


Vital calf health research addresses knowledge gaps

In association with 

Researchers at University College Dublin's School of Veterinary Medicine are addressing knowledge gaps that exist in the area of calf health, some of which are presented in this article

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diseases of cattle, as well as syndromic surveillance, antimicrobial use, fertility, welfare and biosecurity.

Heifer rearing represents 20% of ongoing costs in the dairy herd, with Teagasc estimates suggesting that the cost is over €1,500 per heifer. However, work from the UK suggests that 15% of dairy heifer calves alive at birth don't make it into first lactation (Brickell and Wathes, 2011). Although advances have been made with the success of the Animal Health Ireland Calf Care Technical Working Group, large numbers of calves still die every year on Irish dairy farms (AIM Bovine Statistics Report, Department of Agriculture, Food and the Marine, 2017). The UCD School of Veterinary Medicine's Herd Health and Animal Husbandry section is addressing several key calf health issues through its ongoing research.

COLOSTRUM

Recent international work has demonstrated that bacterial counts in colostrum may interfere with the absorption of immunoglobulin (Gelsinger et al., 2015), as well as being a potential vehicle for pathogenic organisms such as MAP (McAloon et al., 2018). In a study evaluating the levels of bacterial contamination in colostrum from Irish dairy herds, McAloon et al. (2016) demonstrated that 56% of colostrum samples collected on commercial dairy farms were above the standard Total Bacterial Count (TBC) and/or Total Coliform Count (TCC) limits used for commercial milk. This was higher than comparable estimates from Canadian dairy herds of 36% (Fecteau et al., 2002).

On colostrum quality, Donlon et al. (UCD veterinary graduate, 2018) showed that 39% of colostrum samples collected on commercial farms were of sub-optimal quality; time from calving to collection of colostrum had the largest effect on the quality of colostrum. Statistical modelling and calculation of the population attributable fraction demonstrated that if all samples were collected within two

hours of calving, the proportion of poor-quality samples could be reduced by 61%.

HEIFER REARING

Hayes et al. (2018, UCD resident in bovine health management) collected detailed weight measurements from calves across seven commercial dairy farms with long-term follow up into the lactating herd. Accelerated failure-time modelling showed that heifers aged 443 days at mating start date, which grew at 0.4kg/day, had 16 more days open compared with a heifer that grew at 0.9kg/day before conceiving. Further work in collaboration with Teagasc Moorepark, is underway to investigate the biosecurity implications associated with contract heifer rearing.

PNEUMONIA

Data from the DAFM/Agri-Food and Biosciences Institute (AFBI) all-island disease surveillance report suggests that pneumonia is diagnosed as the cause of death in 30-50% of calves aged fewer than five months submitted for post-mortem examination. The specific environmental factors predisposing calves to pneumonia is an area with little scientific research, which is currently a high priority area for the UCD Herd Health Group and an area of active research. Fitzgerald et al. (UCD veterinary student – MVB V, 2018), demonstrated that, when compared with control herds, the airborne bacteria count in 10 pneumonia problem herds was greater across all sampling points in the calf shed (Figure 1).

Further work planned for 2019 and 2020 will investigate the impact of the environment on the development of calf pneumonia using advanced, state-of-the art detection and sampling methods.

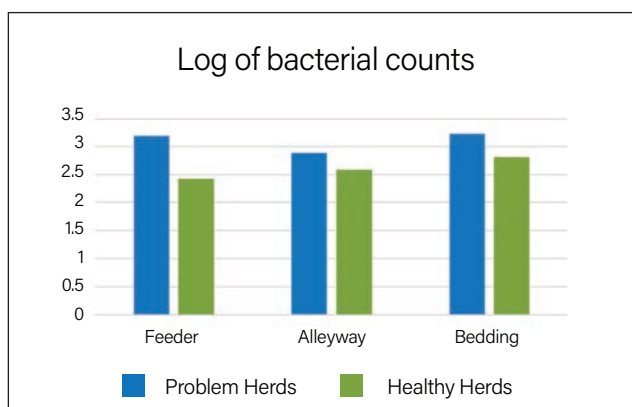


Figure 1. Comparison of airborne bacteria counts between 10 pneumonia 'problem herds' and nine control herds, across three sampling areas.

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