Detection of *Streptococcus agalactiae* in Danish Dairy Herds by Different Methods

Malene V. Byskov[1], Michael Farre[1,2], Malene Budde[1] & Line Svennesen[2]

[1] SEGES Innovation P/S, Aarhus, Denmark
[2] University of Copenhagen, Frederiksberg C, Denmark

Background

Streptococcus agalactiae (*S. agalactiae*) is a contagious pathogen that infects the bovine mammary gland, causing primarily subclinical mastitis and high somatic cell count. Monitoring the prevalence and infection rate of *S. agalactiae,* is challenged due to the fluctuating or cyclic pattern of the shedding from infected mammary glands (Svennesen, et. al., 2019). In Denmark, *S. agalactiae* herd prevalence is monitored by a mandatory surveillance program. Since medio 2021, detection of *S. agalactiae* is performed on the following methods:

1) Detection of *S. agalactiae* in bi-annually collected bulk milk samples tested with PCR.
2) Detection of *S. agalactiae* from clinical mastitis cases (quarter level), or in voluntary cow-level milk samples, collected prior to dry off.
3) Herds purchasing livestock from herds infected with *S. agalactiae,* will be given the status "infected".

Including additional detection methods, other than the standard mandatory collection of bulk milk samples, potentially improves the ability to find infected herds. However, this is yet to be confirmed.

Methods

Data was collected from the Danish Cattle Database and comprised of records of *S. agalactiae* status and dates of change in status, for all dairy herds within two years between July 2021 and June 2023. The status could either be "not infected" or "infected". These data were supplemented with findings of *S. agalactiae* from bulk milk samples, results from PCR or bacteriology determined presence of *S. agalactiae* from individual cow- or quarter milk samples, along with status of herds from where cows were being moved from.

Objective

The objectives of this study were 1) To evaluate the distribution of detection methods related to herds shifting status to "infected". 2) To explore the extent to which *S. agalactiae* can be rediscovered in the standard mandatory bulk milk samples collected up to 3 months after the detection of infection.

Results

- The results showed that approximately 56 % of the herds changed status to "infected" due to findings of *S. agalactiae* in individual cow milk samples analyzed either by PCR or bacteriology.
- In 18 % of the herds, findings of *S. agalactiae* in bulk milk samples were the cause of getting the status "infected".
- In herds where *S. agalactiae* was detected due to individual milk samples, the pathogen was only rediscovered in the subsequent bulk milk sample, in approximately 11 % of the cases

Conclusion

- Combining different methods of detecting *S. agalactiae* in dairy herds, might improve the detection of infected herds.
- *Streptococcus agalactiae* in bulk milk samples was rediscovered in only a small proportion of infected herds detected by individual samples.
- Further research is needed to establish, if dilution of *S. agalactiae* in bulk milk of large herds, might be the cause of the challenge in rediscovering the pathogen.

Take home message: Detection of *Streptococcus agalactiae* might improve, using different methods including individual samples at cow or quarter level.

UNIVERSITY OF COPENHAGEN
DEPARTMENT OF VETERINARY AND ANIMAL SCIENCES

SEGES INNOVATION

STØTTET AF
Mælkeafgiftsfonden

CONTACT
Michael Farre
+45 2383 2400
mifa@sund.ku.dk