

Risk factors associated with *Mycoplasma bovis* outbreaks in Danish dairy herds 2010-2014



*liza@sund.ku.dk

Lene Jensen^{1,2}, Mikkel Bruun Svendsen¹, Mette Bisgaard Petersen¹, Kaspar Krogh³, Liza Rosenbaum Nielsen^{1*}

¹ Department of Large Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark

² Skovbjerg DyrlægeTeam, Varde, Denmark

³ Veterinary Cattle Specialist, Kolind, Denmark



Background

- Increased focus on *Mycoplasma bovis* in the Danish cattle sector due to many atypical outbreaks since 2011
- Arthritis, pneumonia and mastitis in cows
- Arthritis, pneumonia and otitis media in calves
- Difficult to treat so culling or euthanasia often needed to control the infection → financial and welfare losses
- Little available knowledge about prevention and control

Study objectives

To characterise and estimate duration of outbreaks and identify risk factors associated with clinical outbreaks of *Mycoplasma bovis* in Danish dairy herds

Materials & Methods

- 504 dairy herds identified to contact based on:
 - test-positive in bulk tank milk ELISA or PCR
 - knowledge about outbreaks
 - previous or current project herds
- Online questionnaire + telephone interviews:
 - Questions on farmers' perception of outbreaks
 - Outbreak characteristics and management
- Logistic regression of 21 risk factors for clinical outbreak



First question to the 324 dairy herds reached

Has there been an outbreak of *Mycoplasma bovis* in your cattle herd within the last 3 years?

- **No**, I have not had any sick animals with clinical signs of *Mycoplasma bovis* or **No**, I have not had an outbreak, but there have been sick animals that could have been infected with *Mycoplasma bovis* (n = 201)
- **Yes**, I have had a few sick animals with diagnosed *Mycoplasma bovis* or **Yes**, I have had an outbreak (sudden or large increase in disease occurrence) that could be caused by *Mycoplasma bovis* (n = 123)

Conclusions

- 38% of the test-positive herds that we reached reported having experienced a clinical outbreak (bias?)
- Rarely long outbreaks, but frequently severe disease
- Prevention: Good internal biosecurity! Isolate the sick!

Results

Outbreak characteristics

- Mastitis in ~ 33% of outbreaks
- Otitis media in 28% of outbreaks
- Arthritis in cows in 21% of outbreaks
- Arthritis in young stock in 39%
- Pneumonia in cows in 60%
- Pneumonia in young stock in 43%
- Other clinical signs: reduced milk yield, fever, dead cows) in 73% of outbreaks



Outbreak duration

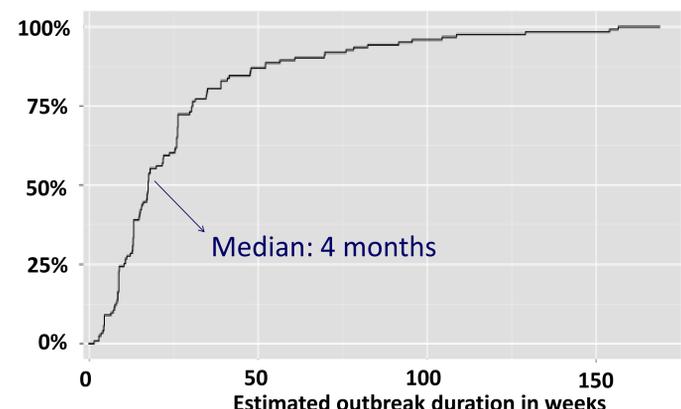


Fig. 1 Farmer estimated duration of *Mycoplasma bovis* outbreaks (n=123)

Risk factors for outbreaks

- **Herd size**: OR = 2.7-11.3 for 450 vs. 300 cattle^a
- **Calving area**: OR = 1.4-4.9 for >2 cows vs. 1 cow^b
- **Calves contact** to other age groups: OR = 1.3-6.3^b
- **Sectioning** >5 movements vs. <4: OR = 0.1-0.6^b
- **Use of cow sick pen**: No vs. yes OR = 1.3-4.1^b

^aP<0.001, ^bP<0.01