

Seroprevalence of respiratory pathogens in calves at arrival in German rearing units.

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INTRODUCTION

- ▶ Respiratory disease is the biggest health problem in calf rearing.
- ▶ Especially after the grouping of animals of different origins in calf rearing units, there is a high infection pressure.
- ▶ In order to better understand the immunological status and to implement suitable vaccination programs, it is important to identify serological antibodies of circulating respiratory pathogens.

OBJECTIVE

Identification of serum antibodies against circulating respiratory pathogens (Bovine Respiratory Syncytial Virus - BRSV, Parainfluenza-3 Virus PI3-V, *Mannheimia haemolytica* - Mh) in calves with unknown vaccination status from many different supplying farms.

MATERIALS AND METHODS

- ▶ Observational field study on 2 beef rearing farms over two years (2017-2018) in the Northwest and South of Germany.
- ▶ Blood samples from a random proportion of calves at arrival.
- ▶ Vaccination status of the calves or their mothers was unknown.
- ▶ Neutralizing antibodies against BRSV and PI3-V determined by standard methods (titers expressed as log₁₀).
- ▶ ELISA to measure antibodies to Mh (titers expressed as log₂).

Calves arriving at rearing farms have antibody titers against BRSV, PI3-V and *M.haemolytica*. Some respiratory vaccines are less effective in the presence of maternally derived antibodies. Therefore it is important to know the characteristics of the vaccines as well as the serological status of the animals to be vaccinated.



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RESULTS

- ▶ 1127 calves on the 2 farms (farm A n=931, farm B n=196).
- ▶ Serum samples from 143 randomly selected calves (farm A n=98, farm B n=45).
- ▶ Two calves (red dots on Fig. 1, 2 & 3) : no detectable titers for all three respiratory pathogens → absence of maternal antibodies and no recent infection with those pathogens.
- ▶ All other calves : vast majority had antibodies against all 3 pathogens (Fig. 1, 2 & 3).
- ▶ Tendency towards a decrease in the level of titers with an increasing age (Fig. 1, 2 & 3).
- ▶ BRSV, PI3-V and Mh are endemic in German rearing farms given that dam vaccination is very low.

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FIGURE 1. Antibody titers against BRSV.

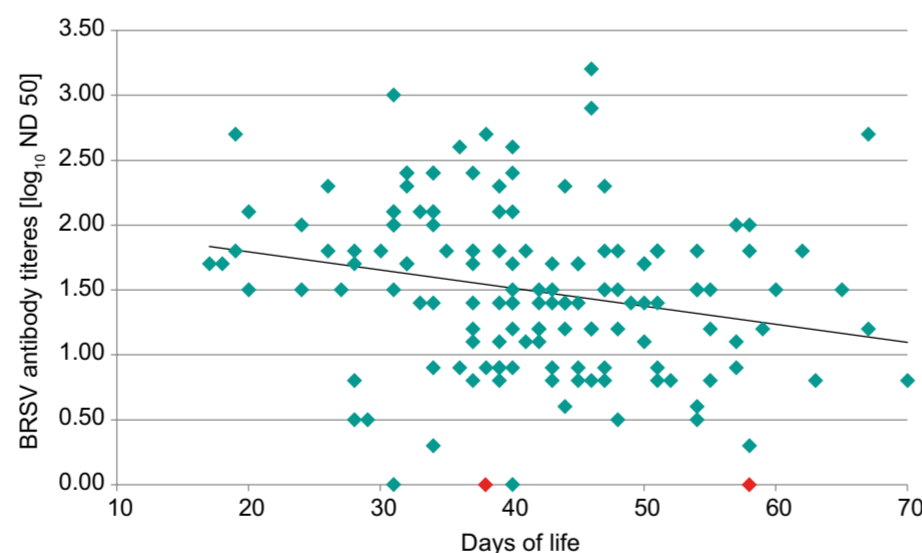


FIGURE 2. Antibody titers against PI3-V.

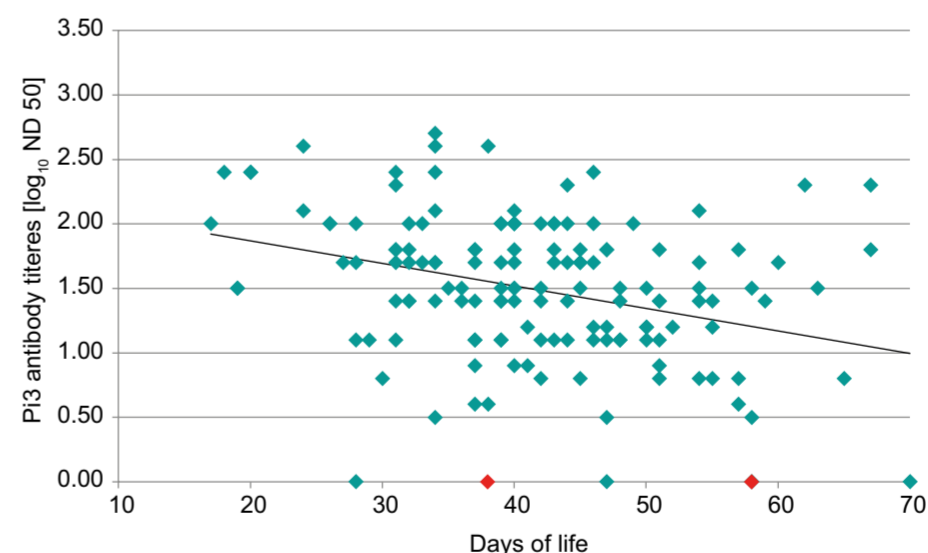
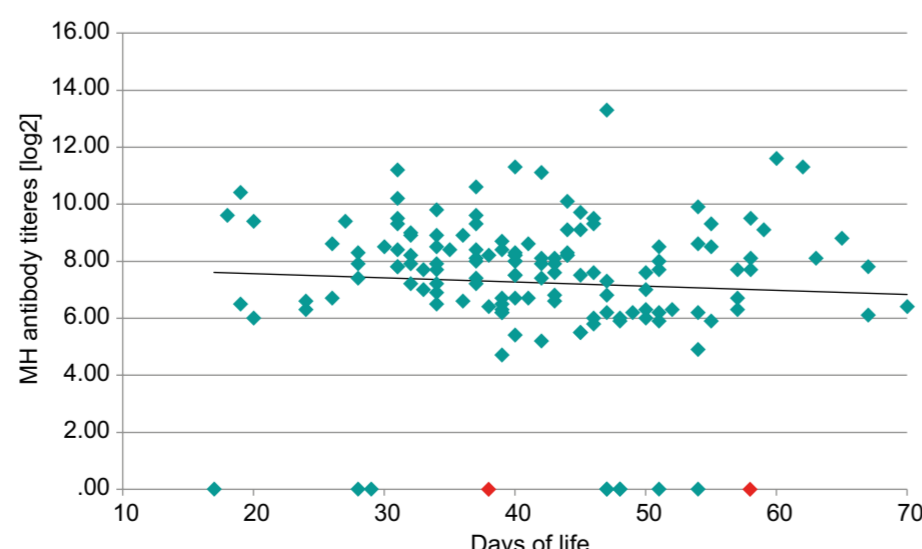


FIGURE 3. Antibody titers against *Mannheimia haemolytica*.



NOTE: Each dot represents an individual calf. Red dots show calves with no detectable titers for all three respiratory pathogens.