



Veterinærinstituttet  
*Norwegian Veterinary Institute*

# STEC in wild life and minced pork

NRL Norway

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# STEC in wild life

- DiSCoVeR - discovering the sources of Salmonella, Campylobacter, VTEC and antimicrobial resistance (2020-2022)
  - Amongst others, focus on STEC in wild life
  - In Norway, surveillance studies of wild life from 2017, fecal samples @ - 20 C
  - Planned 100 samples of each of reindeer, moose, roe deer and deer

# Brief overview results so far

Species	No of samples	Screening results		No. of samples where isolates were obtained*
		<i>stx</i> (total)	<i>stx</i> <i>cq</i> <35	
Reindeer	100	11	6	4
Moose	100	28	25	8**
Roe deer	100	41***	31	Not done yet
Deer	100	81****	48 (51)	Not done yet

\*Selection criteria for isolation: *cq*<35

\*\* Attempts of isolation lacking for 3 samples

\*\*\* *stx*<sub>1</sub> and *stx*<sub>2</sub> more equally distributed

\*\*\*Majority of samples positive for *stx*<sub>2</sub>

# Observations and issues

- A lot more positive than expected, but see differences between species
- Isolation was possible from samples stored for several years at -20C
- Some issues with IAC
  - Very low or  $cq$ -values = 0.00 for IAC, solved with diluting DNA 1:10

# Further work

- 19 isolates from 12 samples of reindeer and moose being sequenced
- Isolation from last 3 samples from moose
- Re-run PCR on samples with IAC issues from deer and roe deer (done - three more samples with  $cq < 35$  from deer)
- Attempt isolation from *stx* positive samples from deer and roe deer, followed by WGS of isolates



# STEC in minced pork

MSc-project carried out in 2021

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# Material and methods

- Had 157 samples of minced pork stored at -80C from a survey of pathogenic *Y. enterocolitica* carried out in 2019
- Analysed using ISO TS 13136:2012
  - Thawing of samples and enrichment in BPW-ISO
  - DNA extraction
  - PCR screening
  - Attempts of isolation from positive samples

# Results - screening

Combination of virulence genes	No of samples	No positive samples	% positive samples
<i>stx</i> <sub>1</sub> + <i>stx</i> <sub>2</sub> + <i>eae</i>	157	8	5,1
<i>stx</i> <sub>1</sub> + <i>eae</i>		6	3,8
<i>stx</i> <sub>2</sub> + <i>eae</i>		27	17,2
<i>stx</i> <sub>1</sub>		3	1,9
<i>stx</i> <sub>2</sub>		2	1,3
<i>stx</i> <sub>2a</sub>	37	0	0



# Isolation

- All samples positive for *stx*<sub>1</sub> and/or *stx*<sub>2</sub> selected for isolation.
- Frozen enrichment broths (-80) were thawed and plated with dilutions on TBX and SMAC
- 30 colonies picked and pooled prior to PCR



# Results isolation

- No positive pools were obtained
- Did not detect STEC in any of the samples.

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