A review of the causes of mortality in pre-weaned dairy calves

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The published mortality rates of pre-weaned dairy calves are of concern, both from an animal welfare and a productivity viewpoint. Reducing these losses requires an understanding of the major causes of mortality in this age group. A review was carried out of all diagnostic carcass and viscera submissions submitted to SRUC Vet Services between 2014 and 2018. A total of 614 submissions were analysed, and a definitive diagnosis was reached in 603. There were 1017 diagnoses made, excluding hypogammaglobulinaemia, which was considered to be a predisposing factor rather than a cause of mortality. 69% of the diagnoses were infectious, 25% were nutritional and 6% were classed as non-infectious, non-nutritional. The most common causes of mortality are shown in figure one. Rumen drinking was the second most common cause of mortality, and 26% of calves had a nutritional component to their death. Where it was known, the feeding history of calves was recorded. Control calves, in which there was considered to be no impact of nutrition or feeding method on the death of the calf, were identified. Compared to the control calves, rumen drinkers were more likely to be fed from an open bucket (odds ratio 4.35, 95% confidence intervals 1.91-9.87), less likely to be fed from an automatic feeder (odds ratio 0.13, 95% confidence intervals 0.05-0.31) and more likely to be on a low milk feeding volume (≤4 litres a day, odds ratio 4.5, 95% confidence intervals 1.01-20.11). Additionally, only rumen drinkers had received waste milk. These factors confirm much of the previous research on the factors affecting rumen drinking, and highlight that there are management changes which can be made to reduce the likelihood of it occurring. This review highlights the common causes of mortality and the value that a quality assured post-mortem examination can add to the on-farm picture of calf health. It also demonstrates the benefit that analysis of passive surveillance data in generating data for the dairy industry. The fact that 26% of deaths had a significant nutritional component demonstrates the importance of feeding practices in ensuring the health and welfare of dairy calves. *Acknowledgments: SRUC VS receives financial support from the Scottish Government for farm animal disease surveillance activities.*