



STEC in the National Zoonoses Monitoring according to **AVV Zoonosen Lebensmittelkette**

**Carolina Plaza Rodriguez, Bernd-Alois Tenhagen, Annemarie Käsbohrer, Mirjam Grobbel,
Elisabeth Schuh, Katja Alt**

AVV Zoonosen Lebensmittelkette

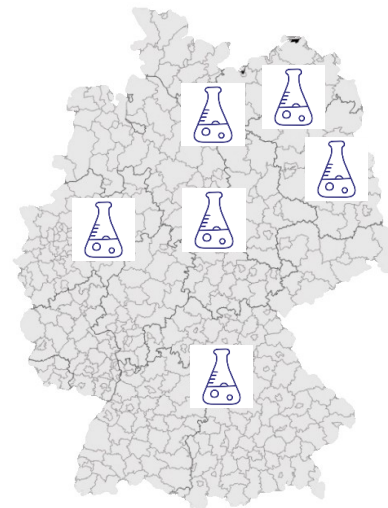
Based on EU Regulation 2003/99/EC

1. Proposals for specific programs

2. Consultation with the Federal States

3. Zoonoses sampling plan:

- Zoonotic agent
- Animal populations
- Stages of the food chain
- Number of samples
- Sampling procedures
- Analytical methods



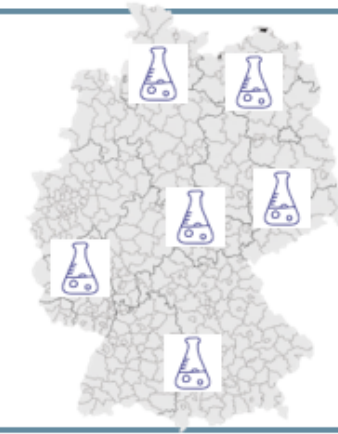
Implementation of the National Zoonoses Monitoring

1. Sampling

County level
competent authority

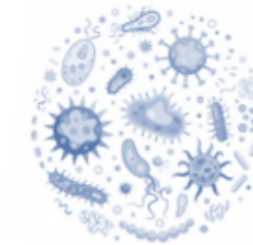
2. Primary isolation

Accredited regional
state laboratories



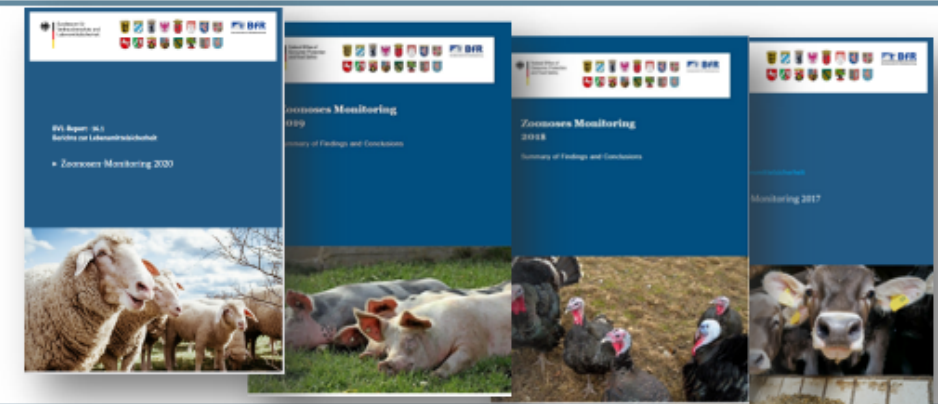
3. Confirmation and characterization

National Reference Laboratories (NRLs)



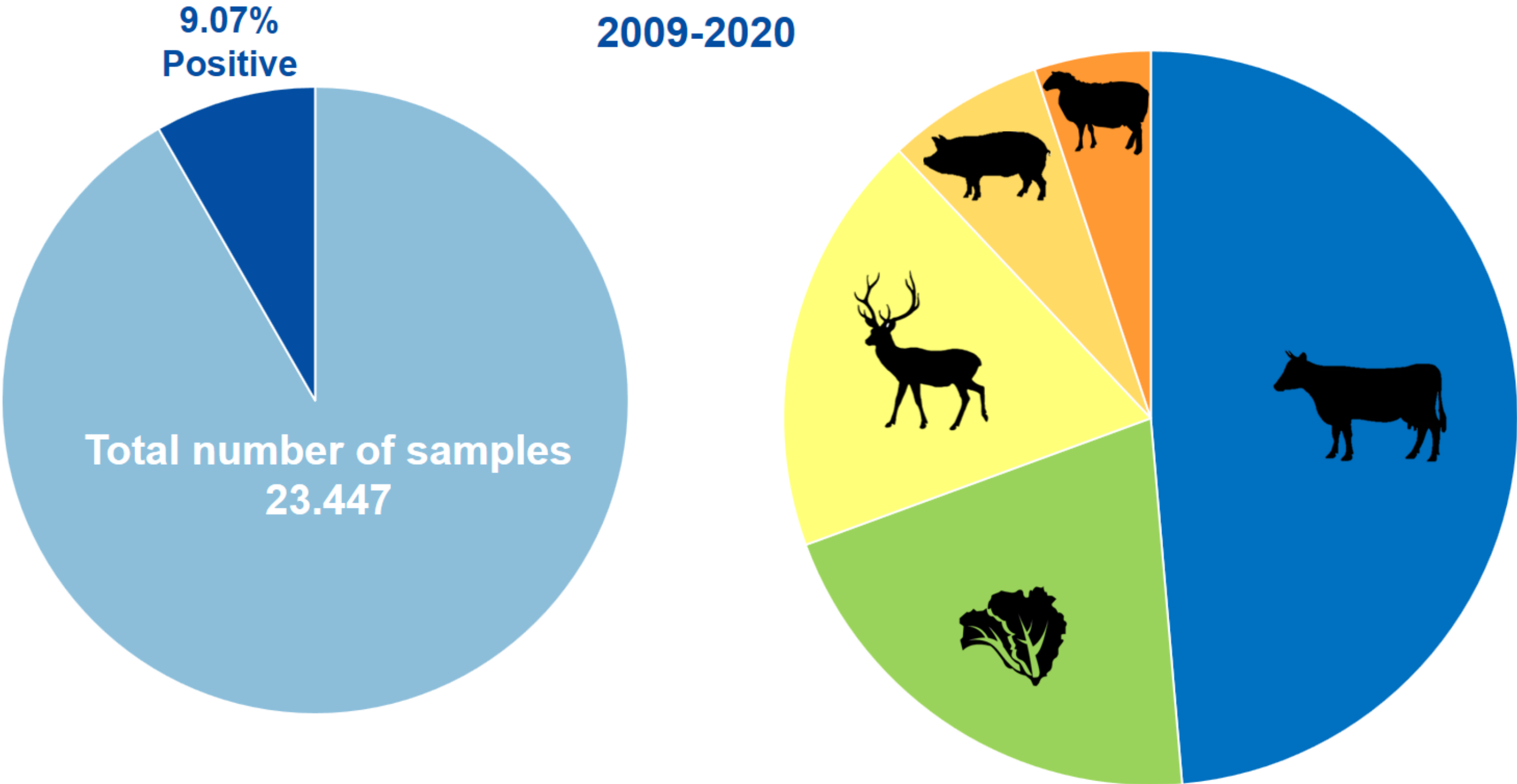
4. Phenotypic resistance testing

5. Reporting

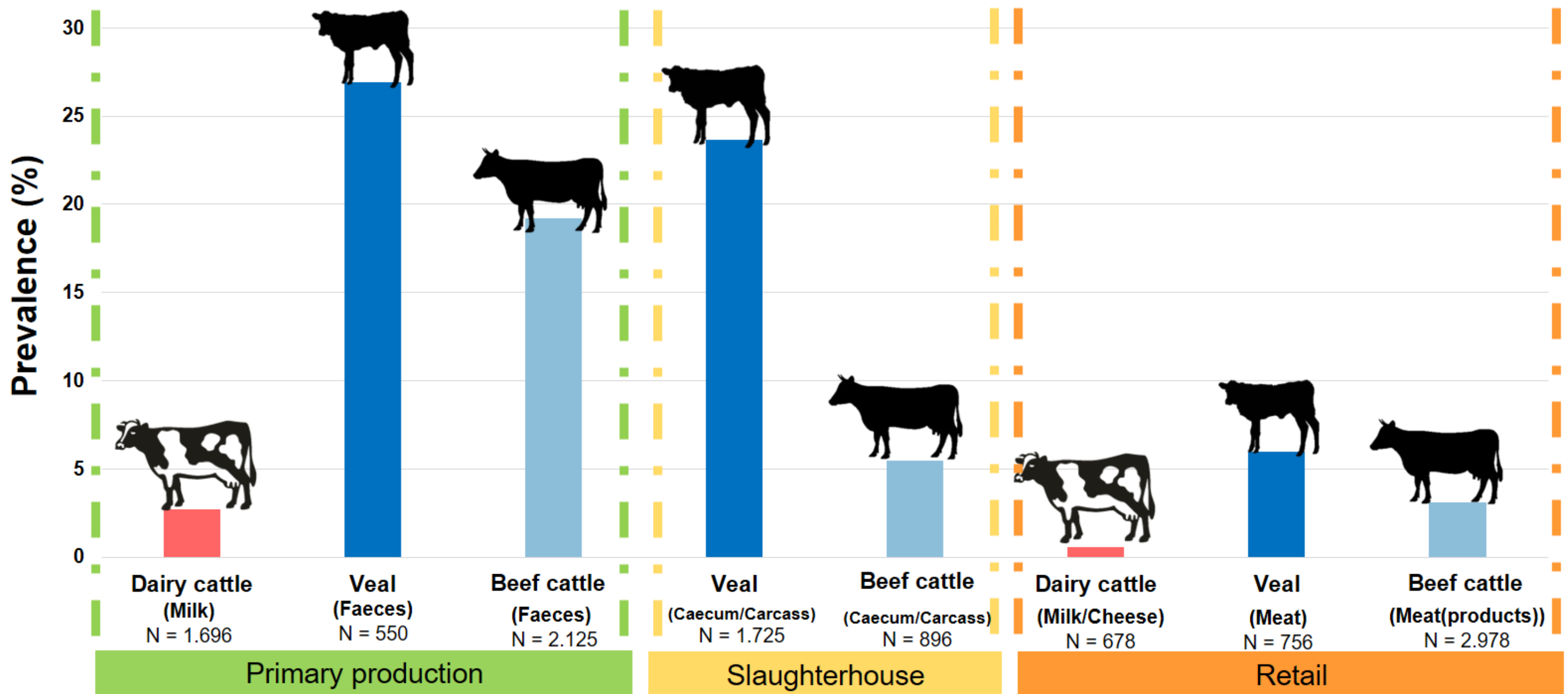


General overview of STEC in the National Zoonoses Monitoring

2009-2020

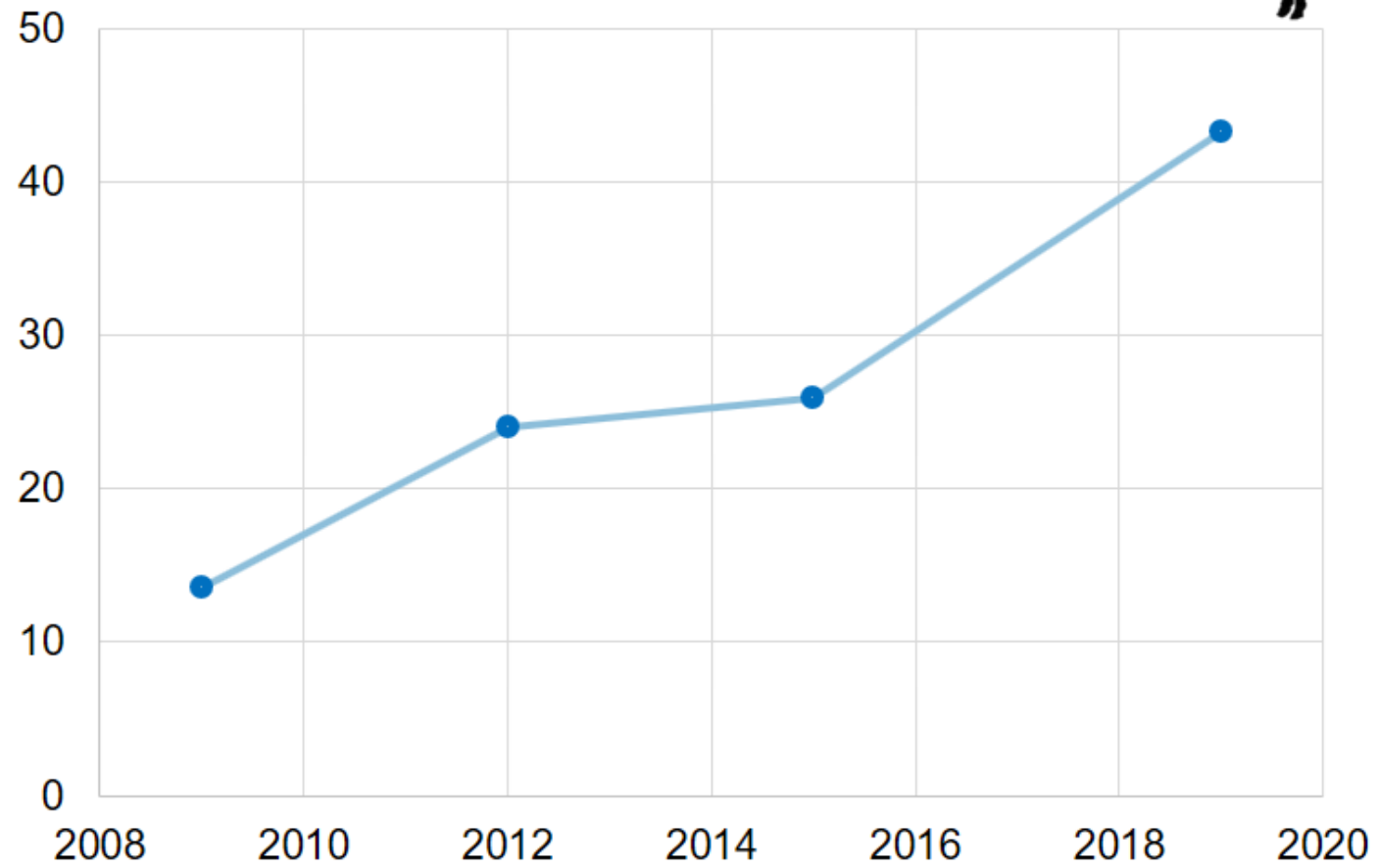


STEC prevalence in cattle

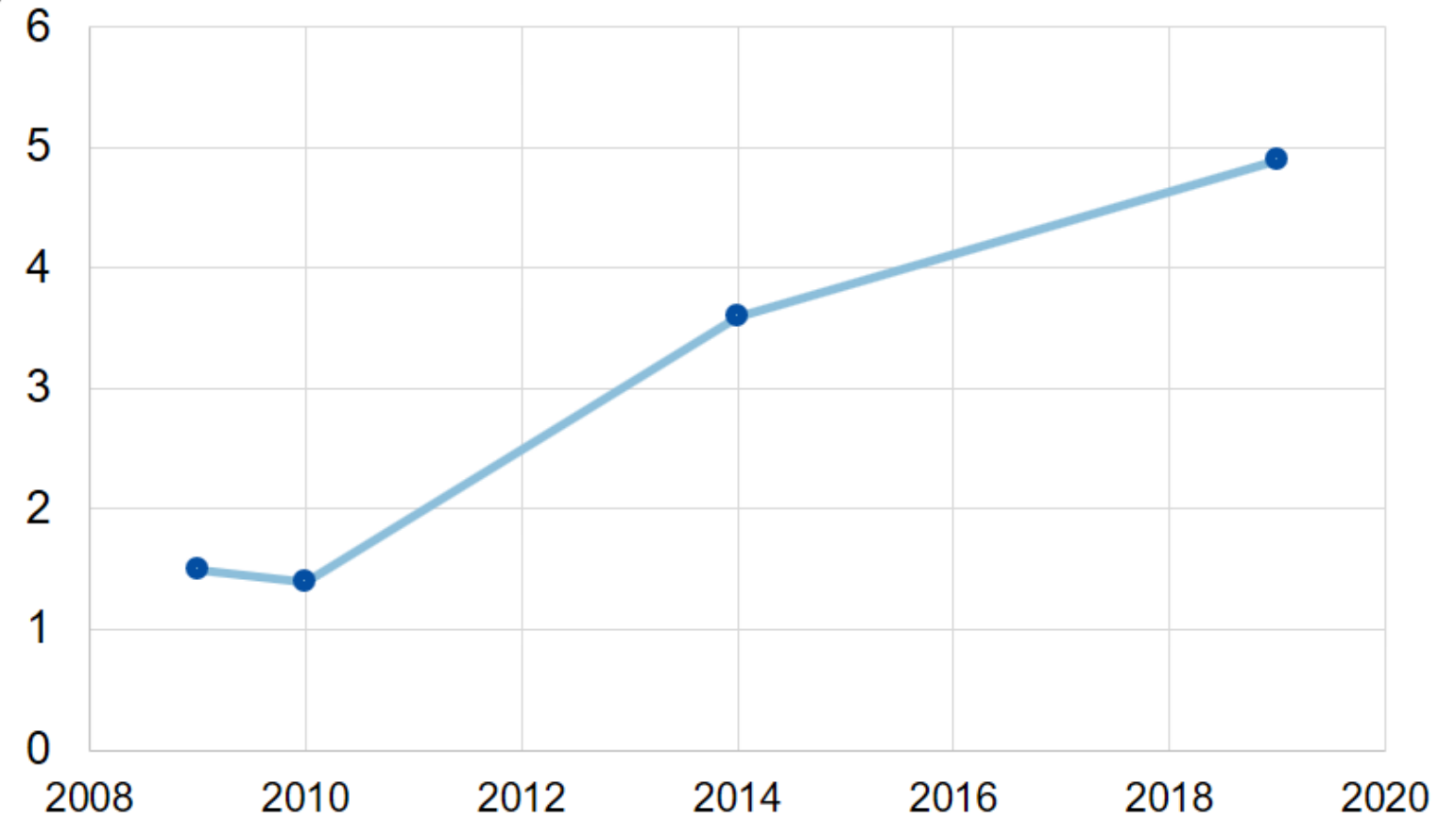


STEC prevalence trends in cattle

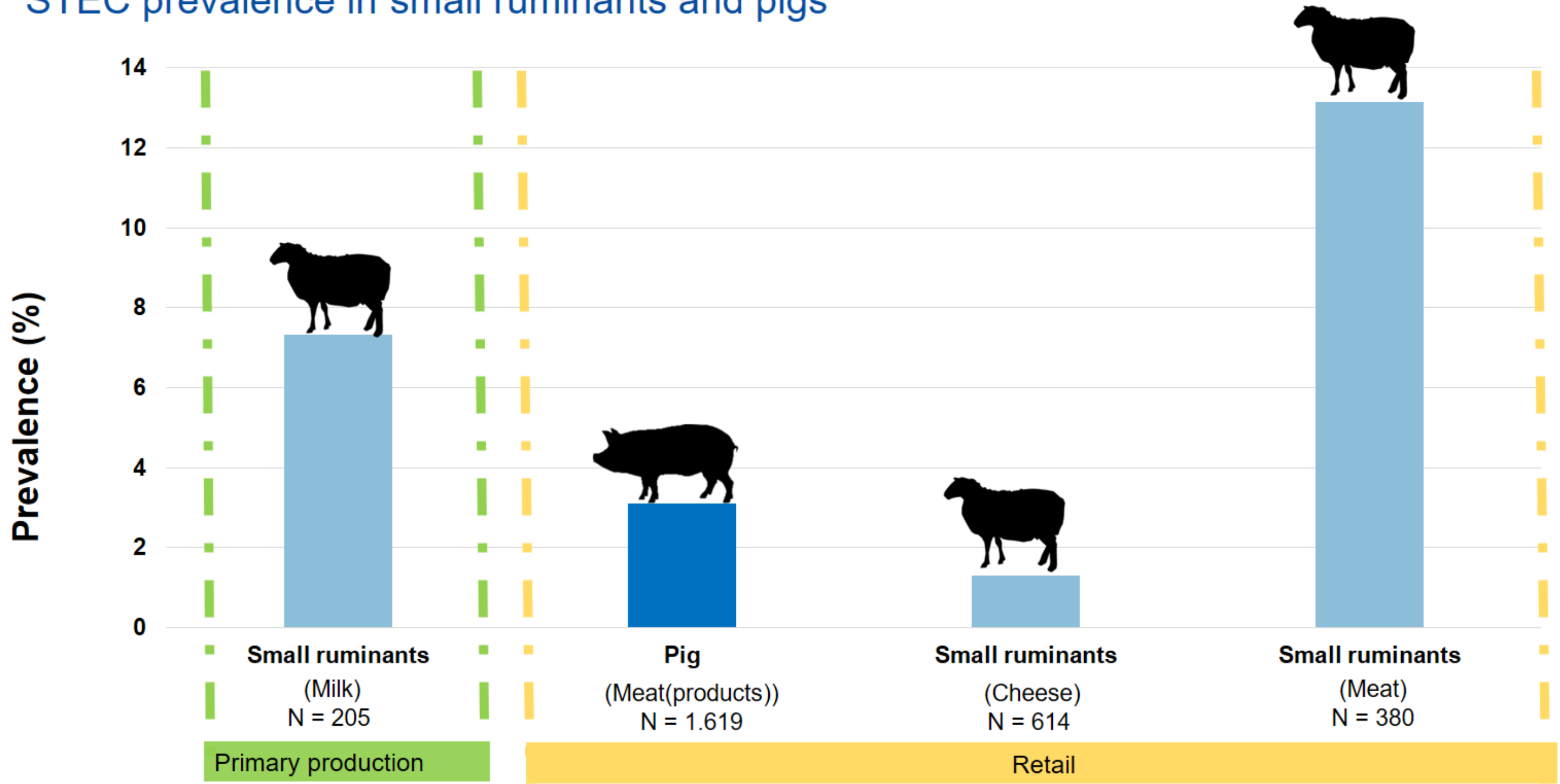
Veal (Caecum)



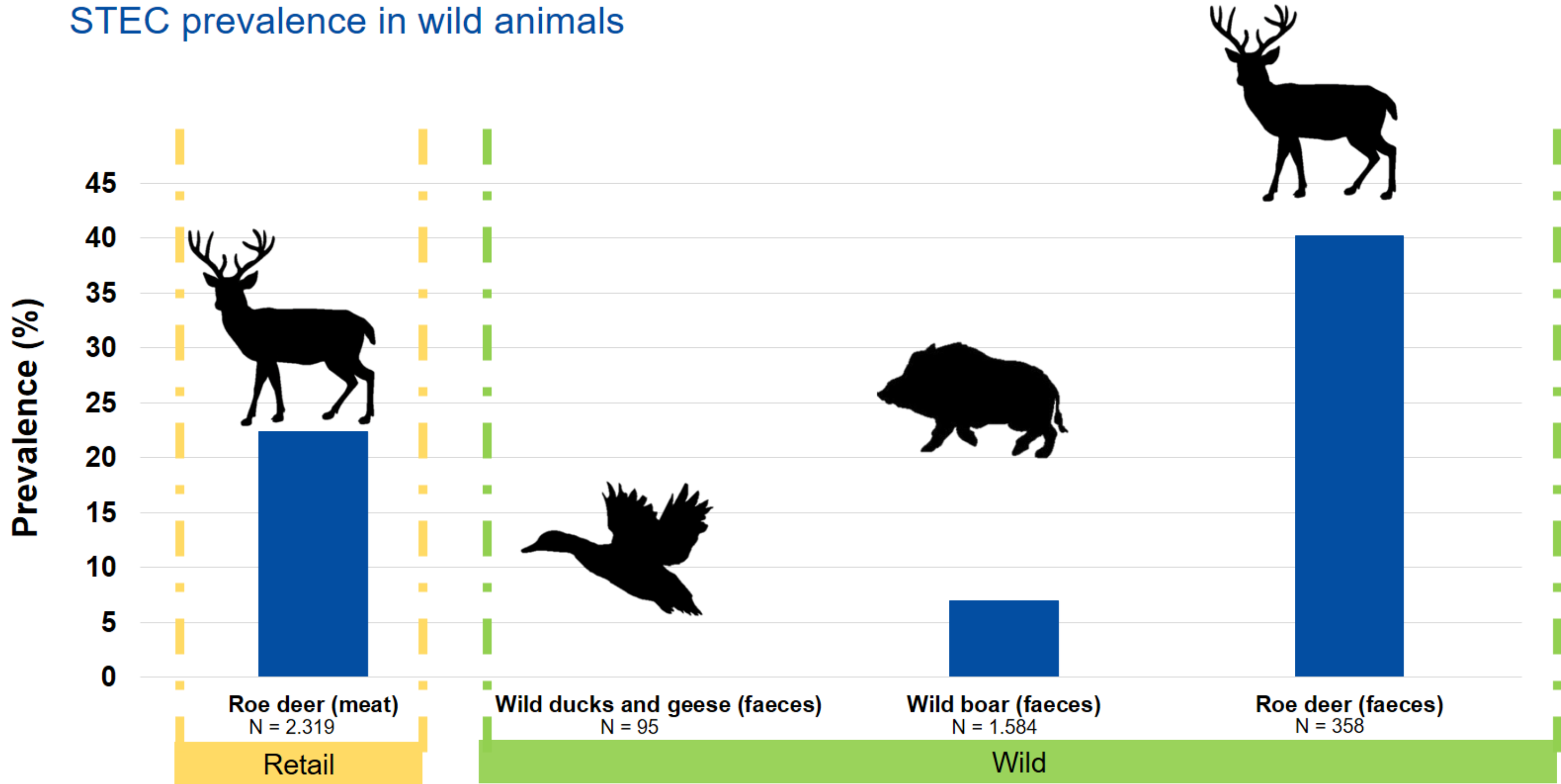
Dairy Cattle (Milk)



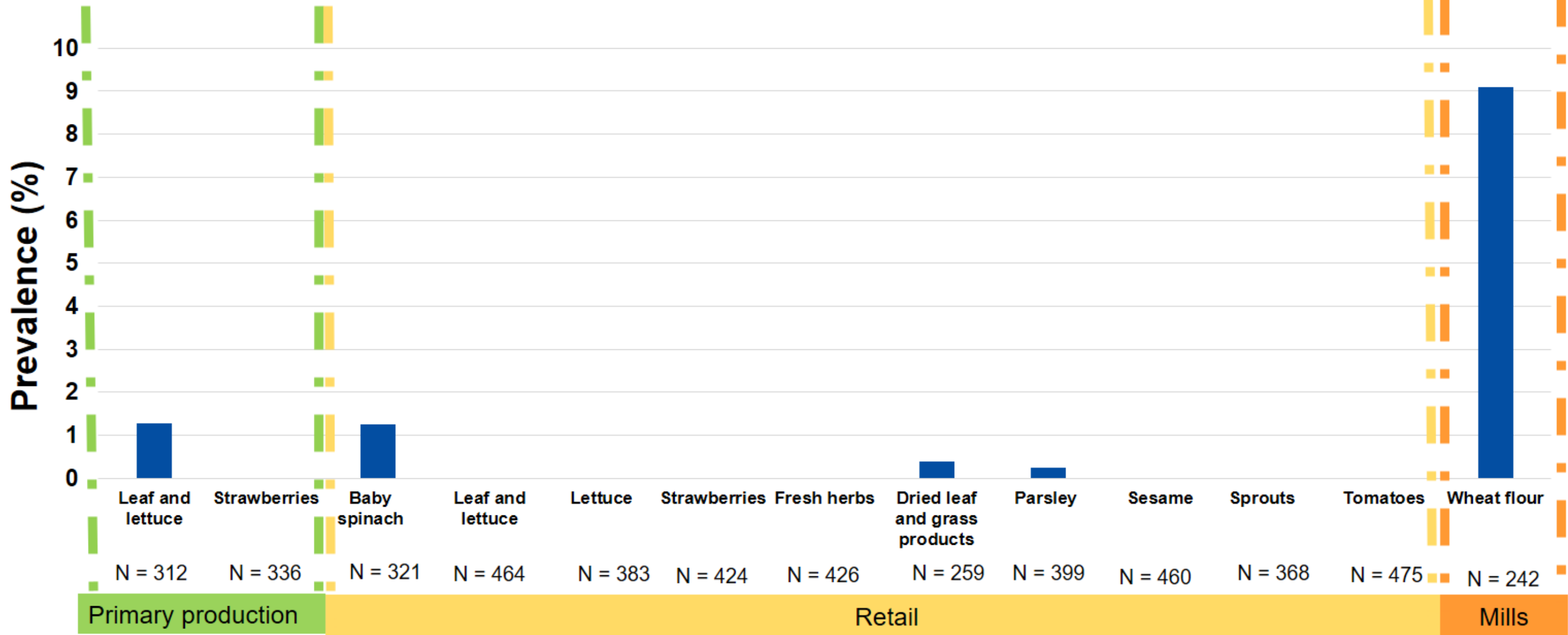
STEC prevalence in small ruminants and pigs



STEC prevalence in wild animals

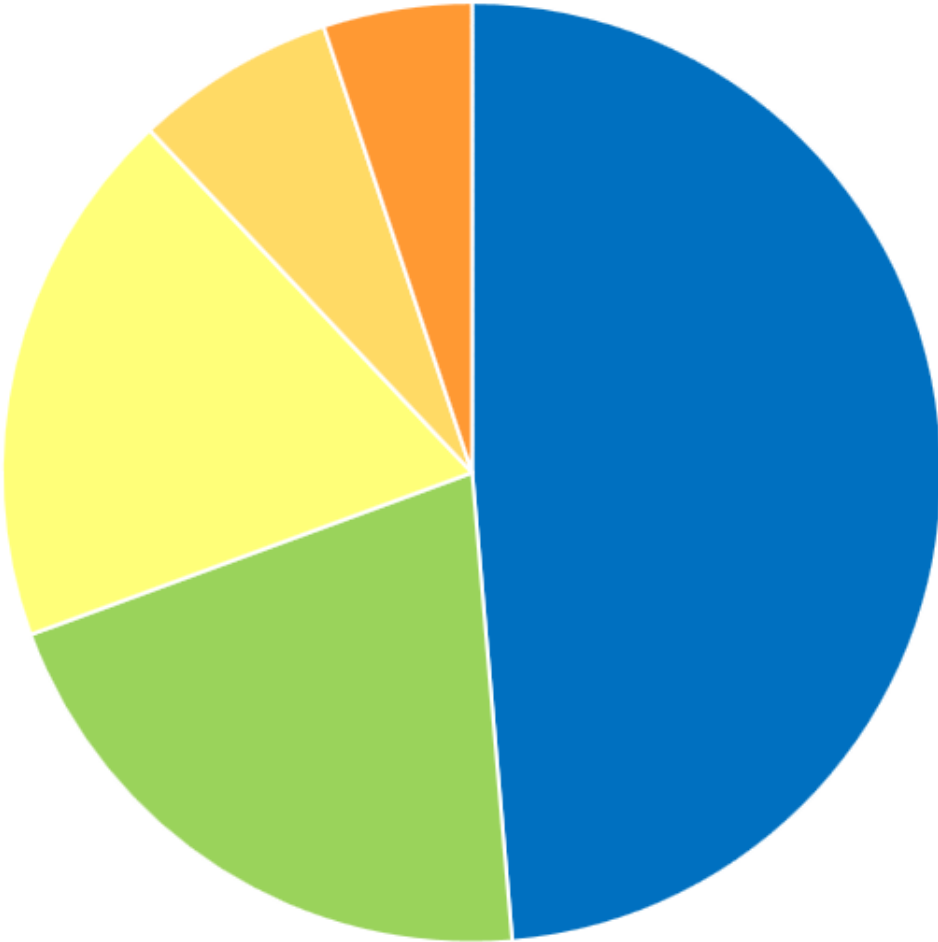


STEC prevalence in plant-based food

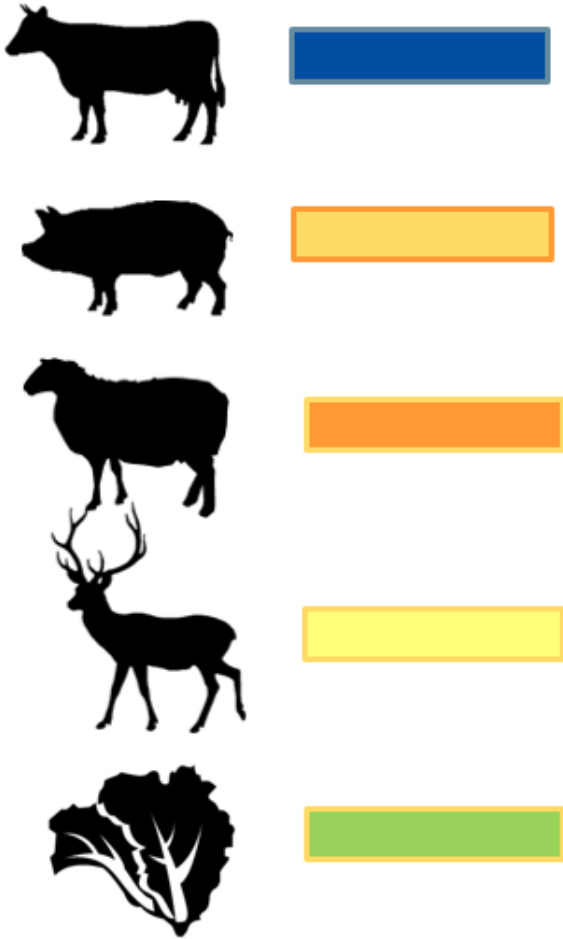


Isolates submitted to the BfR for further analysis

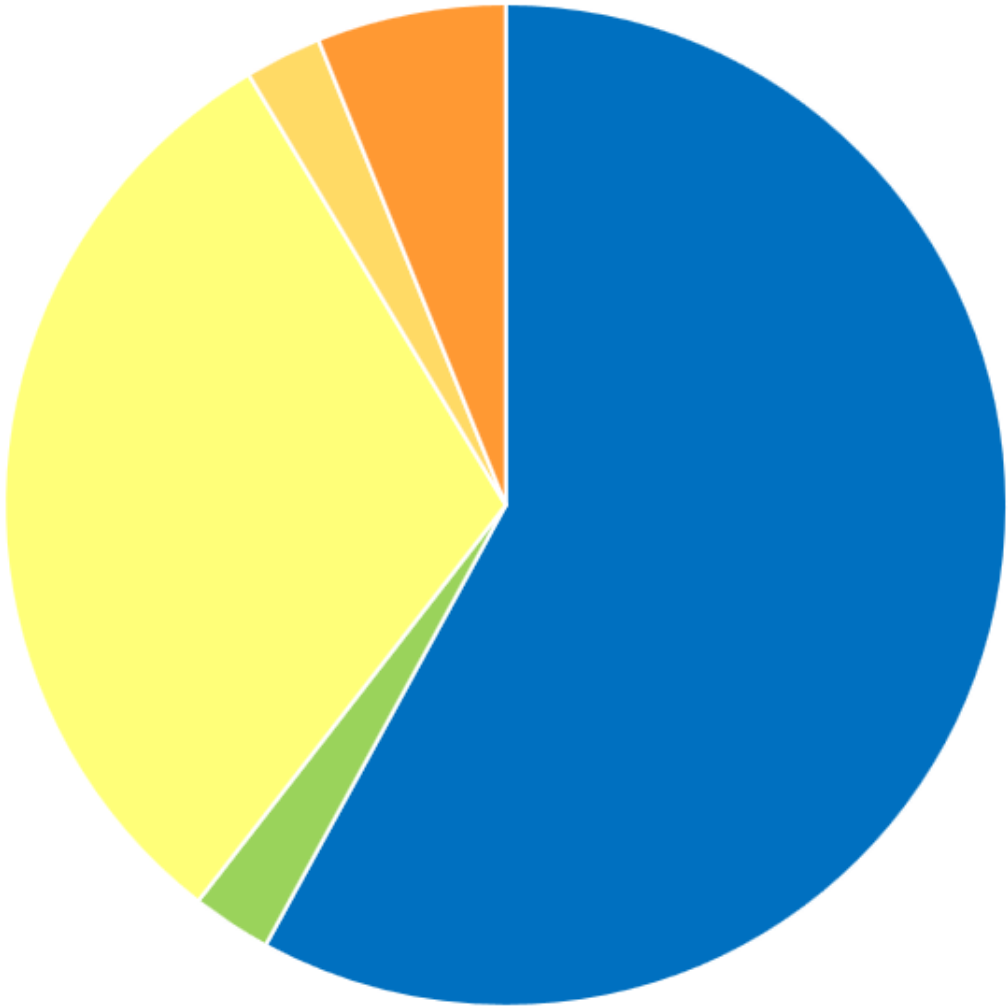
Total number of samples
N = 23.447



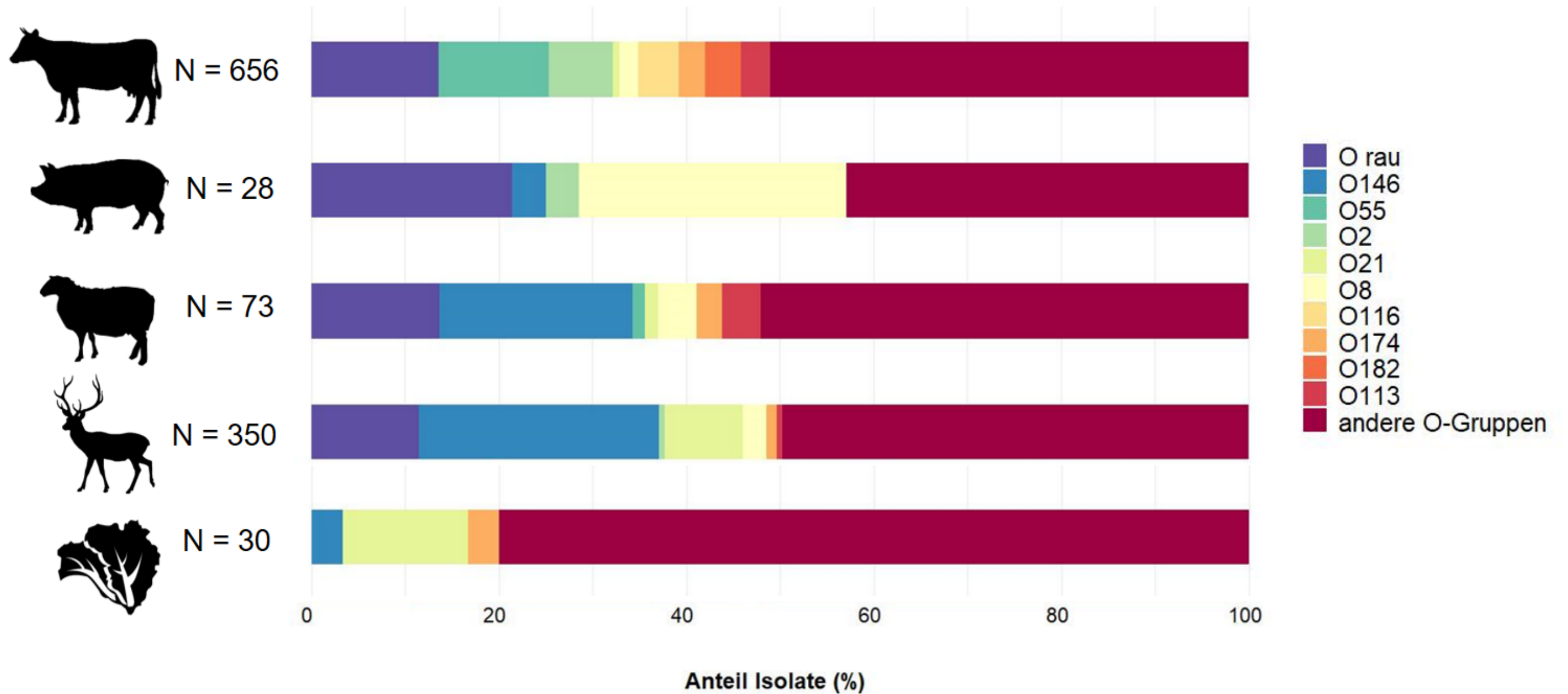
2009-2020



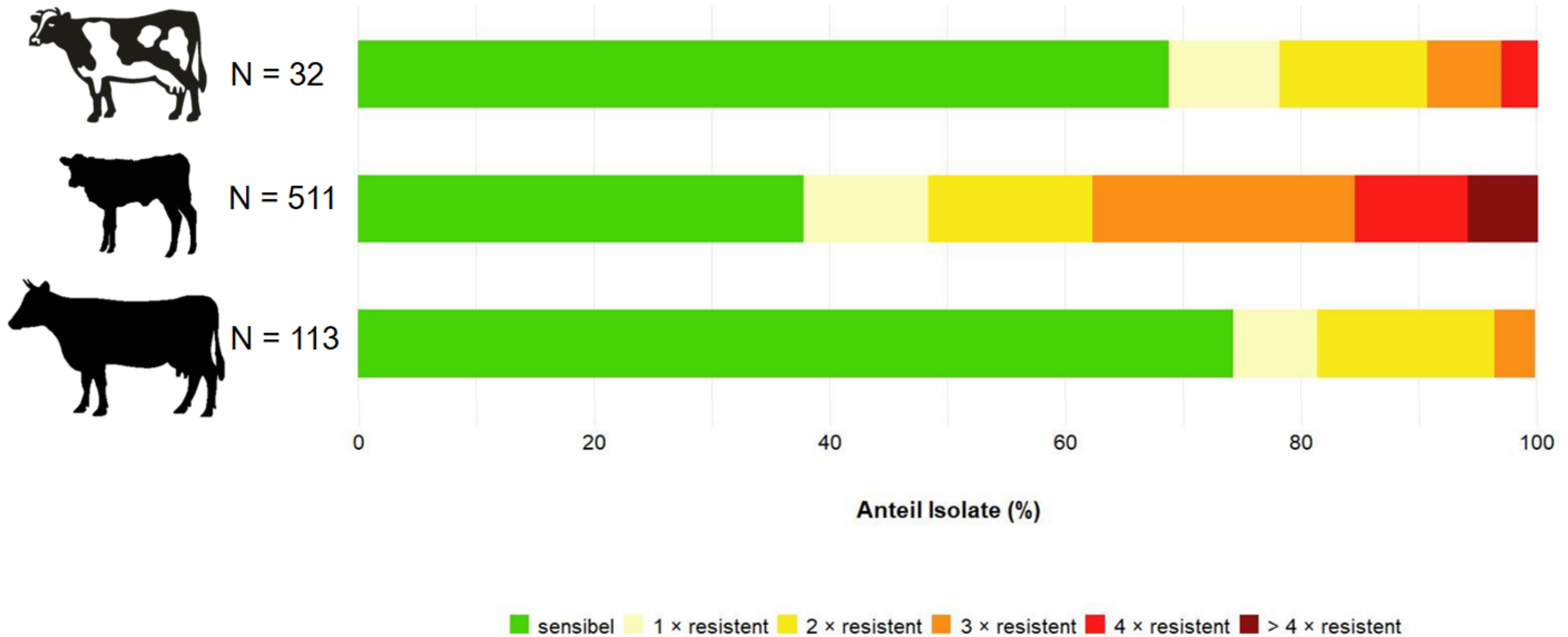
Total number of isolates received at the BfR
N = 1.137



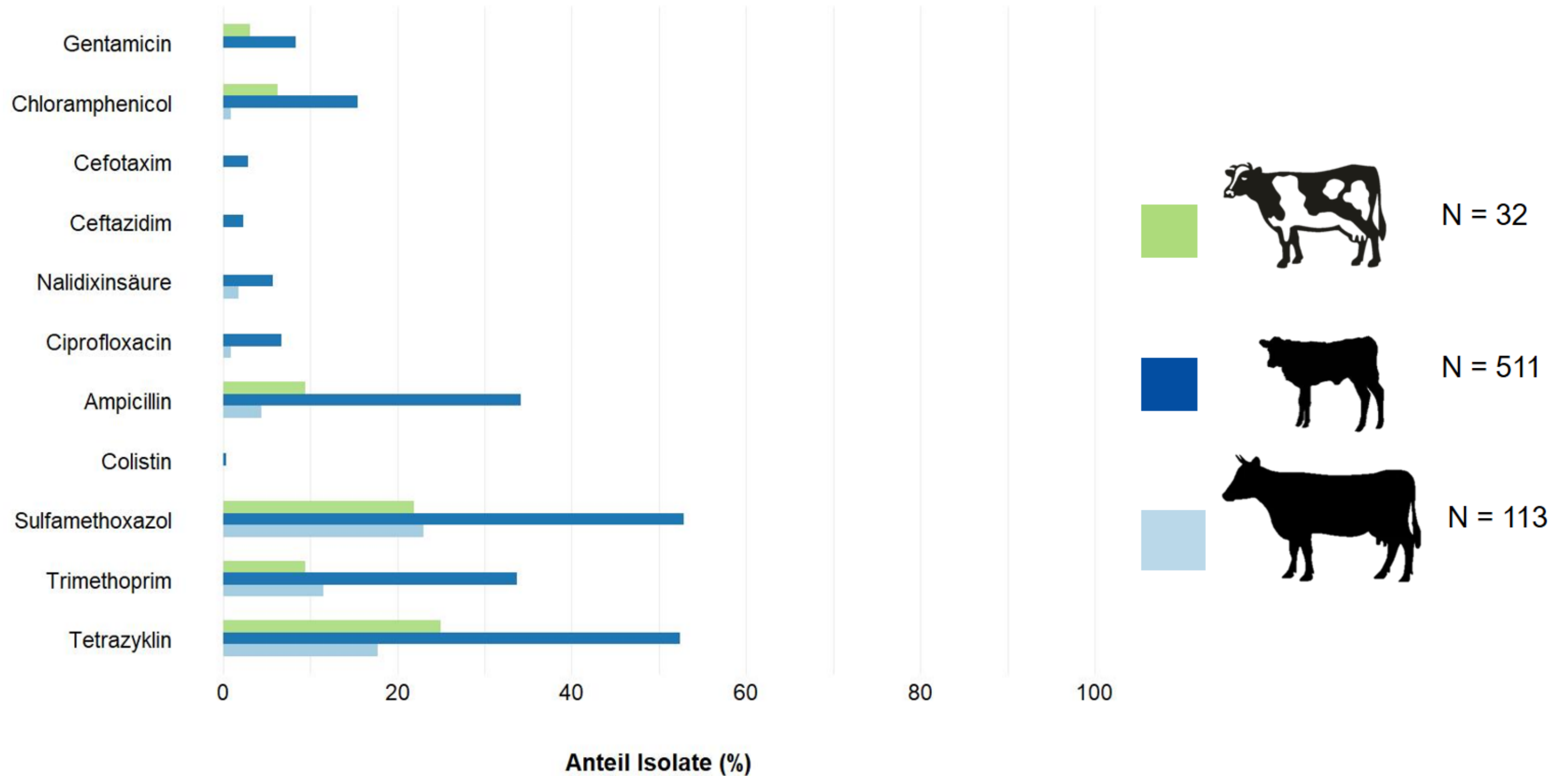
Characterization of STEC: O-Group



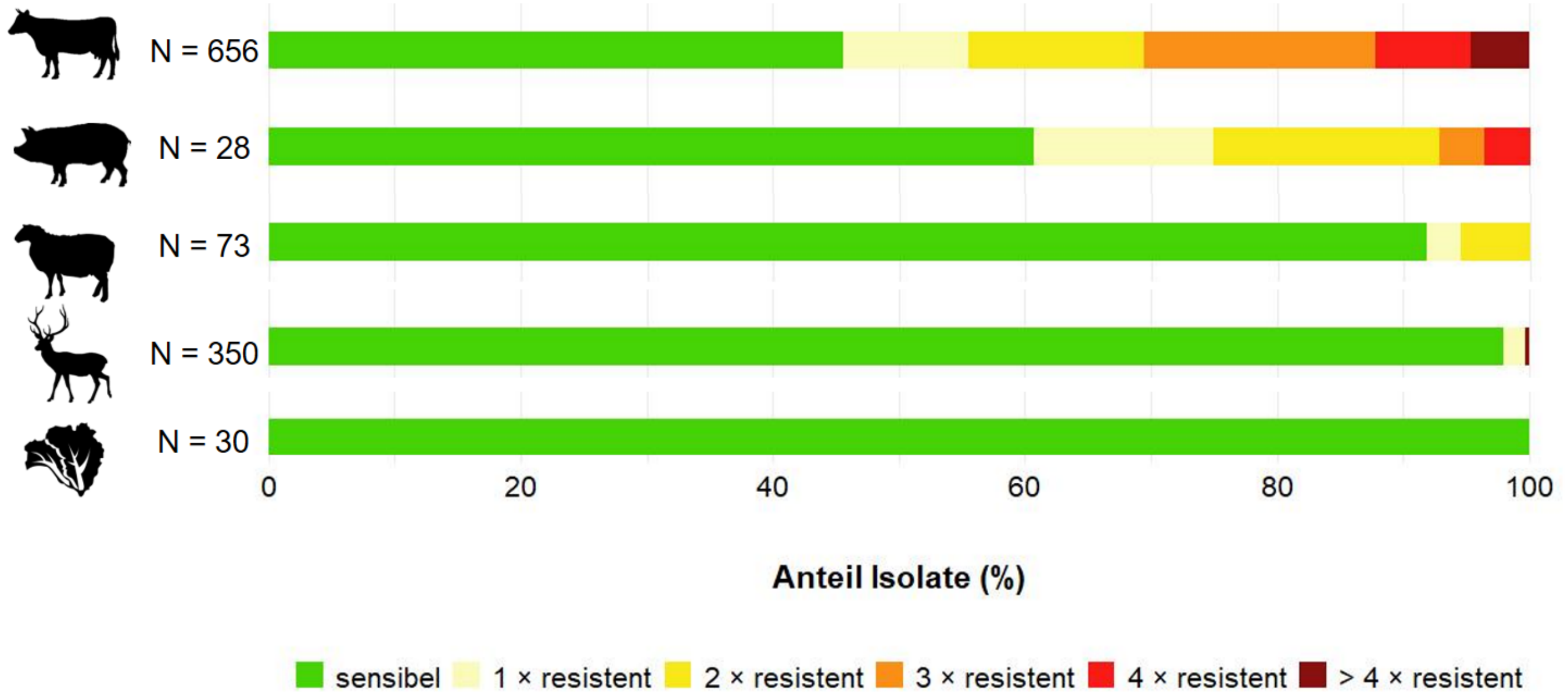
Antibiotic resistance pattern: Aggregated data



Antibiotic resistance pattern: Substances



Antibiotic resistance pattern: Comparison of aggregated data between species



Conclusions

- STEC prevalence:
 - Veal > Beef cattle > Dairy cattle (Trend to increase in prevalence)
 - Lamb > Beef > Pork
 - Roe deer > Wild boar > Wild ducks and geese
 - Wheat flour
- STEC characterization: O-Group
 - O-146
 - O-55
 - O-157 (Cattle/Roe Deer)
- Antimicrobial resistance:
 - Veal > Dairy cattle > Beef cattle
 - Cattle > Pigs > Small ruminants > Wild animals > Plants
- Substances to which higher resistances levels:
 - Sulfamethoxazole, trimethoprim, tetracycline, ampicillin (Cattle)
 - Resistance against highest priority substances:
 - 3rd generation cephalosporin, fluoroquinolones and colistin (Rarely)

Acknowledgements

- Personnel who contributed to the samples collection
- Regional laboratories of the German Federal States
- The Federal Office of Consumer Protection and Food Safety (BVL)
- National references laboratories at BfR (NRLs)
 - NRL *E. coli*
 - NRL AB-Res
- Group 43



Thank you for your attention

Carolina Plaza Rodriguez



Identify Risks –
Protect Health

German Federal Institute for Risk Assessment

Max-Dohrn-Straße 8-10 • 10589 Berlin, GERMANY

Phone +49 30 - 184 12 - 0 • Fax +49 30 - 184 12 – 99 0 99

bfr@bfr.bund.de • www.bfr.bund.de/en