



# Role of the Belgian NRL for *E. coli* O157, animal health

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# Lay out

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- *E. coli* O157 in Belgium
- History: former activity of NRL
- NRL, AH today
- Home-take message



# *E. coli* O157 & Belgium

trends and sources

report on zoonotic agents in belgium in 2006



2006

Available at: <http://www.favv.be>



# *E. coli* O157 & Belgium

- Trends & sources (2003-2006)
  - Human:  $\pm 40$  typical cases per year; 5-15 HUS
  - Cattle:  $\pm 1-1,5\%$  positive carcasses at abattoir; herd prevalence is unknown
- Small number of outbreaks



# NRL: Former activity

- FASFC: Tracing back of *E.coli* O157-positive carcass to herd of origin
  - Sampling at abattoir,  $\pm 1600 \text{ cm}^2$
  - “Guided surveillance”
    - Tracing back and sampling at cattle farm
    - Selection of 10% of animals (max 20), aged  $> 6$  months or  $< 2$  year
    - Available feed & environmental sample



# NRL: Former activity, 2

- FASFC: Sanitary measures
  - No untreated milk sold to public
  - Animals isolated, prevention of contact
  - Personal hygiene on farm
- CODA-CERVA: Bacteriology of farm samples
  - ISO 16 654
  - PCR: O157, Stx, Eae



# Cattle herds

- Example: *E. coli* O157 in 2001
  - Minced meat: no cases ( $n=298$ )
  - Beef carcasses: 13x *E. coli* O157 VT EAE ( $n=1388$ )
    - Conclusion ... ???
- Study in 2001-2002
  - Trace back on 14 herds
  - 21 herds as controls



# Study results

## ■ Sampling and bacteriology of cattle herds

	Guided selection	Control farms
<i>E. coli</i> O157	8 (57%)	13 (62%)
<i>E. coli</i> O157 VT EAE	4 (29%)	1 (5%)
Negative	2 (14%)	7 (33%)
<i>Total:</i>	14	21

- *E. coli* O157: no virulence factors detected (atypical EHEC)
- *E. coli* O157 VT EAE: with virulence factors (typical EHEC)





## Results, 2

- Feed and environmental samples were useful !
  - Feed: atypical, but no typical, EHEC found
  - Environmental samples: typical and atypical EHEC



# Discussion

- "Guided surveillance" seems more sensitive to detect typical O157 EHEC
- Sanitary measures on selected farms
  - Aim: prevention of (in)direct infection
  - Efficient ?
    - Only selection of herds
    - Minimal measures needed / sufficient ?
- Serology: Reliable test available ?
- Remaining question: estimation of the prevalence at herd level ?



# NRL today

- Since 2006: farm samples are rare
- Only in case of foodborne outbreaks
  - June 2006, 2 HUS cases after stay at holiday farm: *E. coli* O157
  - June 2007, 2 HUS cases, contact with rabbit, chicken, sheep: no isolate
  - [September 2007, 12 ill, 5 HUS after visit cattle farm (ice cake): *E. coli* O145 and O26]



# Conclusion

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- Man
  - Isolation, diagnosis not reimbursed, therefore underreporting
- Cattle
  - No representative sampling
  - No unequivocal sanitary measures
- Both
  - Identification of pathotypes is essential
    - Role Stx2, Eae, ... variants