

Prevalence of respiratory pathogens on Danish cattle farms.

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INTRODUCTION

Bovine Respiratory Disease (BRD) is a costly and multifactorial disease of young and growing cattle.

Vaccination is an important tool in managing BRD. Identification of major respiratory pathogens on farms with BRD problems can offer valuable insights helping establish an appropriate vaccination program.

In 2019 and 2020, MSD Animal Health used a BRD QuickScan testing approach to evaluate exposure to BRD pathogens present on several Danish farms.

OBJECTIVE

The objective of this study was to provide an overview of the prevalence of respiratory pathogens in Danish dairy farms and calf rearing operations with BRD problems.

MATERIALS AND METHODS

The tested farms were selected based on the herd veterinarian defining them as having a BRD problem.

Serum samples were taken from around 10 calves; > 2,5 months old.

BRD QuickScan testing approach:

- ▶ Detection of antibodies against: *M. haemolytica*, *P. multocida*, BCoV (samples from June 2020 onwards) and BRSV - an in-house ELISA test.

- ▶ Detection of antibodies against PI3V and *M. bovis*: commercial ELISA kits (IDEXX and Bio-X respectively).

- ▶ All samples were tested at the Centre for Diagnostic Solutions (MSD Animal Health (The Netherlands)).

Pathogens circulating on Danish BRD problem farms were in most cases (82%) co-infections of *M. haemolytica* and viruses.



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RESULTS

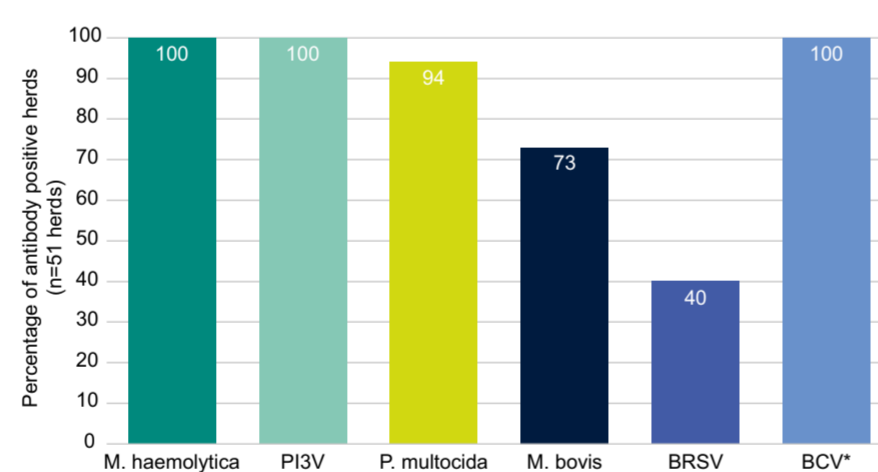
BRD QuickScan tests performed: 505 calves: 38 samples from dairy farms (371 calves), and 13 samples from calf rearing operations (134 calves).

Antibody prevalence at the farm level is shown in Fig. 1 with evidence of exposure to key BRD pathogens in practically all farms.

Analysis of antibody prevalence at the calf level indicated exposure to multiple BRD pathogens in almost all reared calves (Fig. 2 & Fig. 3). Most of calves showed exposure to 2-4 key BRD pathogens (Fig. 2).

Simultaneous presence of antibodies to *M. haemolytica* and key BRD viral pathogens (PI3V and/or BRSV) was found in 82% of calves (Fig. 4).

FIGURE 1. Percentage of farms with samples positive for antibodies against key BRD pathogens.



* BCoV tested on 30 farms from June 2020 onwards.

FIGURE 2. Percentage of dairy and rearing calves with presence of no antibodies against key BRD pathogens, antibodies against single or two or more key BRD pathogens.

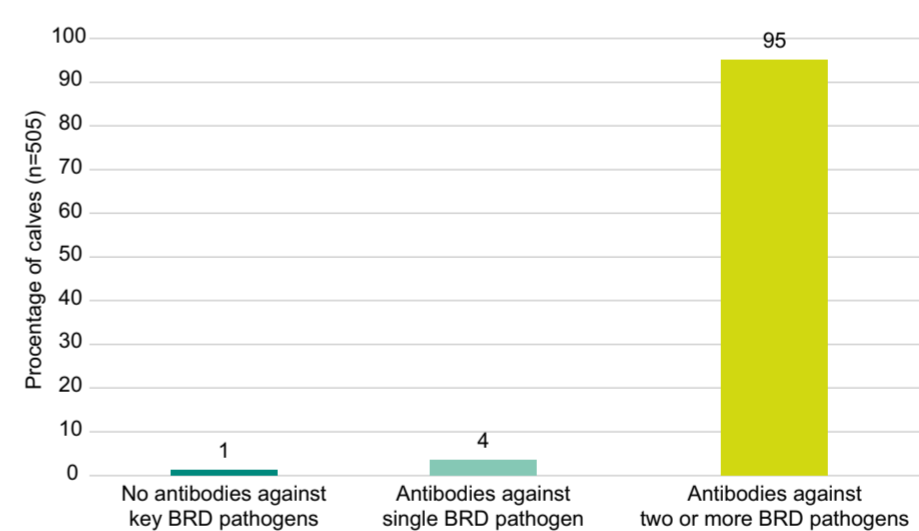


FIGURE 3. Prevalence of antibodies against key respiratory pathogens in dairy and rearing calves.

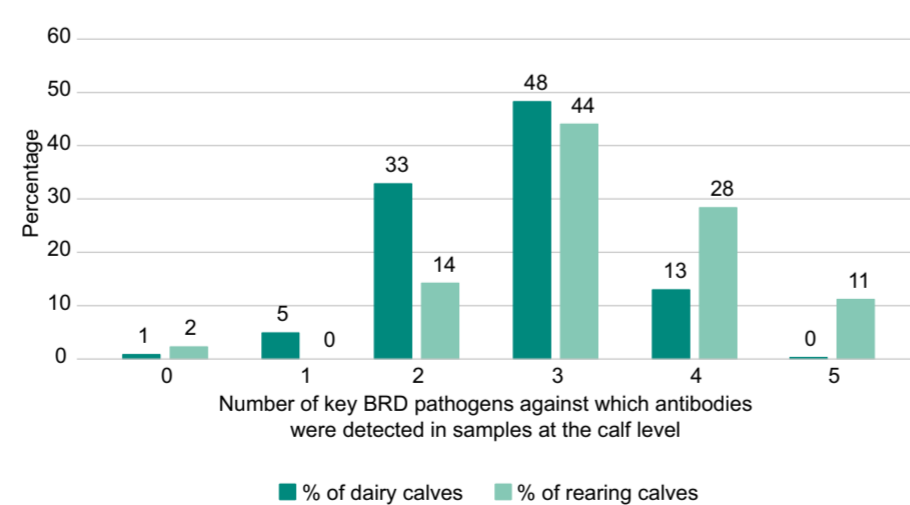
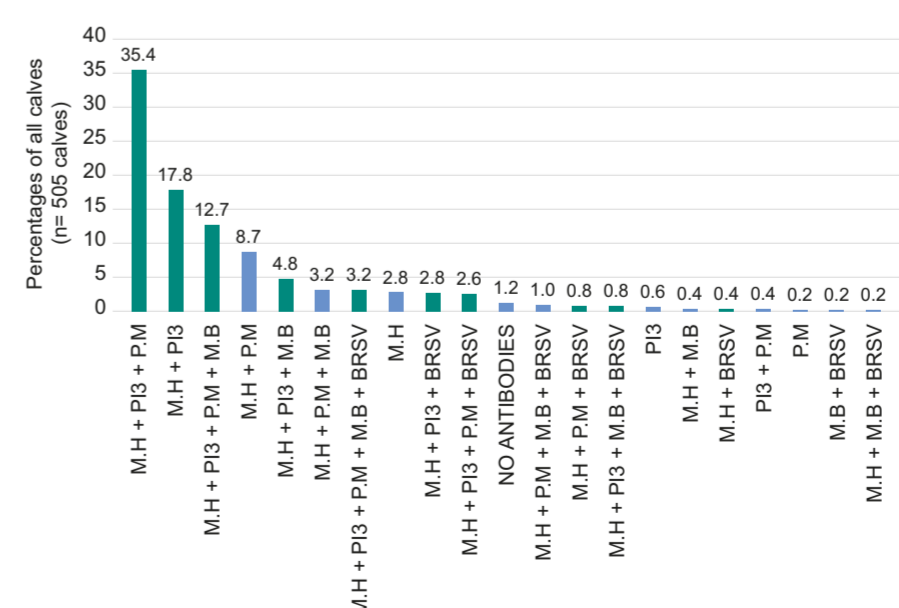


FIGURE 4. Combinations of antibodies against key BRD pathogens. Green bars: Simultaneous presence of antibodies against *M. haemolytica* and respiratory viral pathogens (PI3 virus and/or BRSV).



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