Risk classification Workshop

STEC in Beef

Case 6

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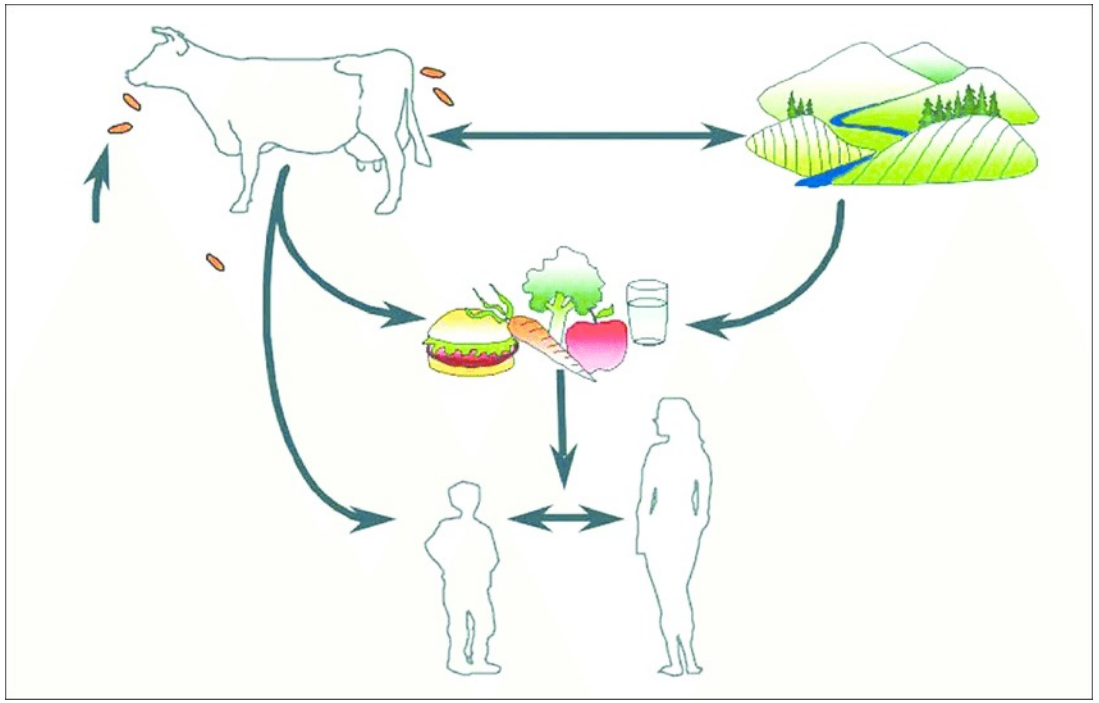
Shiga toxin – producing (STEC) *Escherichia coli*



- human pathogen that can cause hemorrhagic colitis (bloody diarrhea) and sometimes hemolytic uremic syndrome (HUS), a life-threatening disease that causes kidney damage
- STECs are shed at significant levels by healthy/asymptomatic cattle
- shedding leads to contamination of the farm environment
- STECs serve as the main source of carcass contamination during slaughter and dressing of cattle at abattoirs or contamination of fresh beef and beef products
- EU notification rate
  1.6 cases per 100 000 population

Categorization of farms and risk factors

- Good animal husbandry
- Control outer factors: feed, waste, bedding
- Minimize stress
- Good animal welfare to avoid shedding

	Farm A		Farm B		Farm C	
	Yes	No	Yes	No	Yes	No
All-in-all-out	x					
Negative STEC status of supply farms	x			x	x	
Mixing of different age categories - stress					x	
Heat treatment of feed				x		x
Commercial feed	x			x		x
Proper and regular cleaning and disinfection practices	x			x		
Indoor holding with possibility to have access to outdoor		x	x		x	
Contact to wildlife		x		x		
Pest control	x			x		
Access of other animals to the farm (e.g. pets)		x				
Clean/dry bedding	x			x		
Well ventilated housing	x			x	x	
Appropriate floor drainage						
Controlled access to the farm	x			x	x	
Provision of clothing and footwear for visitors	x			x	x	
Workers trained in animal welfare	x			x	x	
Microbiologicaly safe water	x					x
Access to surface water		x			x	
Access to manure			x		x	
STEC vaccination		x		x		
Access to common grazin pasture		x			x	
High animal density		x				x
Mixing with other herds		x				
Biosecurity measures	x			x		
Waste management practices	x			x	x	
Taking animals off the farm to visit fairs			x		x	
Clean cattle policy in place	(x)			x	(x)	
Positive STEC status of farm (pooled faecal samples)		x				x
	LOW RISK		HIGH RISK		MEDIUM RISK	

Categorization of farms, discussing risk factors

- Some factors have minimal influence and some are difficult to adjust (pets and wildlife)
- Stress can increase sheding within a herd, so animal welfare factors are important
- Control of other outer factors like dry bedding, cleanliness, hygiene is important.
- Testing of animals before slaughtering, is important

FSMS of abottoires

FSMS performance assessment

	FSMS Component	Cattle abattoir Assessment levels / options / categories	Score	Cattle abattoir Assessment levels / options /	Score	Cattle abattoir Assessment levels / options / categories	Score
1	FCI as it is now	The abattoir systematically collects, analyses and responds to the information in the FCI, pı	1.00	Abattoir does not systematically collect, analyz	0.00	Collected FCI includes FCI according to the legislati	1.00
2	FCI with additional WG2 suggestions (= improved FCI)	Collected FCI includes FCI according to the legislation and the additional WG2 suggestions (	1.00	Collected FCI includes only FCI according to the	0.00	The abattoir does not systematically apply financia	0.00
3	Financial penalisation of farmers	The abattoir systematically applies financial penalisation of farmers as a response to dirty li	1.00	The abattoir does not systematically apply finar	0.00	High risk animals are not identified as part of rout	0.00
4	Pre-slaughter, inside lairage interventions (shearing/clipping) (only C,	High risk animals are identified and clipped or sheared as part of routine practice to minimi	0.50	High risk animals are not identified as part of rc	0.00	The abattoir occasionally applies risk based categ	0.50
5	Preselection of herds before slaughter (WP2)	For all relevant hazards, the abattoir systematically applies risk based categorisation of her	1.00	The abattoir does not systematically apply risk l	0.00	The abattoir systematically applies logistic slaugh	1.00
6	Logistic slaughter	The abattoir systematically applies logistic slaughter principles (slaughtering order) to addr	1.00	The abattoir does not systematically apply logis	0.00	Abattoir does not systematically proactively adapt	0.00
7	Adapting line speed	Abattoir does not systematically proactively adapt the speed of the line to the level of haza	0.00	Abattoir does not systematically proactively ad	0.00	(score this component in its own, separate Tab)	0.75
8	GMPs & GHPs	(score this component in its own, separate Tab)	1.00	(score this component in its own, separate	0.17	The abattoir is systematically hygiene assessed	0.50
9	Hygiene assessment systems (SCORE FIXED)	The abattoir is systematically hygiene assessed only by internal sources through audits.	0.50	The abattoir is systematically hygiene assessed	0.50	(score this component in its own, separate Tab)	0.50
10	Staff training	(score this component in its own, separate Tab)	1.00	(score this component in its own, separate	0.00	Visual inspection and documentary evidence (inclu	0.50
11	Other PRPs (pest control, storage conditions etc.) (SCORE FIXED)	Visual inspection and documentary evidence (including from internal and external audits) ir	0.50	Visual inspection and documentary evidence (ir	0.50	(score this component in its own, separate Tab)	0.63
12	HACCP	(score this component in its own, separate Tab)	1.00	(score this component in its own, separate	0.00	Medium effectiveness intervention (TVC, enteros	0.50
13	Carcase interventions at slaughter	High effectiveness intervention (TVC, enteros or E.coli reduction of more then 2log) or use	0.75	No intervention or interventions with	0.00	Dry chilling (conventional)	0.50
14	Chilling	Dry chilling (conventional)	0.50	Water spray chilling	0.00	The abattoir occasionally applies freezing of carca	0.50
15	Carcase freezing	The abattoir occasionally applies freezing of carcases to respond to specific hazards	0.50	The abattoir does not systematically apply free	0.00	The abattoir occasionally uses different sales char	0.50
16	Use different sale channels (SCORE FIXED)	The abattoir occasionally uses different sales channels to control pathogens, depending on	0.50	The abattoir occasionally uses different sales ch	0.50	The abattoir systematically informs the source farn	1.00
17	Inform and follow up with farms	The abattoir systematically informs the source farms of meat inspection findings and lab re	1.00	Abattoir does not systematically inform source	0.00	(score this component in its own, separate Tab)	0.50
18	Monitoring and continuous improvement (SCORE FIXED)	(score this component in its own, separate Tab)	0.50	(score this component in its own, separate	0.50	(score this component in its own, separate Tab)	0.50
19	Microbiological testing	(score this component in its own, separate Tab)	1.00	(score this component in its own, separate	0.00	Some evidence of an internal and external commui	0.50
20	Communication (SCORE FIXED)	Some evidence of an internal and external communication chain on food safety issues is pre	0.50	Some evidence of an internal and external com	0.50	(score this component in its own, separate Tab)	0.67
21	Internal auditing	(score this component in its own, separate Tab)	1.00	(score this component in its own, separate	0.33		
		Abattoir FSMS performance score	15.75	Abattoir FSMS performance score	3.00	Abattoir FSMS performance score	11.04
		Abattoir FSMS performance category	High	Abattoir FSMS performance category	Low	Abattoir FSMS performance category	Medium

Notes for the user

1. The objective of this tool is to assign the abattoir in one of three

Specifically important parameters in abattoir

- System in place for reception and directing animals according to their status of cleanliness
- GHP, adequite hygienic dressing
- Training of staff
- Correct testing on farms
- Cooling of carcasses

Pairing animals to abattoir based on boths risk classification

farms	risk cat
A	
B	
C	

abattoir	fsms
nr. 1	
nr. 2	
nr. 3	

Paired				
	Farm A sends animals to Abattoir nr 2, 3, 1			
	Farm B sends animals to Abattoir nr. 1			
	Farm C sends animals to Abattoir nr. 3, 1			

Discussion on pairing

Theori versus real-world

- If high risk animals are sent to high risk abattoir there has to be added additional preventive action so the meat can go to market with acceptable risk f.ex. Meat for cooking. – therefore establishments are needed that specialize in prosessing high risk meat
- High quality standards lead often to high performing abbatoirs and therefore high qualiy products, it is questionable if those companies would like to make use of high risk animals (spoiling their microbiological track record and name in the industry)
- Intake of high risk animals / meat may create problems with the compentent authorities and might therfore not be favorable – some countries operate with 0 tolerance

Conclusion

- FSMS is a tool that can be used to categorize farms and abattoirs and functions effectivly.
- There have to be some additional preventive actions taken when deeling with high risk farms and high risk abattoir