

Integrating bacteriological milk examination into decision support for reduced use of antimicrobials

W. Obritzhauser¹, M. Mayerhofer³, M. Suntinger³, C. L. Firth¹, K. Fuchs², A. Käsbohrer¹, T. Wittek¹, B. Fuerst-Waltl⁴, C. Egger-Danner³



¹Corresponding author: w.obritzhauser@dairyvet.at



¹Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine, 1210 Vienna, Austria

²Data, Statistics and Risk Assessment, Austrian Agency for Health and Food Safety (AGES), 8010 Graz, Austria

³ZuchtData EDV-Dienstleistungen GmbH, 1200 Vienna, Austria

⁴Department of Sustainable Agricultural Systems, Division of Livestock Sciences, University of Natural Resources and Life Sciences, 1180 Vienna, Austria

OBJECTIVES

- Standardise protocols for bacteriological milk analyses and harmonise documentation of findings
 - Standardise use of antimicrobial treatments in regard to animal and diagnoses
- Assess the impact of farm specific management and environmental factors, using existing health and production data and develop targeted dry off-strategy (decision support tool) to reduce use of antibiotics

DATA

- Observational study in 249 dairy herds (6475 cow-yrs) in Austria.
- Analysis of antimicrobial treatments, information on various risk factors.
- Standardised treatment data provided by 17 different veterinary practices.
- Pathogen information harmonised across six laboratories.



METHODS

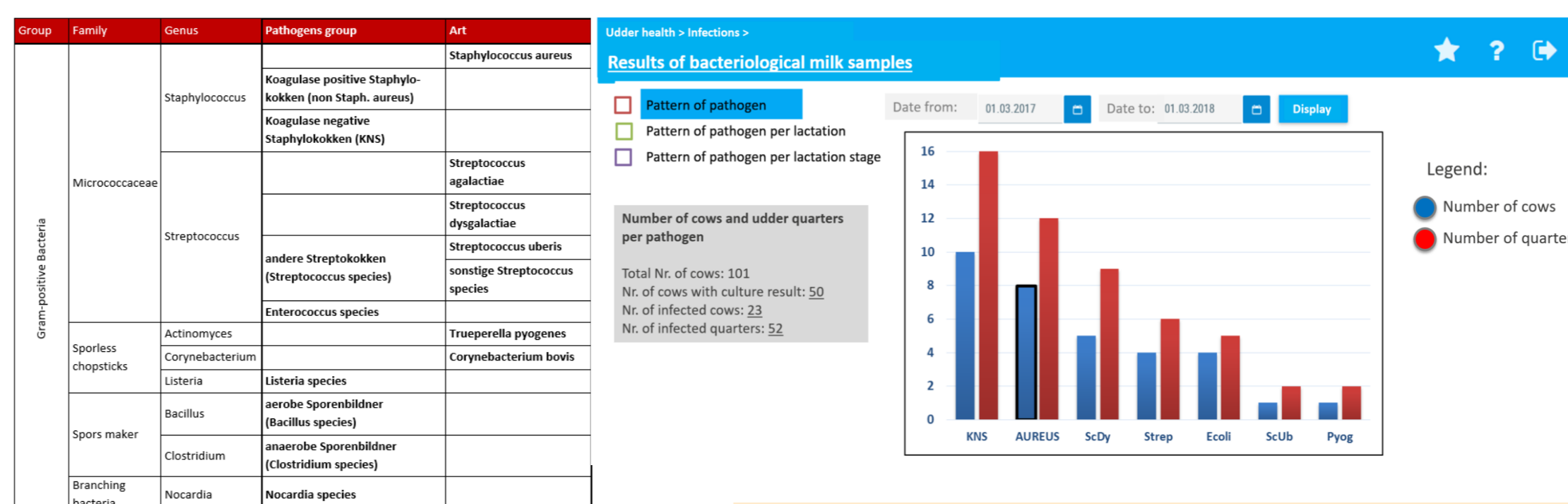
- Standardisation of bacteriological investigations.
- Standardisation of antimicrobial use data according to EMA and ESVAC and elaboration of farm comparisons.
- Elaboration of integrated tools for herd management and integration to Central Cattle Database where various relevant information is combined for decision support.

EMA: European Medical Agency

ESVAC: European Surveillance of Veterinary Antimicrobial Consumption

USE FOR HERDMANAGEMENT

Example from Central Cattle Database (RDV)



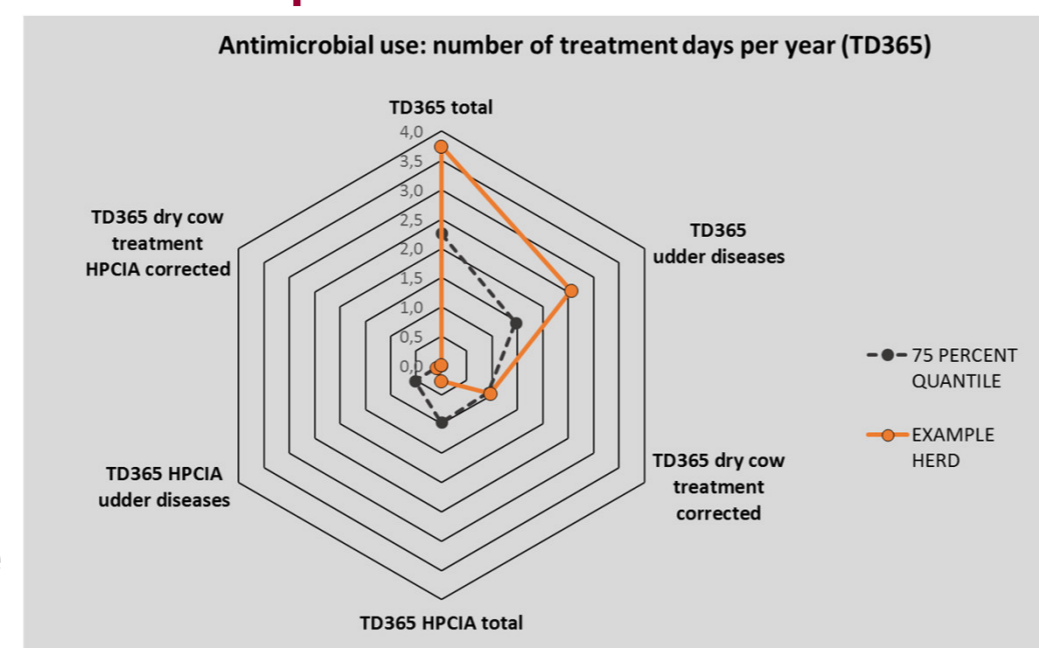
STANDARDISATION BACTERIOLOGICAL FINDINGS

- Harmonised within Germany and Austria.
- Central availability of results of bacteriological milk testings from laboratories in Austria following efforts to ensure data integration and harmonisation.

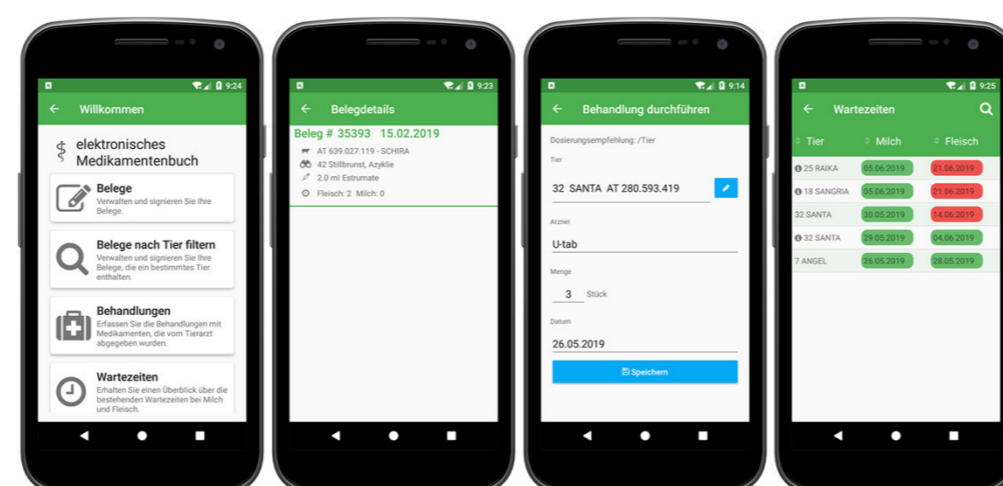
STANDARDISATION ANTIMICROBIAL TREATMENT

- Nationwide “Health monitoring in Cattle” programme in Austria.
- Veterinarian **diagnoses** are **centrally recorded** (Central Cattle Database) since 2006 → **extension** by harmonised electronic documentation of animal- and diagnosis-specific use of antimicrobials.
- Very **diverse patterns of antimicrobial usage** for treatment of mastitis and for drying-off observed.

Herd-specific antimicrobial use



Mobile documentation of antibiotic use



SUMMARY

- **Assessing the infection status** of the udder, by means of **bacteriological milk culture**, can assist in decision-making processes regarding more precise control and prevention measures to improve udder health.
- **Harmonised documentation of treatments** allows comparisons between farms.
- Next step: harmonisation of **antimicrobial susceptibility testing**.
- The **more information available**, the more targeted a treatment can be.
- **Standardisation and integration** of data play a crucial role to support the **prudent use of antimicrobials** on dairy farms.
- Important for benchmarking and comparability.