

Impact of diarrhea and respiratory diseases in calves on reproductive performance in dairy breed heifers



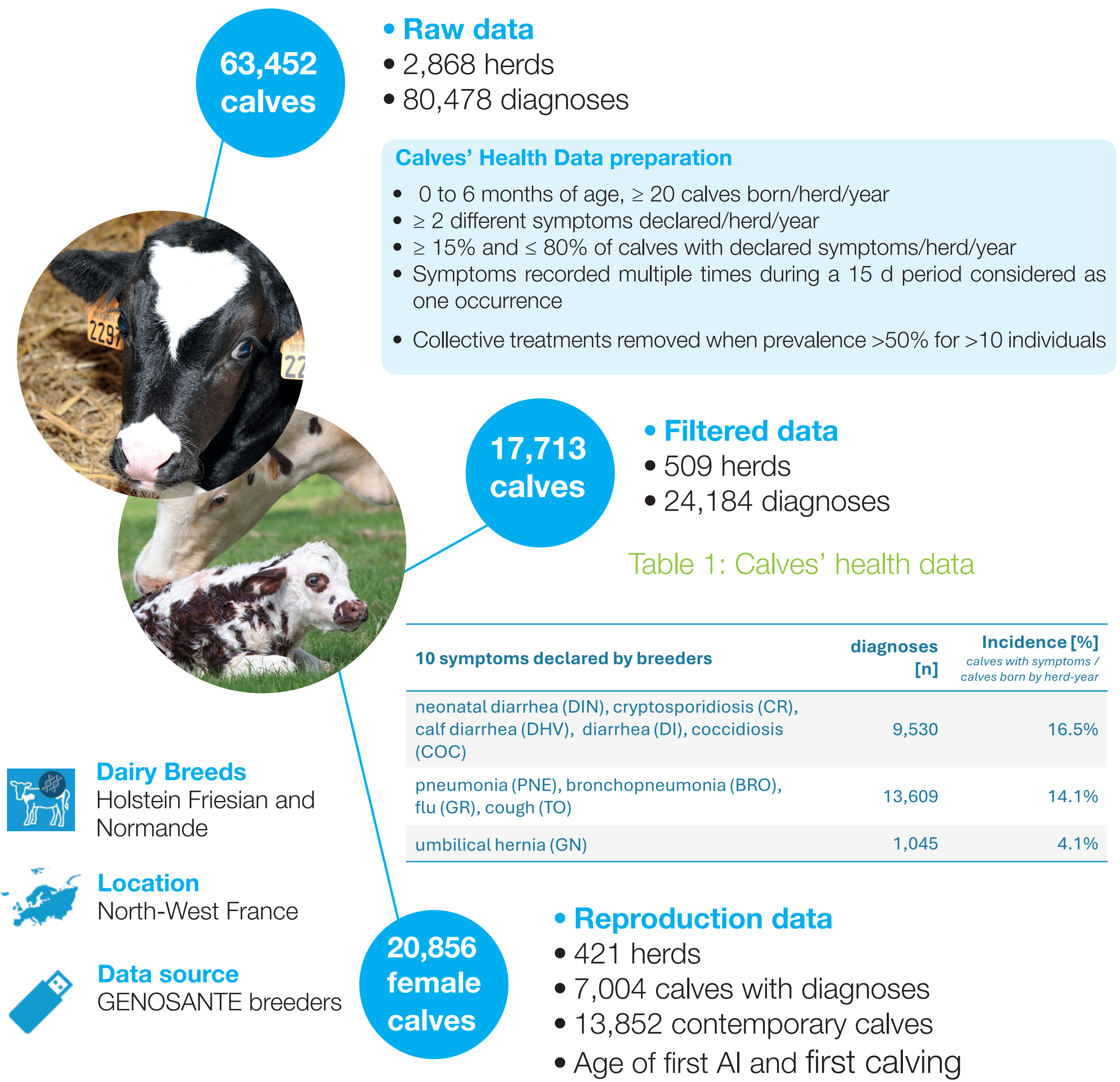
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INTRODUCTION

The most prevalent diagnoses in calves on dairy farms are diarrhea, respiratory diseases and umbilical hernia. These diseases have a negative impact on animal well-being, and results in direct economic impacts for the dairy farms such as treatment costs and increased labor time attending to sick calves. The occurrence of health problems early in life and during the rearing period might also subsequently lead to other health-related losses, having an impact on replacement heifers' development, and later reproductive performances.

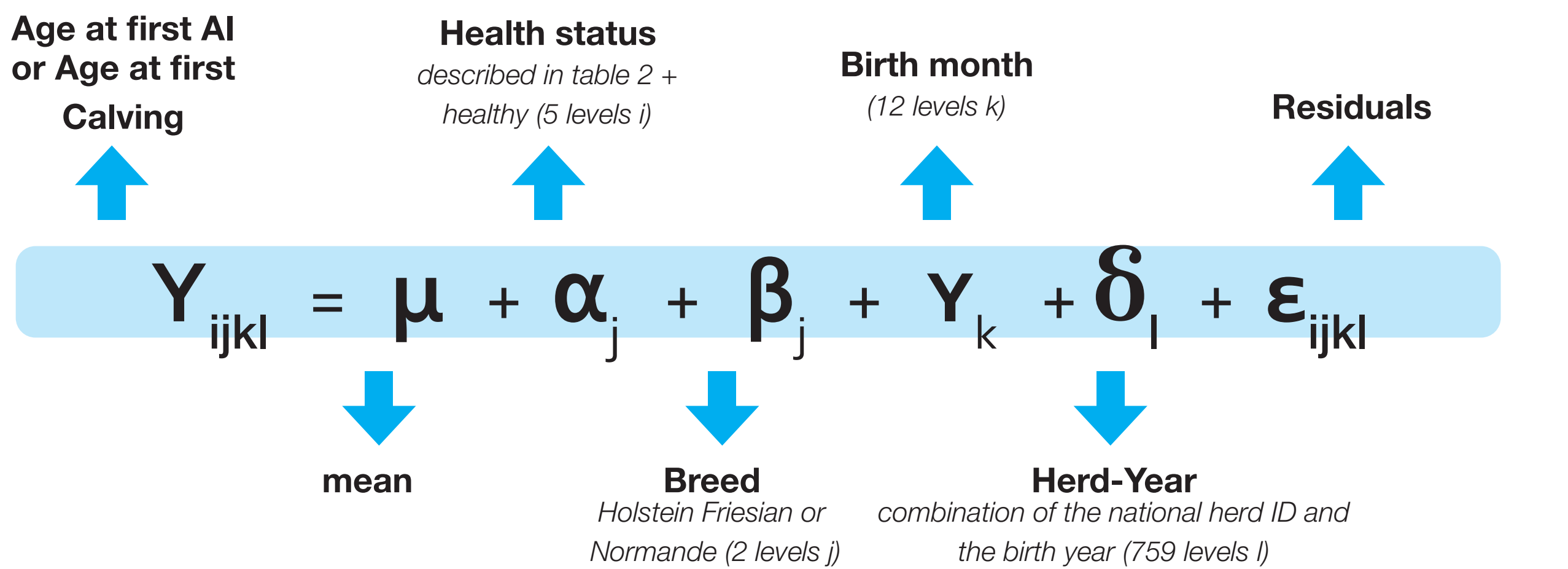
How and to what extent do calf diseases influence age at first artificial insemination (AI) and age at first calving?

MATERIAL & METHODS



Statistical Analysis

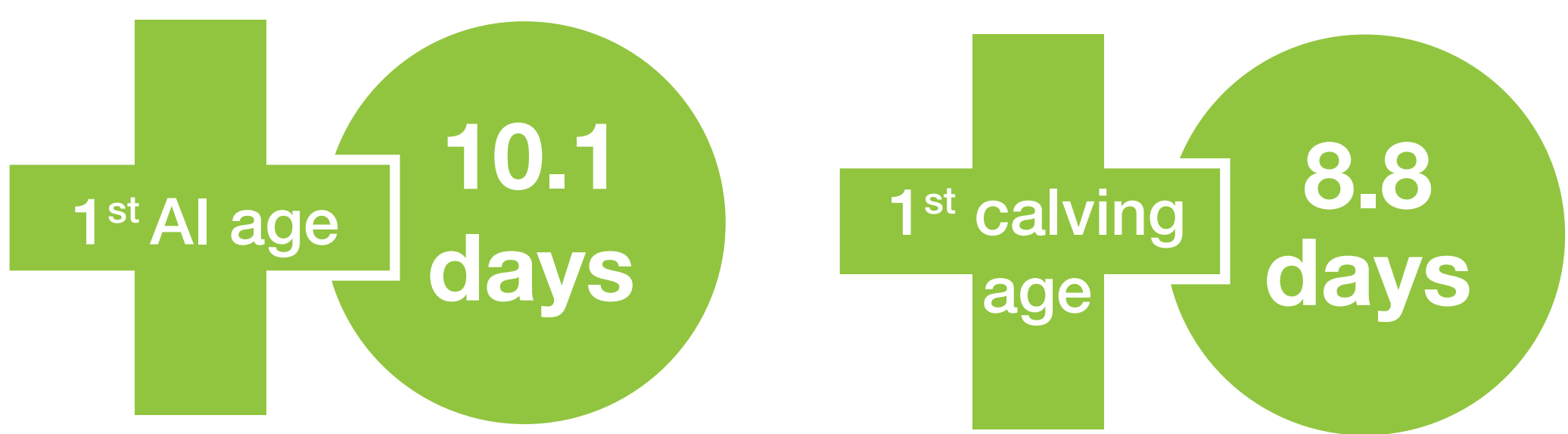
- Generalized linear model (GLM) chosen with AIC stepwise StepAIC procedure (stat and MASS R packages) *Significance threshold* $\alpha=0,05$



DISCUSSION

- In both Holstein Friesian and Normande breeds, diseases in early life have impact on reproductive performance of replacement heifers. There is no difference between breeds.
- The seasonal effect was confirmed for respiratory diseases but not for diarrhea and umbilical hernia. Seasonal prevalences results should be considered carefully regarding the definition of a contemporary animal used. Variable across herds, years, and seasons, the mortality rates critically affects the prevalence estimation and should be taken into account in further analysis.
- These preliminary results confirm the interest of investigating the genetic determinism of calves' resistance to 0-6 months pathologies and initiate further work on this topic by SYNETICS cooperative.

CONCLUSION



Multiple diseases (Respiratory, Diarrhea, Umbilical hernia) increase the age at first AI and age of first calving.

RESULTS

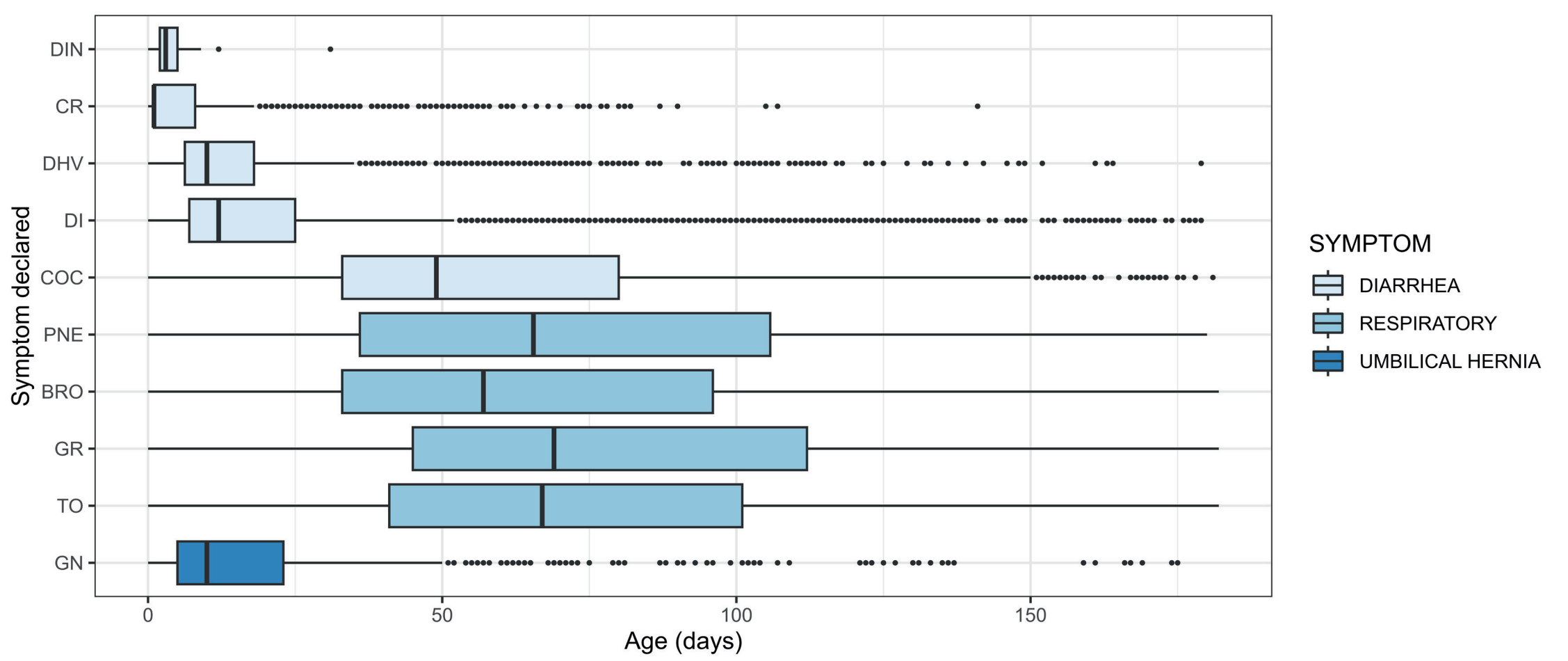


Fig. 1: Calves' age at symptom declaration

- Umbilical hernia and most diarrheal diseases occur mainly in the early days of a calves' life except for coccidiosis (figure 1).
- The respiratory diseases can be detected between 50 and 100 days of age but are highly influenced by season (figure 2).

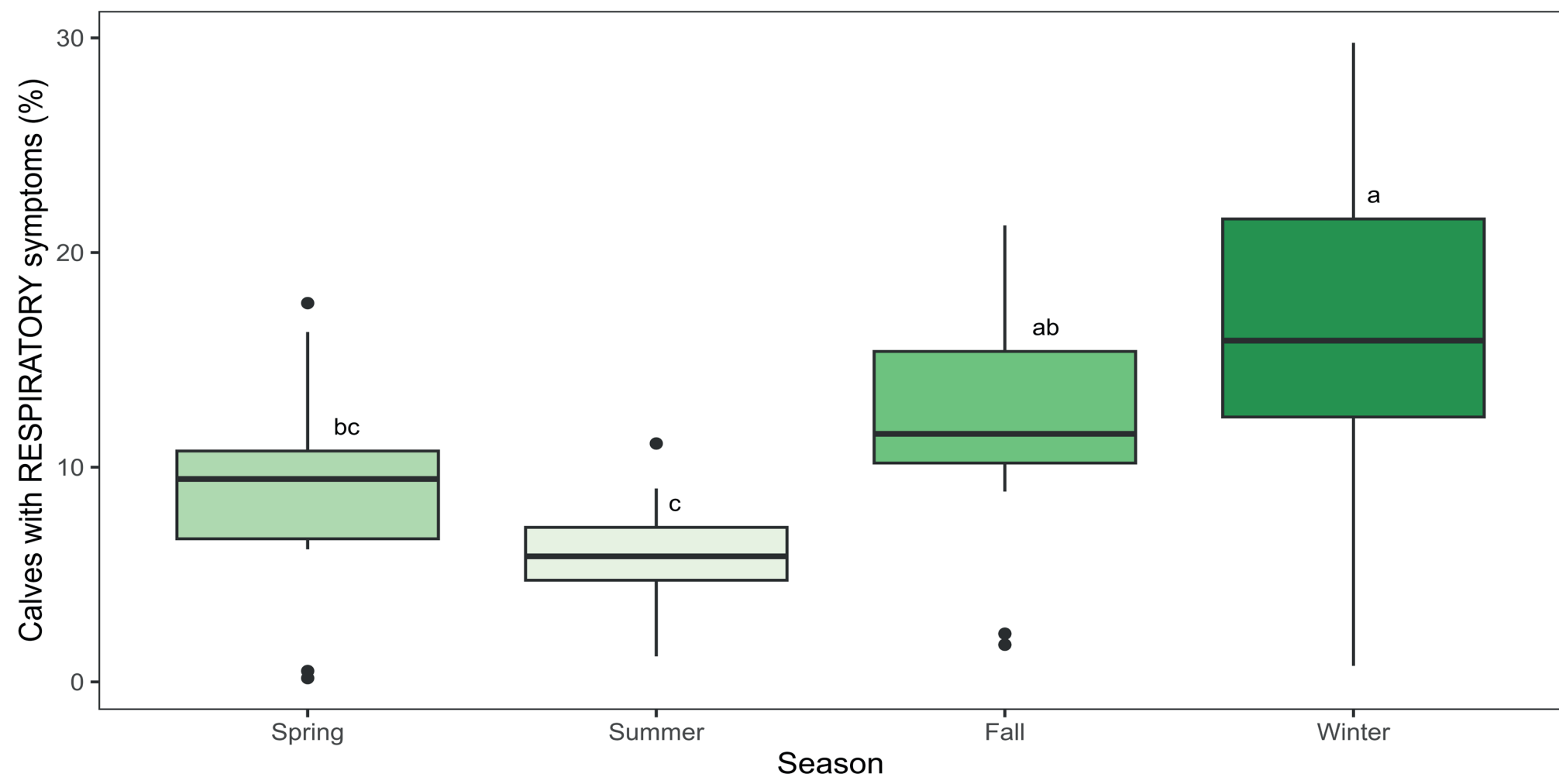


Fig. 2: Prevalence of respiratory diseases by season

- The effects of calf health status is significant and consistent on age at first AI and age first calving, whether it was studied individually or as part of a complete GLM including herd-year, birth month and breed effects (table 2).

Table 2: Health event effects from GLM (ns = not significant)

Health event	n	Age at first AI [d] (SE)	Age at first calving [d] (SE)
Diarrhea	2,740	ns	ns
Respiratory	3,340	+ 4.6 (1.2)	+ 5.2 (2.1)
Umbilical hernia	157	+ 11.0 (5.2)	ns
Multiple	767	+ 10.1 (2.4)	+ 8.8 (3.7)

Acknowledgements

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