# Within-herd prevalence of subclinical intramammary infection caused by Mycoplasma bovis and associations between cow udder health, milk yield and composition

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### BACKGROUND

Mycoplasma bovis is a contagious udder pathogen, which causes subclinical or clinical intramammary infection (IMI). The within-herd prevalence of Mycoplasma bovis IMI is not widely studied.

There are no studies about association of subclinical *Mycoplasma bovis* intramammary infection and cow milk yield and milk composition.

#### AIMS OF THE STUDY

Identify the within-herd prevalence of subclinical intramammary infection caused by *Mycoplasma bovis*. Identify associations between subclinical *Mycoplasma bovis* intramammary infection and cow udder health, milk yield and milk composition.

## **MATERIALS AND METHODS**

Study included 522 lactating dairy cows from one Estonian dairy herd.

Cow composite milk samples were collected with automated milk meter (TruTest<sup>©</sup>) during milk recording in November 2014. Cow parity, days in milk, milk yield (kg), somatic cell count and milk fat (%), protein (%) and urea (mg/L) content were registered. qPCR method (Mastit 4B) was used to identify the presence of bacterial DNA of four major mastitis pathogens (*Staphylococcus* ) aureus, Mycoplasma bovis, Streptococcus agalactiae and Streptococcus uberis) from cow composite milk samples. Linear regression models were used for statistical analyses by using Stata IC 10 (StataCorp, Texas, USA). Other tested pathogens were controlled in the models in addition to confounders.



Mycoplasma bovis

IMI

Milk composition

Within-herd prevalence Out of 522 cow composite milk samples, 90 were positive to Mycoplasma bovis. The within-herd prevalence of Mycoplasma bovis IMI in the study herd was 17.2 % (95 % CI 14.1-20.8).

Somatic cell count Mycoplasma bovis positive dairy cows had 0.8 InSCC (p < 0.001) higher somatic cell **count** compared to Mycoplasma bovis negative dairy cows.

Milk yield Cow daily milk yield was 3.0 **kg** (p < 0.05) **lower in** Mycoplasma bovis positive dairy cows compared to Mycoplasma bovis negative dairy cows.

Dairy cows positive to Mycoplasma bovis had 0.05 units (p < 0.05) lower milk fat **content** (square root scale) and 15.6 units (p < 0.05) lower milk urea content (mg/L) compared to Mycoplasma bovis negative dairy cows. The presence of Mycoplasma *bovis* in the milk samples was not significantly associated with milk protein content (inverse scale).

## CONCLUSIONS

This study identified the within-herd prevalence of subclinical Mycoplasma bovis intramammary infection of 17.2 % in one Estonian dairy herd by testing composite milk samples of 522 lactating dairy cows using qPCR. Dairy cows infected with Mycoplasma bovis IMI had higher SCC, produced less milk and had lower milk fat and urea content, compared to Mycoplasma bovis negative dairy cows. Our findings underlay the importance to apply control measures of Mycoplasma bovis mastitis to reduce economic losses due to lower milk yield and milk quality caused by subclinical udder infection of Mycoplasma bovis.

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