

Days of healthy life lost due to diarrhea in calves during the preweaning period

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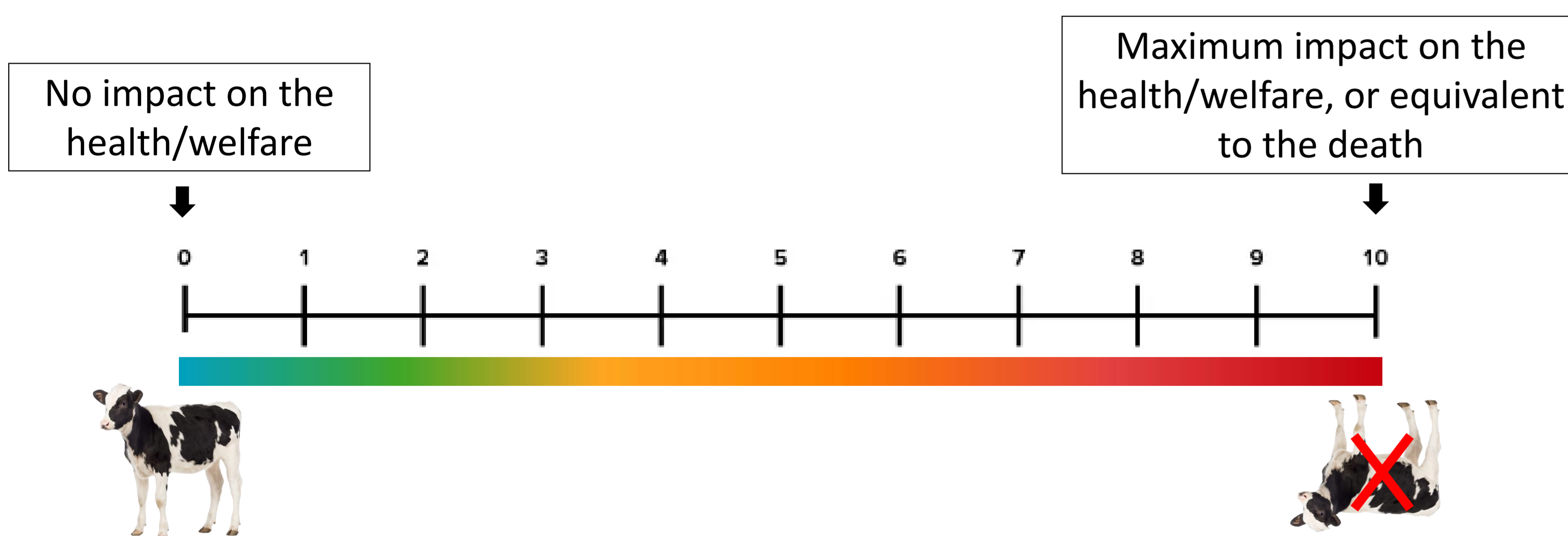
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Health impact quantification is a challenge in veterinary science even if this subject has been explored extensively in human medicine.

Objective: The objective of our study was to quantify the number of days of healthy life lost (DHLL) due to diarrhea in calves during the preweaning period.

Material and methods:

- A total of 677 calves from 40 Québec's dairy farms were examined by a veterinarian during the winter and spring seasons of 2022.
- Diarrhea was assessed using a standardized clinical score ranging from 0 to 3 (from solid to liquid feces). Positive cases were defined as score 2 or 3.
- The duration of a diarrhea episode was estimated according to a literature search (average of 3 days, Schinwald et al., 2022).
- The perception of 39 farmers of the impact of a diarrhea case on calf's health (Disability weight = DW) was assessed using a visual analogue scale, ranging from 0 (no impact on the health/welfare) to 10 (maximum impact on the health/welfare, or equivalent to the death). The farmers were asked for their best guess on the impact as well as minimal and maximal impact.

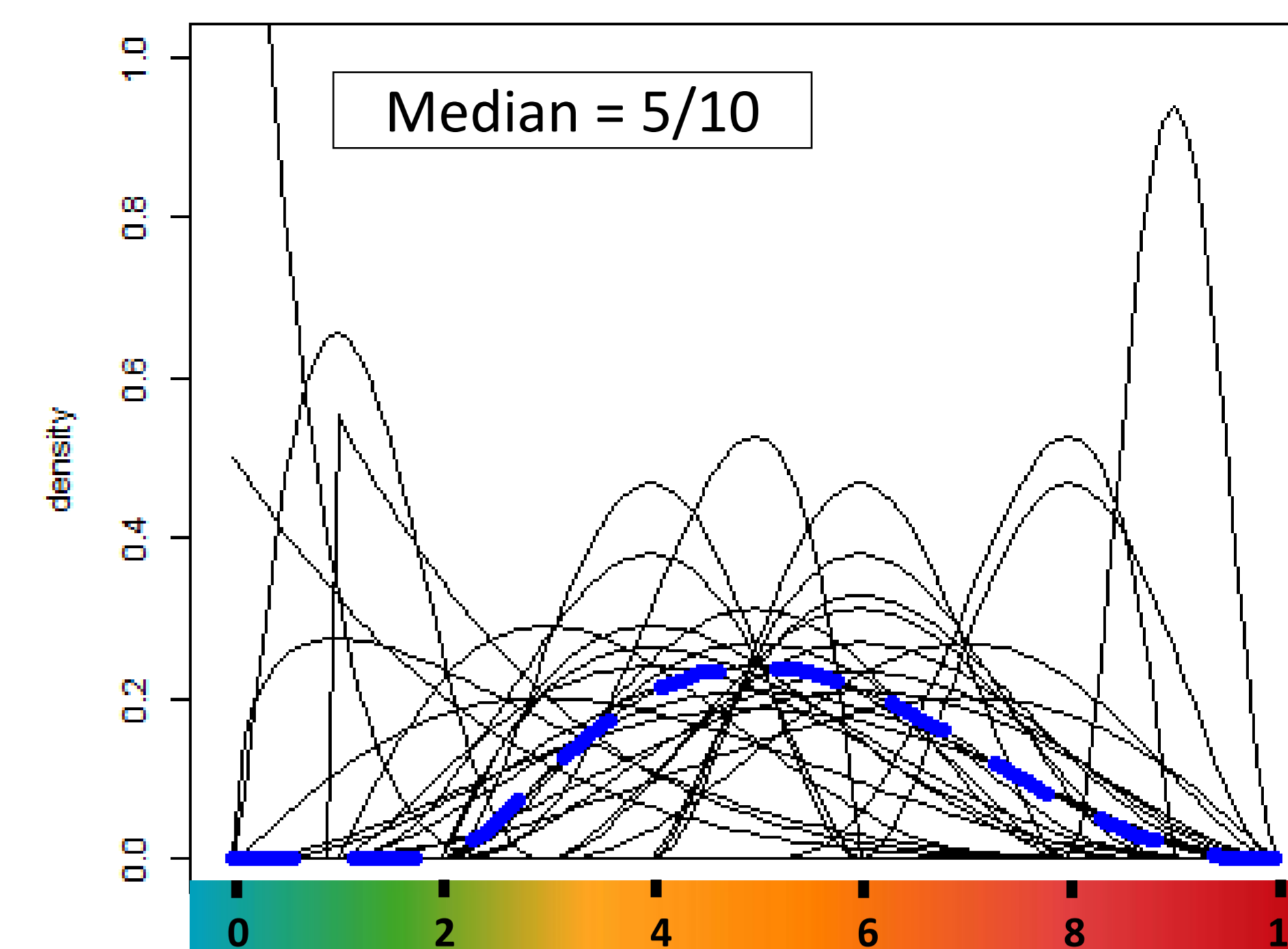


- DW values were adjusted in a scale between 0 and 1.
- An incidence-based methodology was used to obtain DHLL due to diarrhea for each farm, where the number of positive cases was multiplied by the average duration of a diarrhea episode, and the median DW established by the farmers.
- The DHLL was adjusted per 100 calving.

Results and applications:

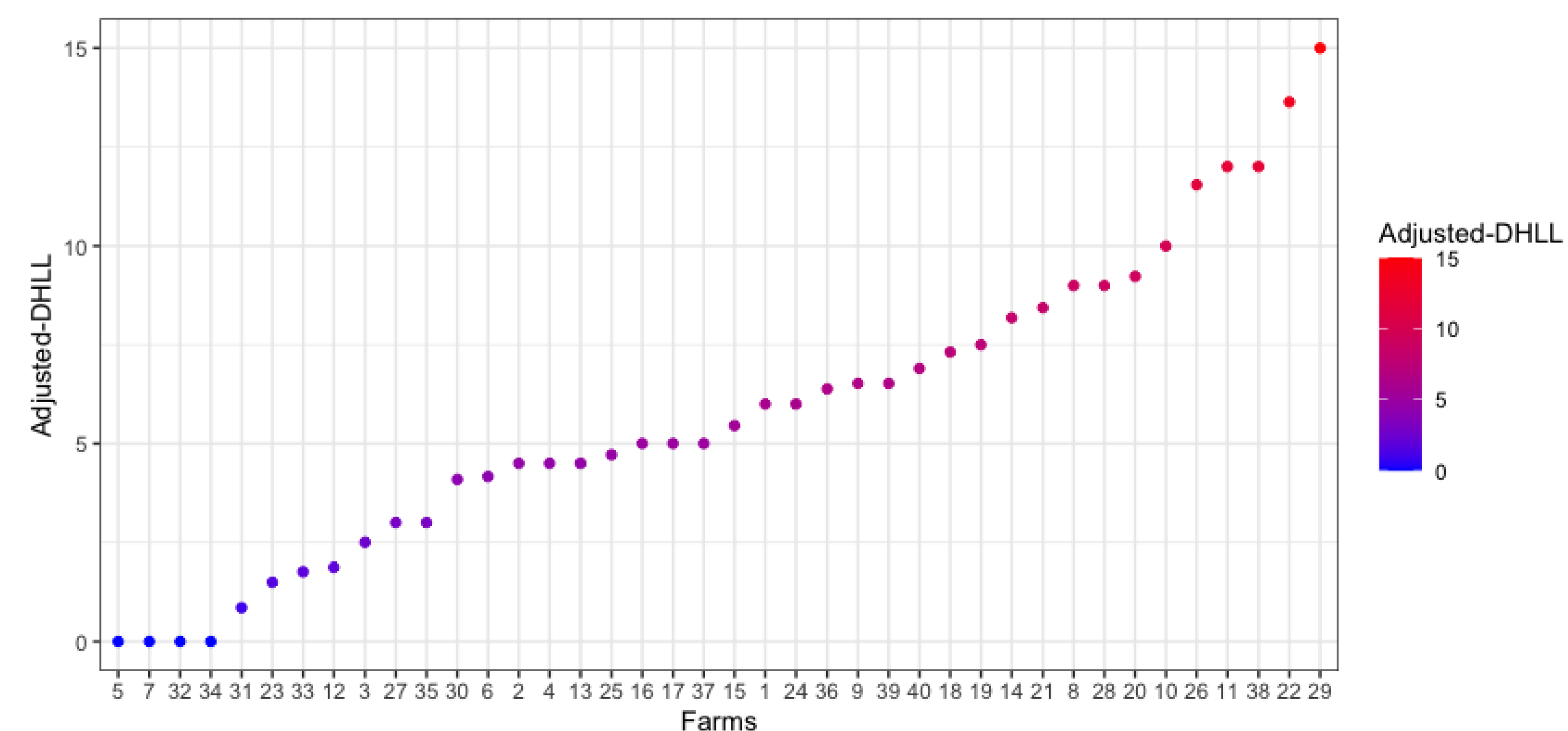
Overall, 29.8% (202/677) of the calves had diarrhea. The median DW for diarrhea was 5 (Figure 1). The median adjusted-DHLL was 5.2 days of healthy life lost (IQR = 5.2, min = 0 and max = 15). Adjusted-DHLL for each farm was reported in the figure 2.

Figure 1 - Probability distribution of the impact of diarrhea on calf health according to the perception of 39 Québec dairy farmers



The Y axis represents the probability distribution (density) of the perceived impact. The more precise this perception, the higher the peak. The greater the uncertainty, the flatter the shape. The severity scale is represented on the x-axis. Each producer review is in black and the blue line is the overall distribution of reviews.

Figure 2 – Adjusted-number of days of health life lost (DHLL) due to diarrhea of 40 dairy farms in Québec, Canada



Impact for the dairy sector:

This is the first study quantifying the DHLL due to diarrhea in calves during the preweaning period. It also represents an important step in the development of a dairy calf health/welfare index. This system is important to identify and mitigate the main causes of DHLL at the farm level, and consequently, to improve the longevity and performance of the herd.

Reference

Schinwald, M., Creutzinger, K., Keunen, A., Winder, C. B., Haley, D., & Renaud, D. L. (2022). Predictors of diarrhea, mortality, and weight gain in male dairy calves. *Journal of Dairy Science*, 105(6), 5296-5309.