

Mycoplasma bovis in Dutch dairy herds with a clinical outbreak, with a focus on arthritis

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Introduction

Mycoplasma bovis (*M. bovis*) can cause serious illness, in cattle, with mainly arthritis and mastitis in dairy cattle. Some infected animals don't show these symptoms. Knowledge on the diagnostics and transmission of *M. bovis* is limited. The objective of this study was to provide insight into both diagnostics and transmission related to arthritis within dairy herds experiencing an acute clinical *M. bovis* outbreak in dairy cows.

Material and methods

- Acute outbreaks of mycoplasma (arthritis, mastitis) in the period February 2016 – April 2017
 - Confirmed cases (see figure 1 + cultivation)
- 20 herds (3 arthritis only (see figure 1), 5 mastitis only, other both)
- Farms samples at a 3-wk intervals for 3 months
- Clinically diseased and randomly selected healthy animals (dairy cattle and young stock)
 - Blood Elisa (Bio-X, Belgium)
 - (Bulk-) milk Cultivation
 - Conjunctival fluid PCR
 - Environmental samples PCR

Results

- at T0, 48 animals had arthritis (and some also mastitis).
- antibodies were detected in 32 animals; 5 animals showed antibodies and mycoplasma detected in conjunctiva and milk

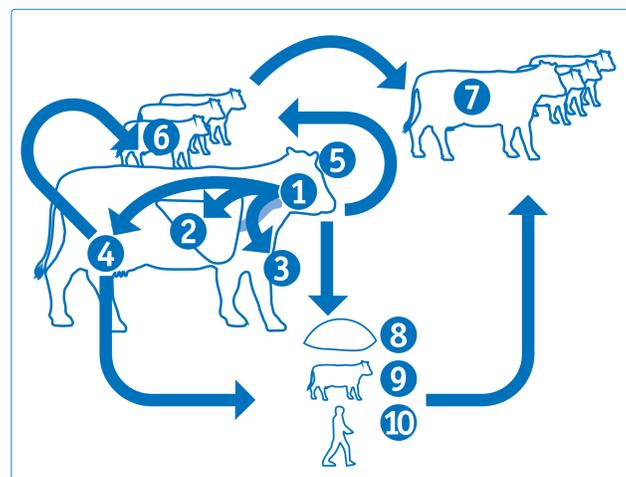


Figure 1. Distribution of *M. bovis* within and between the animals: 1) anterior airways, 2) lungs, 3) joints, 4) udder, 5) ear, to 6) companions, 7) colleagues through 8) environment, 9) young cattle and 10) human.

- *M. bovis* was detected in 33 conjunctival swabs, 24 animals showed antibodies
- at T0, in 80% of the farms *M. bovis* was found in the environmental samples.
- at the end of study period,
 - in none of the twenty farms with a clinical outbreak, all animals were free of *Mycoplasma*,
 - hardly any clinical cases were observed at that moment.

Discussion

- different diagnostics tools are available but the sensitivity varied.
 - **herd diagnosis**, less important than in case of **individual diagnosis** and decision. For herd diagnosis (pre-screening) serology or punctuations will be more advisable with immediate cooled transport to the laboratory (culture) than cultivation of mycoplasma out of milk.
- Variation between laboratorial results of clinical cases in this study might be related to:
 - moment of sampling
 - clinical problems contributed to mycoplasma if a herd diagnosis was made.
 - separation (risk of transmission) of clinical cows from apparently non-infected cows is advisable.
 - from an ethical perspective isolation or culling of infective clinical animals at short time is advisable also.
 - investigation into better therapeutic possibilities is advisable

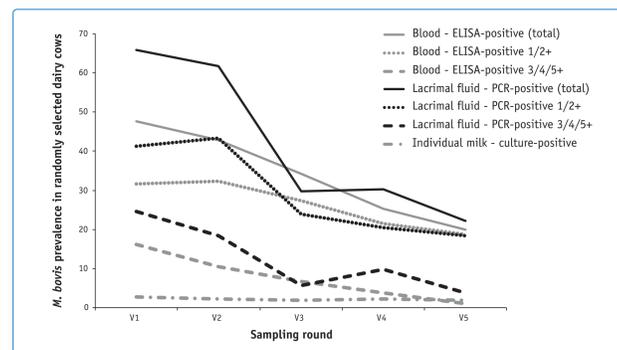
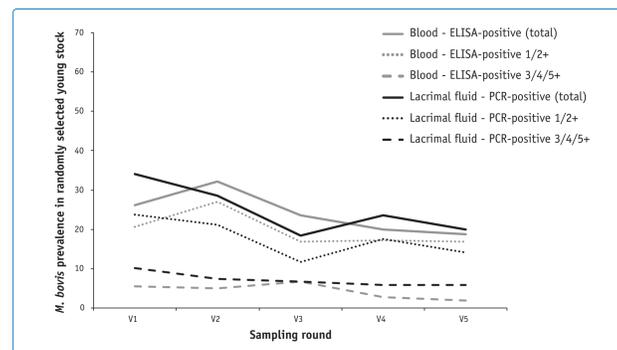
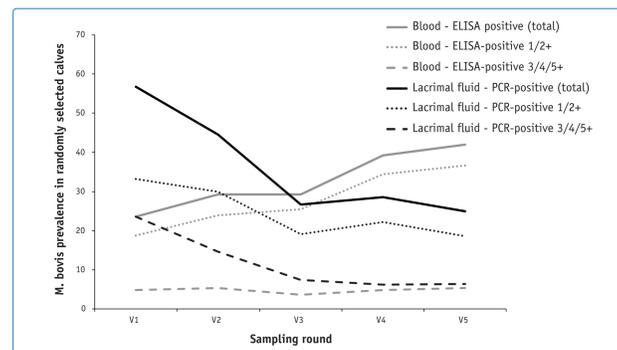


Figure 1. *M. bovis* prevalence in randomly selected calves (A), young stock (B) and dairy cows (C) on outbreak farms based on ELISA (blood), PCR (lacrimal fluid) and, for cows, individual milk culture. (1/2+ means low positive and 3/4/5+ high positive).



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