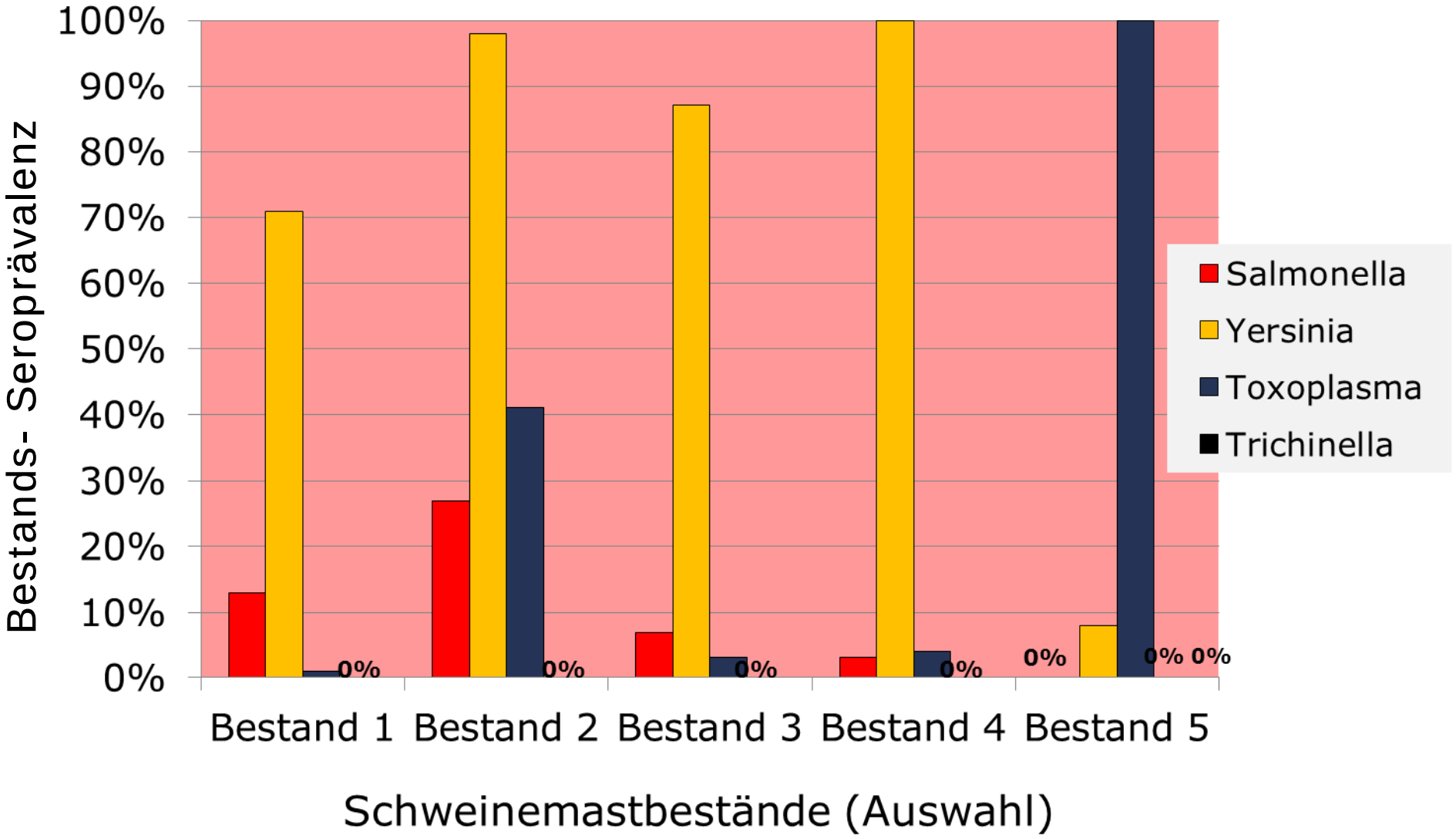
„Multi-serological herd profile“

Zoonoses | Production diseases | Epidemic diseases

How to use serological results

„Serological Herd Profiles“

Meemken et al., Prev. Vet. Med, 2014



Any variation is thinkable

- Apart from zoonotic agents, AB against epidemic diseases can be added, or against production diseases
- Any diagnostic method to test for residues in meat juice can be added
- If available, direct detection methods for identifying agents can be added
- ….

Value of benchmarking epidemiological indicators and of the multi-serology

- The benchmarking focuses not on the single carcass but on a continuous optimisation processes due to the possible benchmarking effects
- The multi-serology principle assesses the risk of herds to carry health hazards into the food chain

Both principles are potential tools for promoting the modernization of making meat not only safe, but safer

Thank you for your attention