



Universität
Zürich^{UZH}

Institute for Food Safety and Hygiene

u^b

^b
UNIVERSITÄT
BERN

Assessing the microbiological quality of raw goat's and ewe's bulk-tank milk samples in Switzerland



Brian Friker, Veterinary Public Health Institute, University of Bern

Edinburgh, 11 November 2019

Background



Universität
Zürich^{UZH}

Institute for Food Safety and Hygiene

u^b

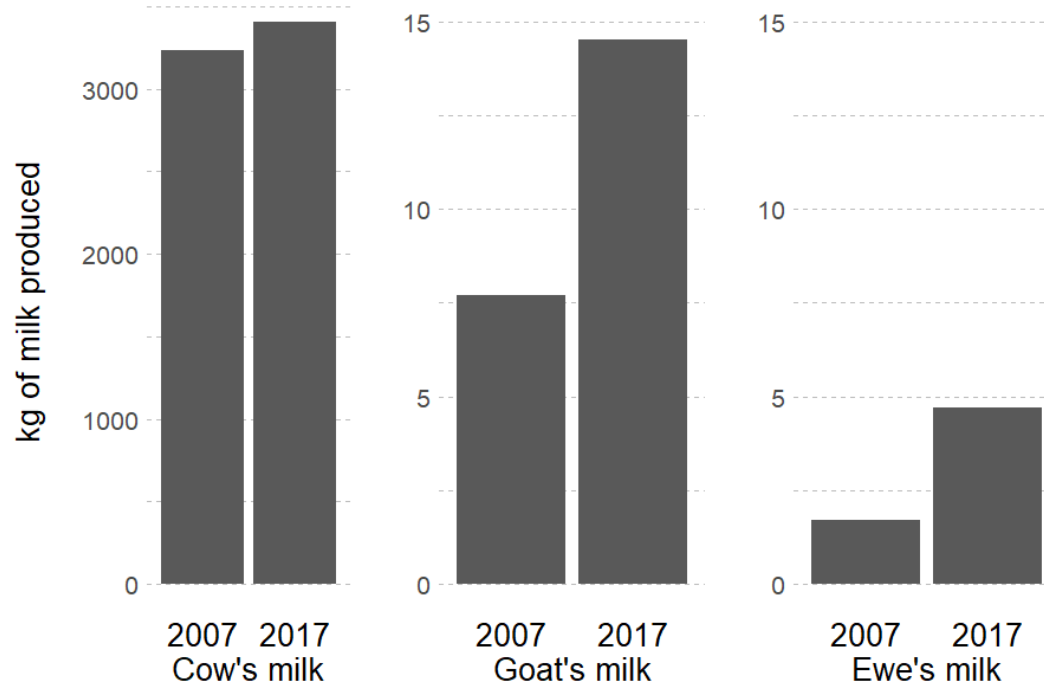
^b
UNIVERSITÄT
BERN

**increasing
popularity
of raw milk**



**association between raw milk
consumption and infection
with pathogenic bacteria**

Background



Numbers from "Swiss milk statistics"

What did we do?

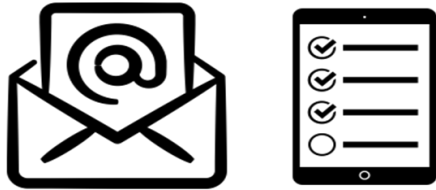


Universität
Zürich^{UZH}

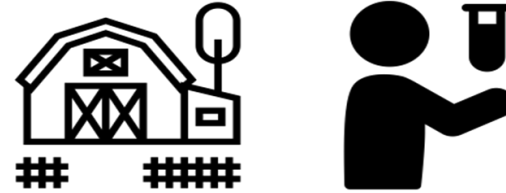
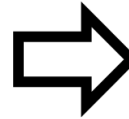
Institute for Food Safety and Hygiene

u^b

b
UNIVERSITÄT
BERN



Online questionnaire



Farm visit & sampling

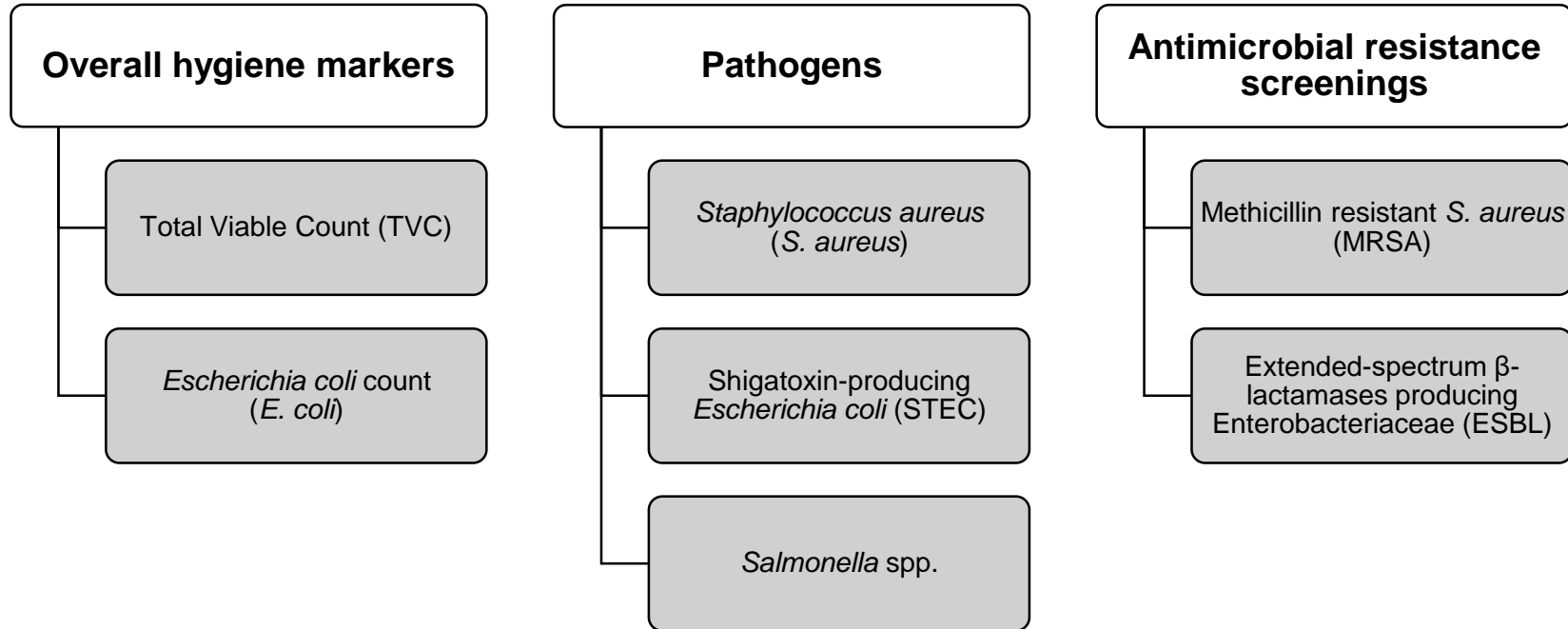


123 samples
(99 goats, 24 ewes)



Lab analysis

What is "microbiological quality"?



Further characterization of isolated strains

Characteristics of isolated strains



Universität
Zürich^{UZH}

Institute for Food Safety and Hygiene

^b
u

^b
UNIVERSITÄT
BERN

***S. aureus* / MRSA**

StaphType DNA microarray: 332 probes

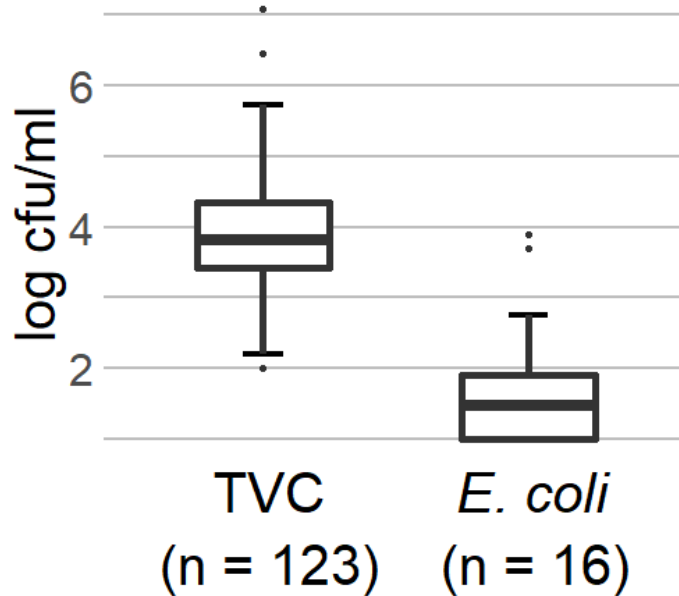
- Clonal complex
- *staphylococcal enterotoxin* genes
- *toxic shock toxin 1* gene
- Capsule type
- ...

STEC

Real-time PCR:

- *stx1* subtypes
- *stx2* subtypes
- *eae* gene





Results



- TVC has decreased since the last comparable study in Switzerland.
- Sanitary Service for Small Ruminants membership → TVC ↓, *E. coli* ↓

Observed prevalences



Parameter	Prevalence	Comparison with other studies
<i>E. coli</i>	13%	 Lower prevalence
STEC	11%	 Similar results (but only very few studies)
<i>S. aureus</i>	15%	 Lower prevalence, but many enterotoxin genes
MRSA	3%	 Higher prevalence

***Salmonella* spp. and ESBL-producers have not been isolated.**

Conclusions



Universität
Zürich^{UZH}

Institute for Food Safety and Hygiene

u^b

^b
UNIVERSITÄT
BERN

Quality of goat's and ewe's milk in Switzerland is favourable.

Additional efforts / voluntary programmes should be further encouraged.

Acknowledgements



Universität
Zürich^{UZH}

Institute for Food Safety and Hygiene

u^b

^b
UNIVERSITÄT
BERN

- All participating farmers
- Sanitary Service for Small Ruminants
- Swiss Goat Breeding Federation
- Swiss Army Veterinary Service
- Institute for Food Safety and Hygiene staff



Universität
Zürich^{UZH}

Institute for Food Safety and Hygiene

u^b

^b
UNIVERSITÄT
BERN

Thank you for your attention!



Brian Friker

VPH-Institute

Schwarzenburgstrasse 155

3097 Liebefeld – Switzerland

+41 31 631 57 38

brian.friker@vetsuisse.unibe.ch

www.vphi.ch