Salmonella in pigs

Skaarup René, Cota Joao, Ljubojevic Dragana, Simon Plinio, Jon-Blaauw Fenja, Ramos Sonia

Why is Salmonella in pigs an important meat borne hazard?

- 2nd most common FBP in the EU
- *Salmonella* is widespread in pigs but most animals are asymptomatic carriers
- Pig meat and pork products are among the major sources of *Salmonella*
- Most freq. Serovars among the top 5 serovars infecting humans
    - *S.* Typhimurium
    - *S.* Typhimurium monophasic
    - *S.* Derby

Farm categorization

	Farm A				Farm B				Farm C				Farm D			
	Yes	No	not known	N/A	Yes	No	not known	N/A	Yes	No	not known	N/A	Yes	No	not known	N/A
Farm type										No			Yes			
farrow-to-finishing herd	Yes					No				No					x	
big farrow-to-finishing herd (more than 200 sows)		No				No			Yes					No		
finishing herd		No			Yes				Yes					No		
All-In-All-Out	Yes					No										
Livestock housing and facilities																
solid floor		No			Yes				Yes					No		
slatted floor	Yes					No				No				No		
access to slurry and manure		No			Yes				Yes				Yes			
indoor holding with possibility to have access to outdoor		No			Yes					no				No		
permanent outdoor holding (free-range farm)		No				No				No			Yes			
straw bedding		No			Yes				Yes						x	
Livestock feed and water																
heat treatment of feed	Yes						x		Yes				Yes			
commercial feed	Yes					No			Yes					No		
use of municipality water for drinking the animals	Yes					No			Yes					No		
microbiological safe water	Yes						x		Yes						x	
acification of feed	Yes						x				x			No		
Salmonella testing of feed	Yes						x				x				x	
sanitation system for lorries entering the farm	Yes						x			No			Yes			
Pest control																
pest control system in place	Yes					No			Yes					No		
bird control	Yes					No			Yes					No		
contact with other animals than birds (wildlife)		No			Yes					No			Yes			
access of other animals to the stable (pets, e.g. cats)		No			Yes				Yes				Yes			
Livestock sourcing																
high number of pig suppliers		No			Yes					No					x	
purchase of Salmonella negative pig (30kg)		No				No			Yes						x	
purchase of Yersinia negative pig (30kg)		No				No					x				x	
purchase of Toxoplasma negative pig (30kg)		No				No					x				x	
positive Salmonella serological status before slaughter (indirect test)			x			No					x				x	
positive Yersinia serological status before slaughter (indirect test)			x				x				x				x	
positive Toxoplasma serological status before slaughter (indirect test)			x				x				x				x	
positive HEV serological status during fattening (indirect test)			x				x				x				x	
positive Salmonella test results during fattening (direct test, e.g. PCR, culture)		No					x		Yes				Yes			
positive Yersinia test results during fattening(direct test, e.g. PCR, culture)			x				x				x				x	
positive Toxoplasma test results during fattening(direct test, e.g. PCR, culture)			x				x				x				x	
positive HEV test results during fattening (direct test, e.g. PCR, culture)			x				x				x				x	
culling of Salmonella-positive animals	Yes						x						Yes			
Livestock health																
Salmonella vaccination	Yes					NO				No					x	
deworming of sows	Yes						x			No					x	
deworming of finishers	Yes				Yes					No					x	
farm is equipped with suitable facilities to isolate sick or injured pigs	Yes				Yes				Yes				Yes			
Medicines																
antibiotic group treatments		No					x				x			No		
medicines for treatmet used only when necessary and prescribed by a Vet			x				x				x				x	
Management, Quality control																
written procedure for cleaning and disinfection	Yes				Yes				Yes					No		
rotation of disinfectants	Yes						x		yes						x	
controlled access to the stable	Yes					No			Yes				Yes			
provision of disposable clothing and footwear to visitors	Yes					No			Yes					No		

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controlled access to the stable	Yes					No			Yes				Yes			
provision of disposable clothing and footwear to visitors	Yes					No			Yes					No		
Risk level	Low				High				Medium				Medium			

Criteria to categorize the farms?

- Difficult to compare
- Focus on Salmonella prior to slaughter
- No serological testing carried out on farms of the exercise
- Evidence of positive animals relies only on fecal testing of finishing pigs

Categorizing abattoirs on FSMS and RBC tools

- High performing (abattoir 1)
    - FSMS tool: 15.5/20 = 77.5%
    - Risk-based categorization tool 2: 2.8%

- Low performing (abattoir 2)
    - FSMS tool: 3.88/20 = 19.4%
    - RBC tool: 80.6%

- Medium performing (abattoir 3)
    - FSMS tool: 8.66/20 = 43.3%
    - RBC tool: 55.6%

Which pigs go to which abattoir?

- High performing   → all kind of farms (anticipate on hazard)
- Medium performing   → low risk, medium risk farms (additional actions needed)
- Low performing   → low risk farms (purchase policy)

Conclusions

- The proposed tools are very useful for categorization of abattoirs.
- Suggestion: a tool for categorization of farms according to different hazards.
- Risk managing for OV and FBO can have different point of views.

Performance of the abattoirs and its impact on Salmonella

- The ability/capacity to adjust the process towards a more hygienic one.
- Target Performance objective in chilled carcasses