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**RIBMINS**

Risk-based meat inspection and  
integrated meat safety assurance

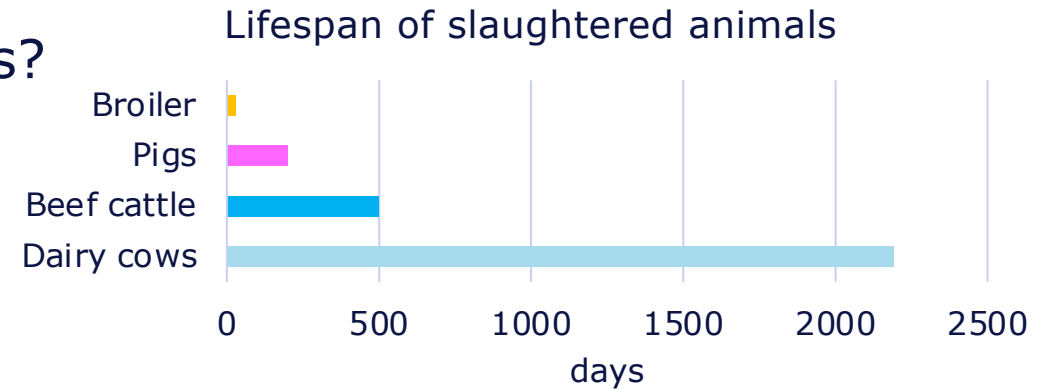
# FCI & HEIs for broilers

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- What is different to the other animal species?

- short lifespan



- high number of animals count together as one flock → „the flock is infected, not the animal“
- highly integrated systems (partly, farms and abattoirs belong to the same company) → close contacts between farm(er) & abattoir → FBO ask for information they want to have → fast transmission of information, partly with proprietary software



- What is specific for broilers?
  - visual meat inspection because of high line speed
  - *Campylobacter*, *Salmonella* and ESBL/AmpC carrying bacteria = high priority hazards (EFSA, 2012)
  - FCI and HEIs should include data to help FBO and OV to be aware of these and other invisible hazards and further specific risks related to the incoming batches



EFSA Journal 2012;10(6):2741

### SCIENTIFIC OPINION

#### Scientific Opinion on the public health hazards to be covered by inspection of meat (poultry)<sup>1</sup>

EFSA Panel on Biological Hazards (BIOHAZ), EFSA Panel on Contaminants in the Food Chain (CONTAM) and EFSA Panel on Animal Health and Welfare (AHAW)<sup>2,3</sup>

European Food Safety Authority (EFSA), Parma, Italy

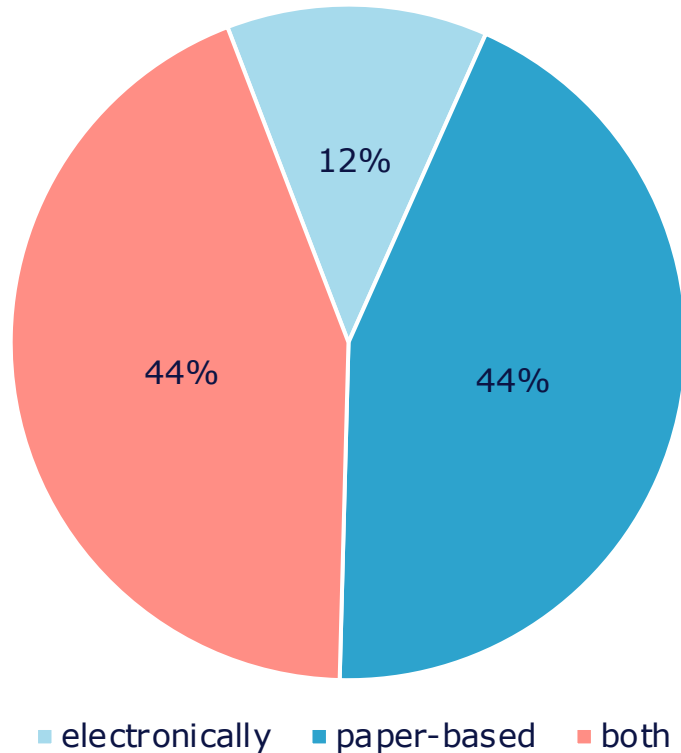
This Scientific Opinion, published on 10 July 2012, replaces the earlier version published on 29 June 2012.<sup>4</sup>

EFSA, 2012a:  
<https://doi.org/10.2903/j.efsa.2012.2741>

- ✓ FCI are useful for providing information on:
  - veterinary medications
  - diseases occurring
  - *Salmonella* testing on-farm
- ✗ imprecise, inconsistent
- ✗ lacking thresholds and subsequent measures
- ➔ insufficient harmonisation

- on the electronic/digital way and/or paper-based
- standardised forms in several countries:
  - one form for all slaughtered animal species or
  - one poultry specific form or
  - broiler specific form

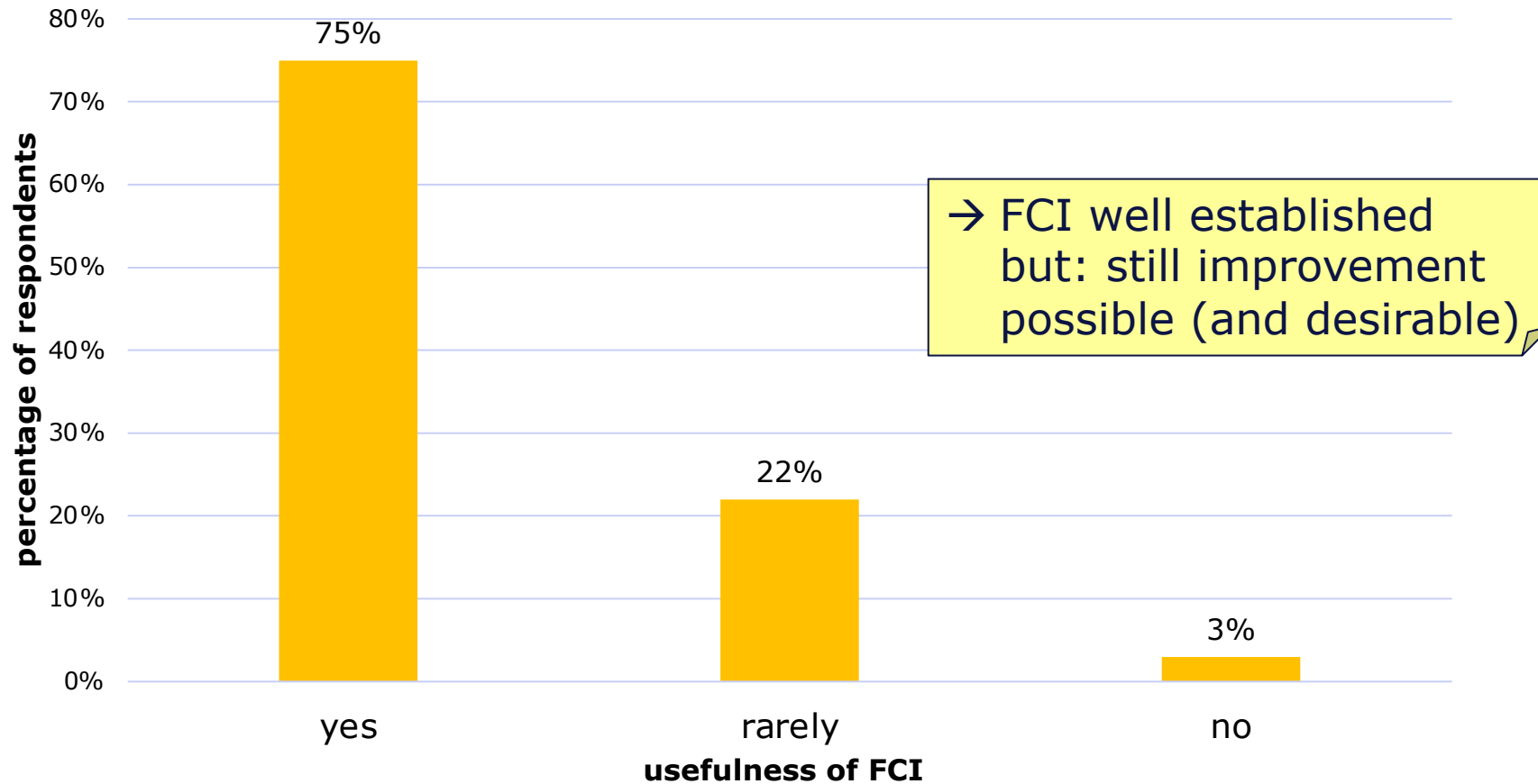




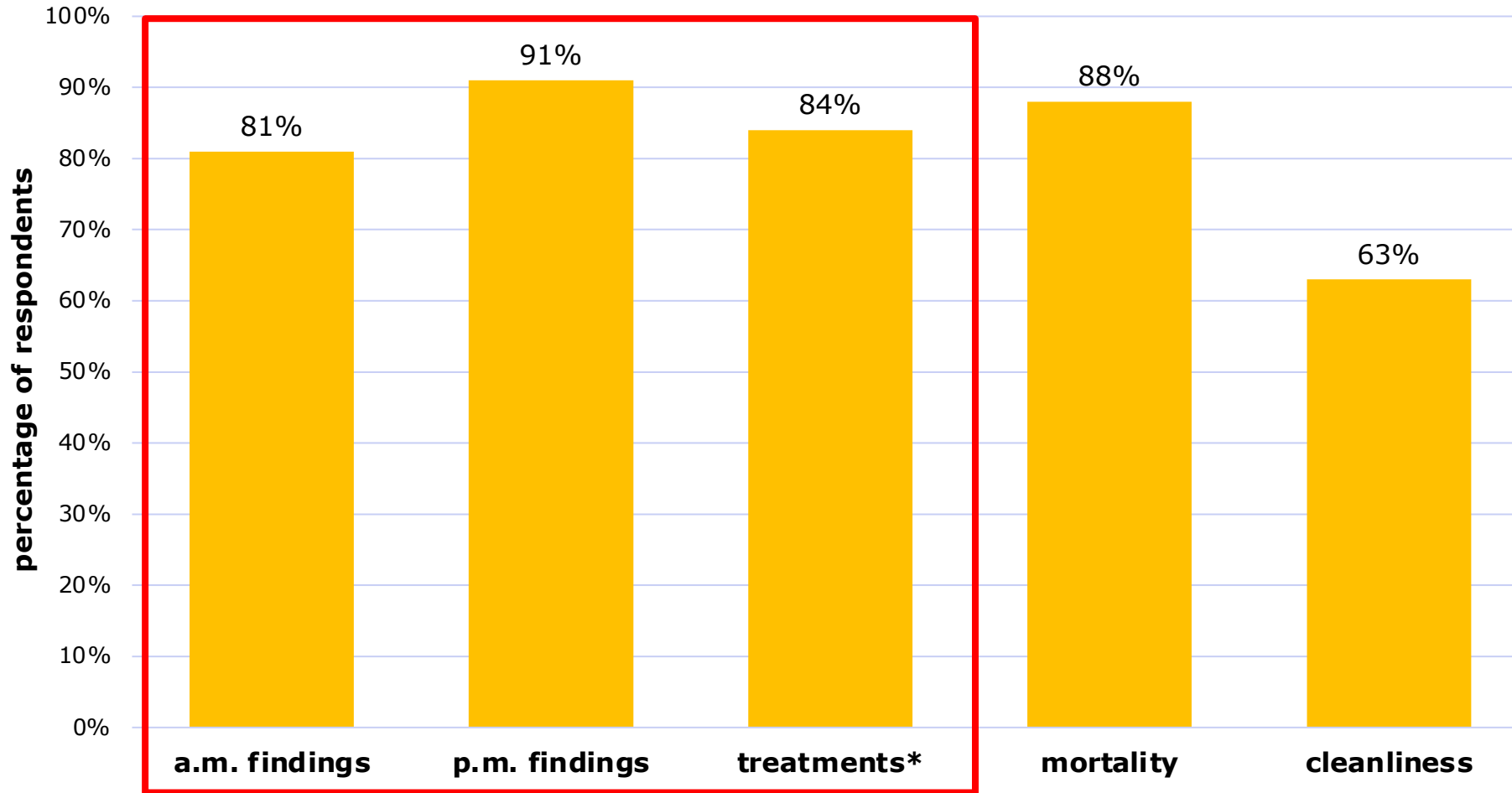
- 78% of the respondents assess the transmission procedure as practical, among them all respondents with electronic access
- 22% found the transmission procedure not feasible, all receive FCI paper-based
- → significant ( $p=0.006$ ) differences between the transmission procedures

→ aim:  
transfer FCI  
electronically

Does the FCI help you in decision-making regarding food safety?



# Results: status quo of transmitted information



→ different information transmitted to a large extend

legally required  
→ should always be accessible

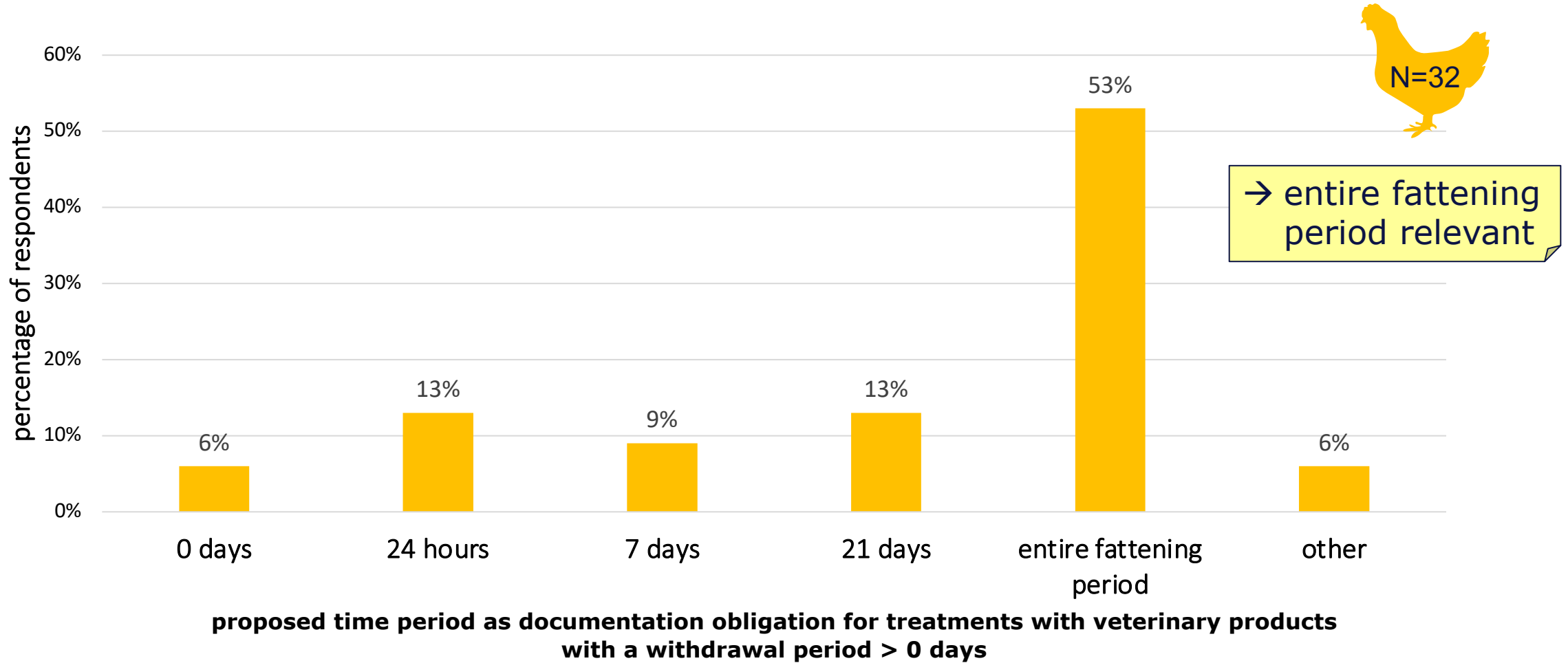
\* treatments with a withdrawal period > 0 days in the relevant period

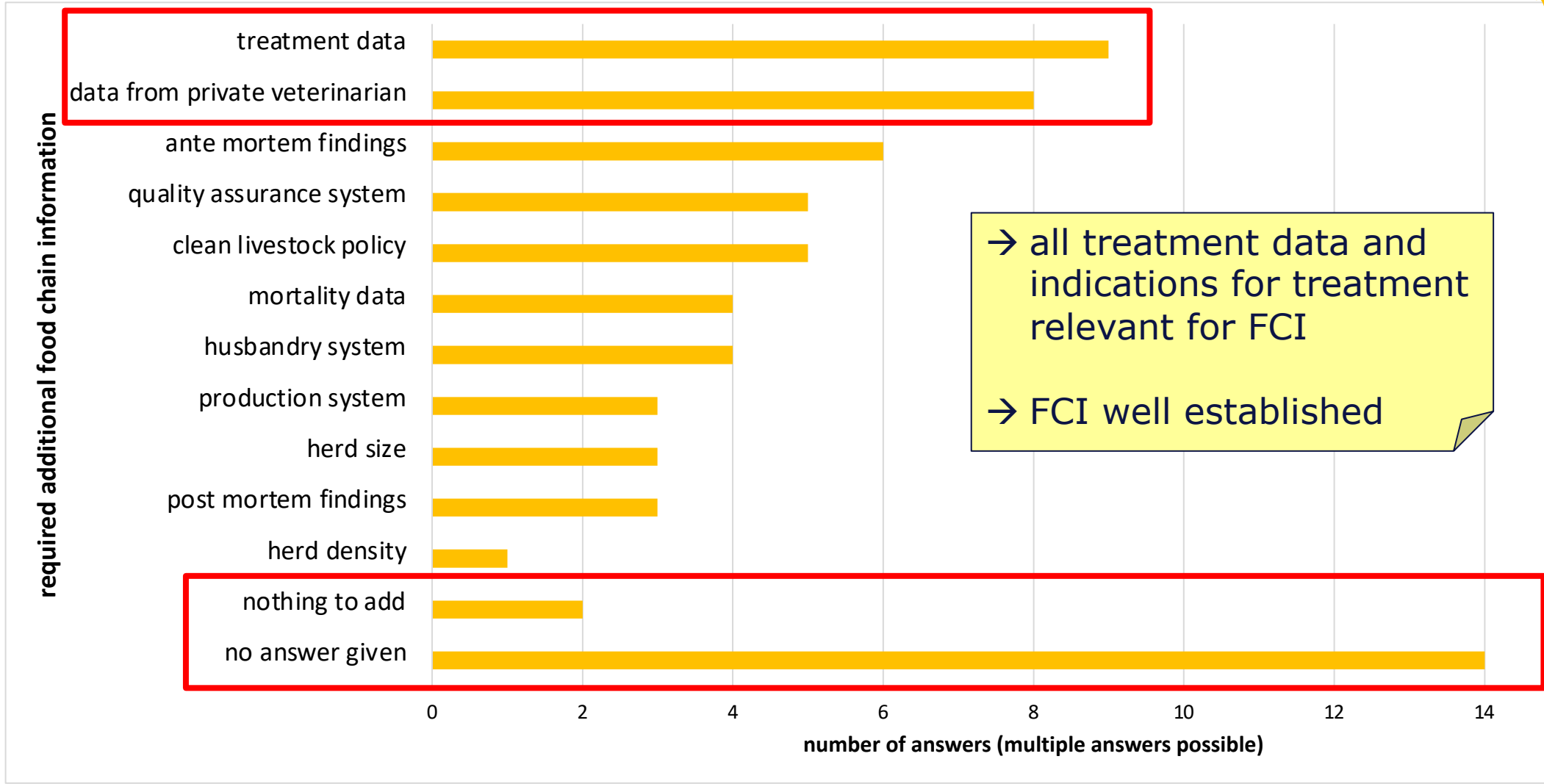


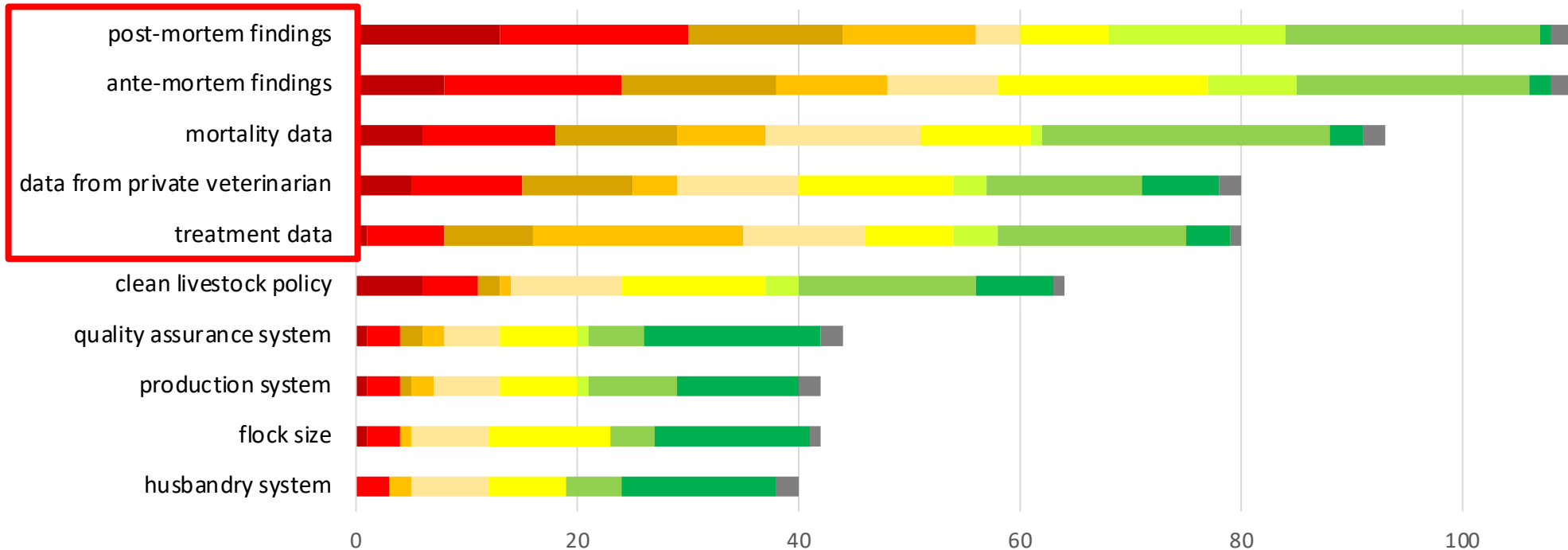
- no statistically significant differences between OV's or FBO's answers concerning:
  - availability of specific information
  - finding FCI useful
  - finding the transmission procedure practical
  - proposed thresholds
  
- ➔ similar handling of data and similar opinions
- ➔ helpful for harmonised procedure



- easy to access, numerical data
- Threshold associated with visible lesions?  
no clear result out of the survey, rare scientific data
  - Lupo et al. (2009): lower condemnation rate in broiler carcasses in flocks with a mortality rate of  $<2.5\%$  compared to flocks with  $>2.5\%$
- Higher value of mortality of the last 7 days (without mortality of the first days)?
  - Lupo et al. (2013): high mortality rate during the last 7 days  
→ higher condemnation rate

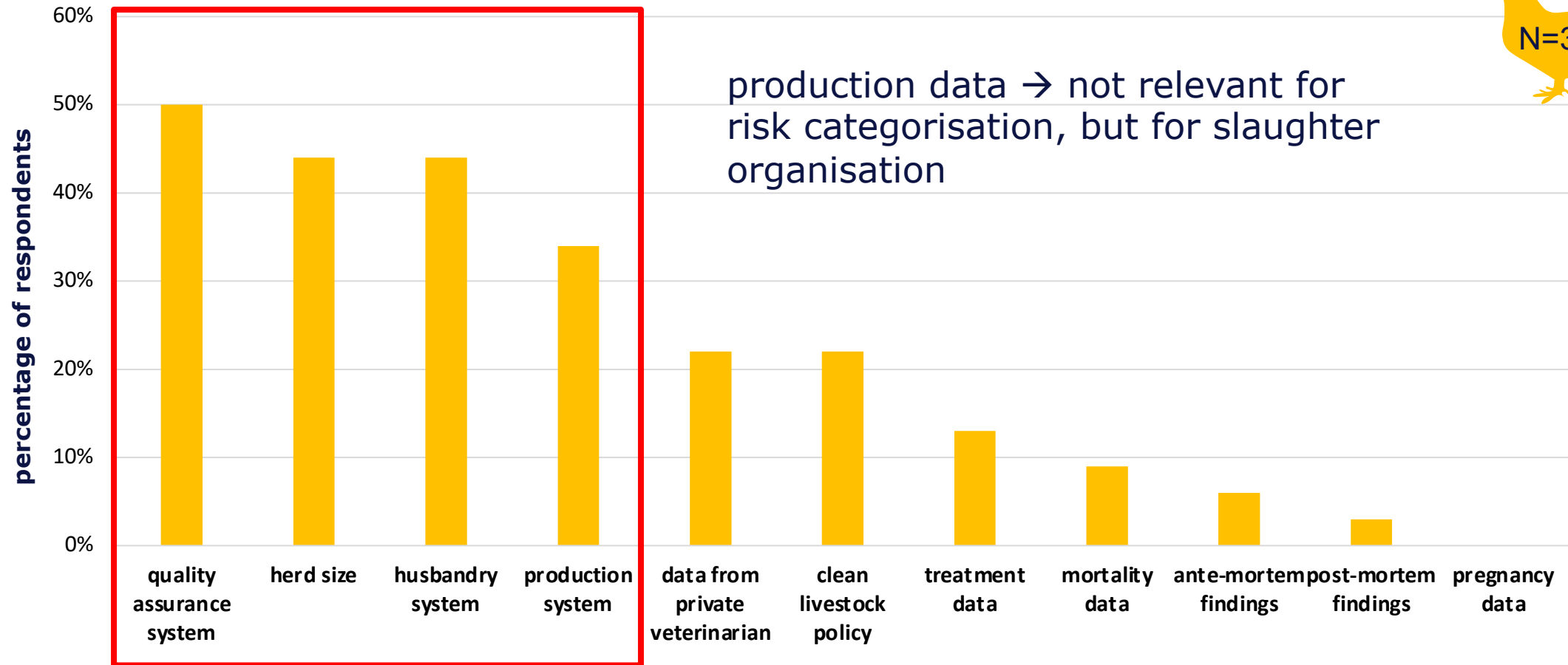




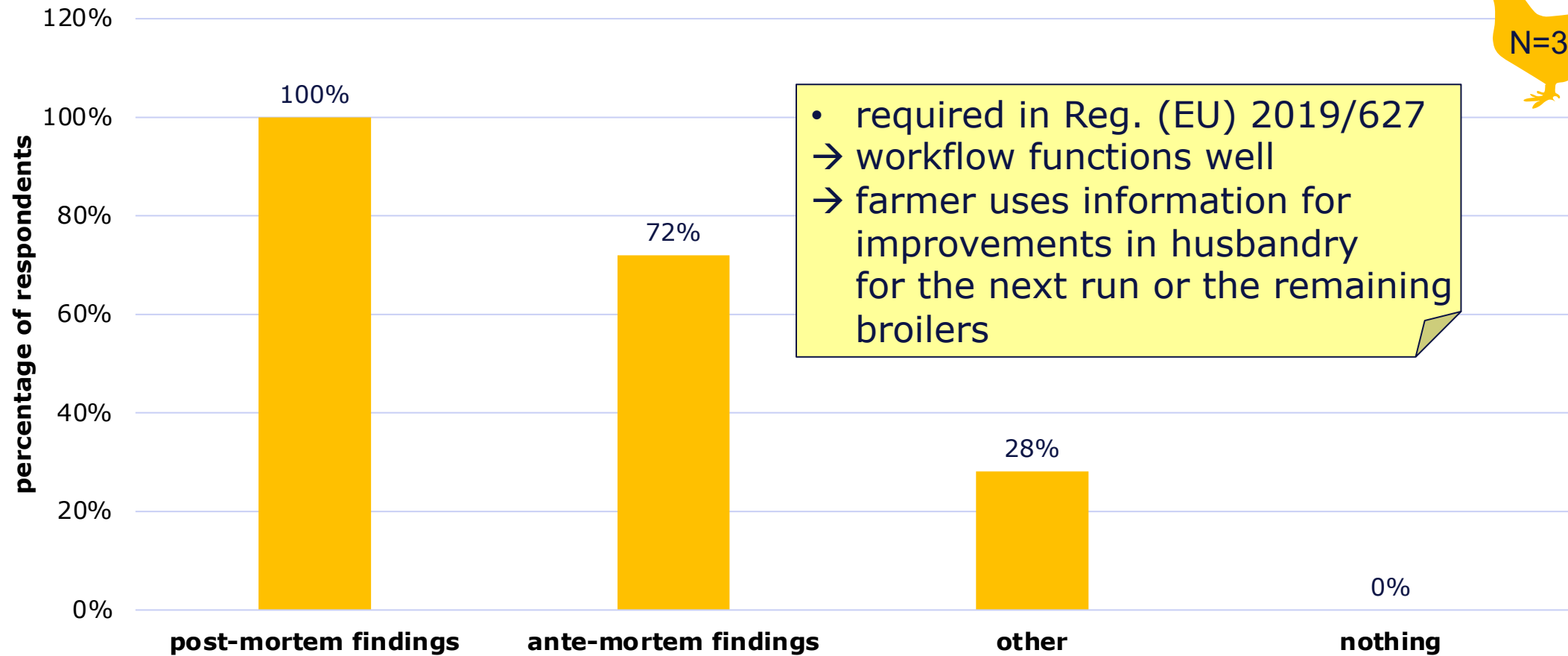
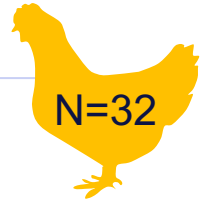


- reduction of line speed
- intensification of meat inspection – more personnel
- intensification of meat inspection – additional tests
- residue testing
- preselection of herds before slaughter
- logistic slaughter
- channelling of the processed products (i.e. not used for minced meat)
- raising awareness
- none
- other

- indications for treatments, all treatment data and especially occurring diseases short before slaughter seem to be of high interest for an earlier knowledge of specific post mortem findings or a possibly higher condemnation rate
- diagnosed disease → higher total condemnation rate (Haslam et al., 2008)
- health disorders, esp. short before slaughter → high impact on condemnation rate (Lupo et al., 2009, 2013)



multiple answers possible

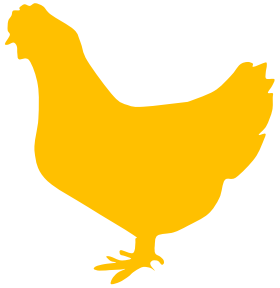


- required in Reg. (EU) 2019/627
- workflow functions well
- farmer uses information for improvements in husbandry for the next run or the remaining broilers

multiple answers possible

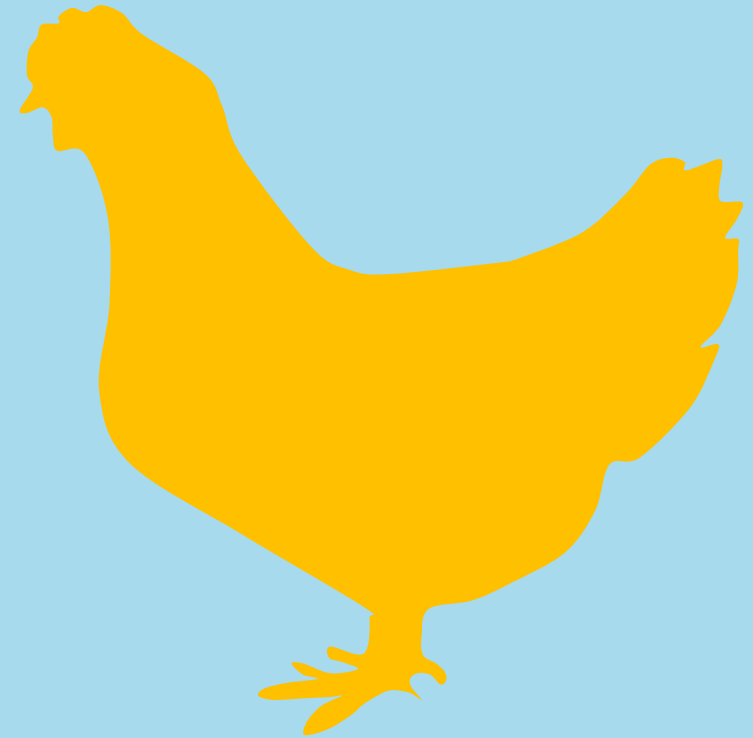


- FCI are well implemented for broilers, probably due to integrated systems and meaningful data out of entire flocks and short lifespan
  - mortality data can be helpful, but: threshold, specific mortality (last 7 days?) unclear
- suggestions for improvement necessary



- optimisation of the practical execution
  - electronic transmission of FCI
  - access to as many relevant data as possible, at least to all listed in Reg. (EC) No 853/2004
- improvement of FCI legislation
  - precise definitions of required FCI
  - FCI should include mortality rate → more research needed for thresholds or knowledge of a specific mortality rate (last 7 days?)
  - harmonisation of relevant period of treatments with WP > 0 days → entire fattening period for broilers
  - FCI should contain all treatments and indications

# Harmonised Epidemiological Indicators (HEIs) for Broilers



- relevant pathogens:
  - *Salmonella*
  - *Campylobacter*
  - ESBL/AmpC  $\beta$ -lactamase producing *E. coli*
  - generic *E. coli*



EFSA Journal 2012;10(6):2764

### SCIENTIFIC REPORT OF EFSA

#### Technical specifications on harmonised epidemiological indicators for biological hazards to be covered by meat inspection of poultry<sup>1</sup>

European Food Safety Authority<sup>2, 3</sup>

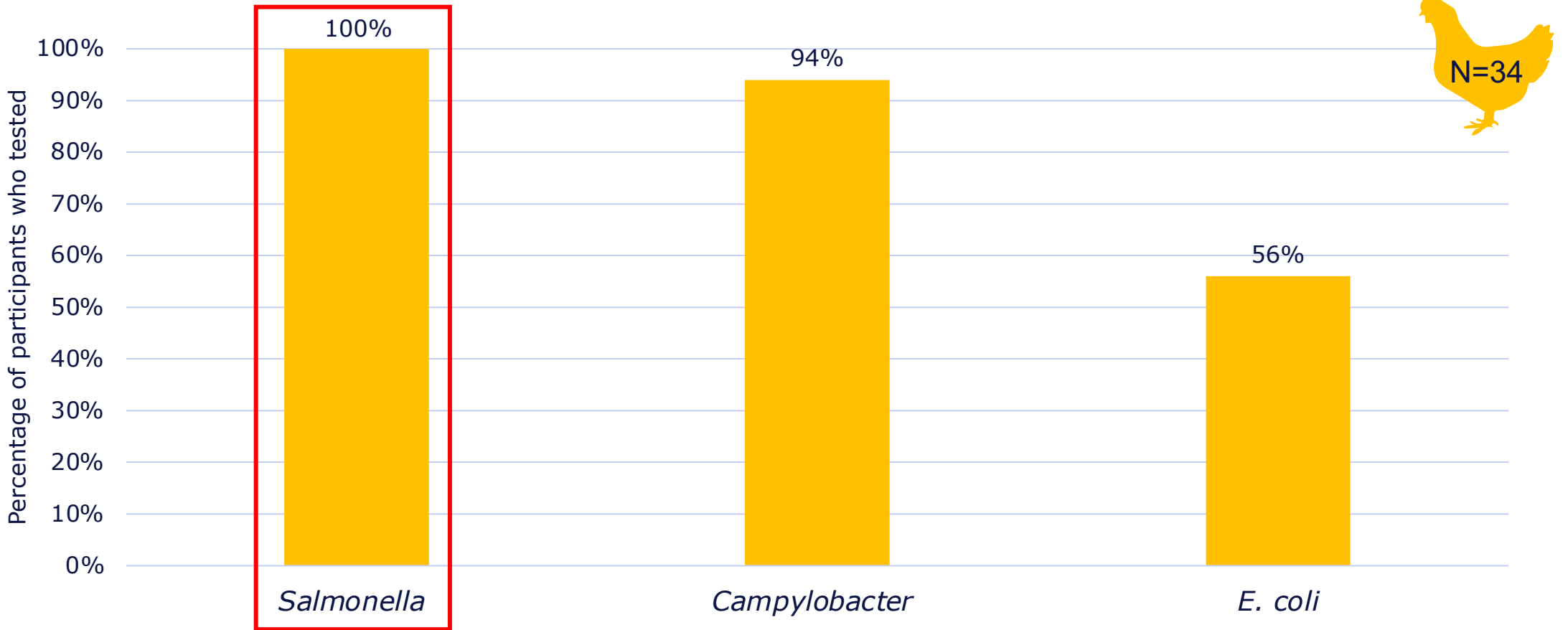
European Food Safety Authority (EFSA), Parma, Italy

EFSA, 2012b:  
<https://doi.org/10.2903/j.efsa.2012.2764>

- control actions for minimising incoming pathogens at slaughter should include farm and abattoir level
- each abattoir is unique → individual intervention strategies
- HEIs are not mandatory but some are legally regulated
  - monitoring (*Salmonella* & *Campylobacter* & AMR\*)
  - control programmes at farm level (*Salmonella*)
  - process hygiene criteria at abattoirs (*Salmonella* & *Campylobacter*)
  - food safety criteria at retail level (*Salmonella*)

→ Aim: Status quo of existing MoSS for broilers in Europe?

\* antimicrobial resistance



Foodborne biological hazards participants tested for in broilers

\*MoSS = monitoring and surveillance systems



- HEI 2 *Salmonella* in poultry flocks prior to slaughter
  - **91%: microbiology + pooled faeces**
- HEI 3 Controlled housing conditions at farm for ... fattening flocks
  - **6%: auditing**



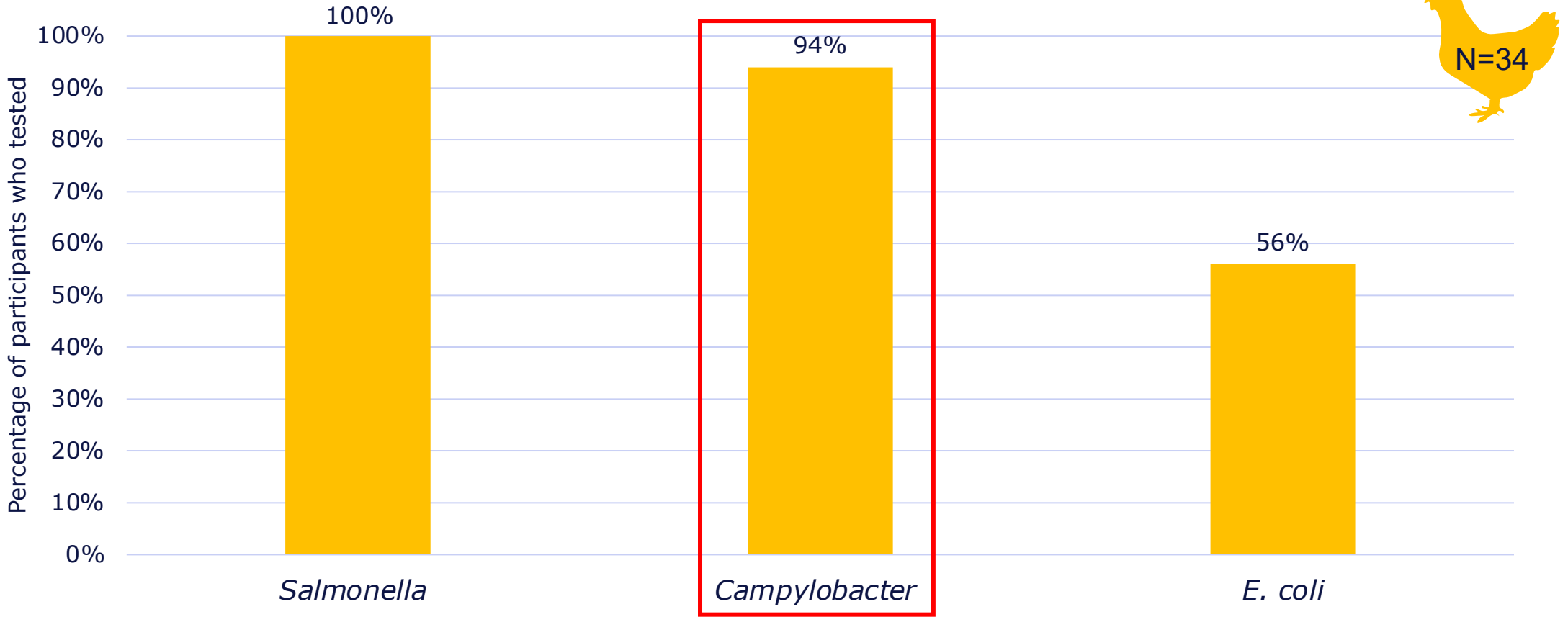
- HEI 4 *Salmonella* in birds – carcasses after slaughter process and chilling
  - **62%: microbiology + neck and breast skin**
- HEI 4 = PHC\* for *Salmonella* in broilers (Reg. (EC) No 2073/2005)
  - **37% (EU MS + testing for *Salmonella*) ≠ PHC**

\* process hygiene criterion



- Most common subsequent measures in case of *Salmonella*-positive results
  - 77%: surveillance of slaughter hygiene
  - 68%: raising awareness
  - 65%: feedback to the farm
  - 44%: farm categorisation
- answers with higher impact on slaughtering:
  - intensification of meat inspection
  - channeling of products
  - reduction of line speed
- categorisation of abattoirs = least mentioned measure following a MoSS





Foodborne biological hazards participants tested for in broilers

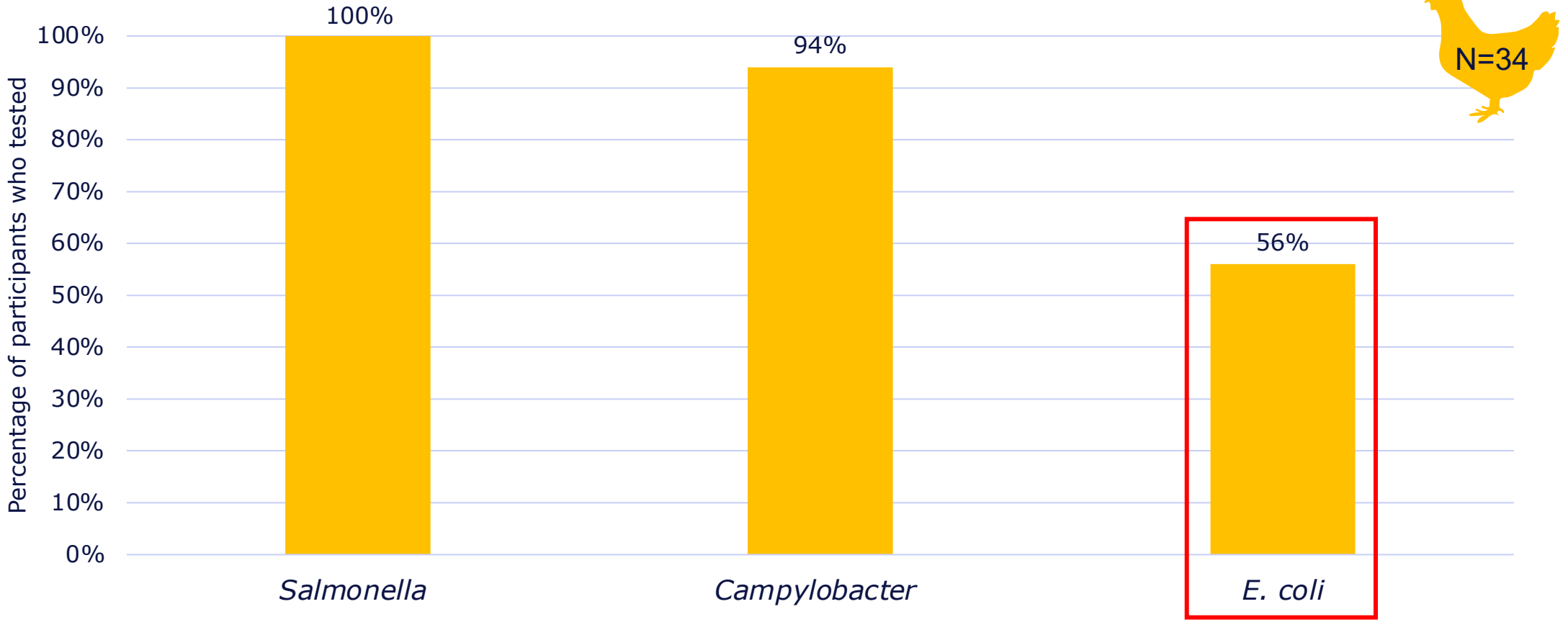
\*MoSS = monitoring and surveillance systems



- HEI 4 *Campylobacter* in birds – incoming to slaughter process (evisceration stage)
  - **25%: Microbiology – enumeration + caecal content**
- HEI 5 *Campylobacter* in birds – carcasses after slaughter process and chilling
  - **69%: Microbiology – enumeration + neck / breast skin**
- HEI 5 = PHC for *Campylobacter* in broilers (Reg. (EC) No 2073/2005)
  - **37% (EU MS + testing for *Campylobacter*) ≠ PHC**



- Most common subsequent measures in case of *Campylobacter*-positive results
  - 63%: raising awareness
  - 59%: surveillance of slaughter hygiene
  - 53%: feedback to the farm
  
- categorisation of farms & abattoirs = rarely mentioned as measure following a MoSS
  - combination of farm and abattoir testing would be helpful
  - nordic countries test more on farm level because on abattoir level only process is surveilled, important to know what comes in



Foodborne biological hazards participants tested for in broilers

\*MoSS = monitoring and surveillance systems



- HEI 1 Generic *E. coli* in birds – carcasses after slaughter process and chilling
  - **53%: Microbiology – enumeration + neck / breast skin**
- Most common subsequent measures in case of *E. coli*-positive results
  - 68%: surveillance of slaughter hygiene
  - 47%: raising awareness
  - 32%: feedback to the farm
  - 32%: farm categorisation
- categorisation of abattoirs = least mentioned measure following a MoSS





- HEIs for broilers are implemented in most EU member states but differences exist
- currently implemented MoSS for broilers are appropriate
- main implemented consequences:
  - raising awareness
  - farm categorisation
  - feedback to farmers
- when asked about farm interventions, participants mostly stated these were not implemented
- categorisation of abattoirs is rarely performed
- more training is needed in HEIs' application

- HEIs should be part of FCI and transmitted together  
→ better detection of broiler hazards, esp. *Salmonella*, *Campylobacter*, ESBL- AmpC-carrying bacteria
- FCI and HEI *Salmonella/Campylobacter* already well implemented
- advantage of short lifespan, high numbers of animals counting as one flock, integrated systems make an easy data exchange of useful data possible

Thank you for the attention.

And a special thanks to  
all respondents, RIBMINS NCPs,  
and WG 2 members.



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