

AFBI Research Farm



Optihouse: How clean is your house?

Challenge

Recent research from AFBI Hillsborough has highlighted on-farm calf mortality rates nationwide of up to 6% – a figure which has not decreased in decades across the UK.

Furthermore, the Royal Veterinary College in the UK has indicated that more than 40% of calves on commercial farms suffer from pneumonia, which has an average financial cost of £43 per calf. Aside from the immediate costs of treatment, ill health in early life can cause delayed growth rates which leads to delays in breeding and calving age and a depressed level of milk production, overall resulting in a major loss in production efficiency.



Calf ill-health and mortality are predominantly a function of the housed environment, husbandry and nutrition. However, little is understood about the true impacts of the housed environment in the early life of the calf.

Action

The 'Optihouse project', led by AFBI Hillsborough, is seeking to address this major gap in knowledge.

Optihouse is a large-scale calf housing project which incorporates research teams from AFBI Hillsborough and Queen's University Belfast, the CAFRE Dairy Advisory team and a group of international veterinary, academic and industry experts.

The overall objective of Optihouse is to increase the efficiency of feed and labour within calf rearing enterprises by optimising the rearing environment and calf management. To achieve this, one of the main elements of the project has been to gain a better understanding of the conditions in calf rearing houses. This will help identify the influence of key factors, linked to poor environmental conditions and failure to deliver expected growth, such as building design, hygiene practices and calf nutrition.

As part of the Optihouse project, PhD Student Aaron Brown and the AFBI technical team carried out assessments on a wide range of calf housing and rearing systems in dairy farms across Northern Ireland. Samples collected included milk or milk replacer to be fed to calves, calf starter feed, water from drinkers and swabs from bedding and feeding equipment. The samples were then analysed for indicators of potential disease causing organisms including total viable bacterial counts (TVC), coliforms and E.coli.

One of the key findings from this analysis highlighted the need for better hygiene with regard to water quality. Water is a driving factor for concentrate intake and therefore is essential for rumen development. Providing calves with clean drinking water and maintaining high levels of hygiene for drinking facilities is therefore vital. However, currently, there are no set standards for drinking water quality in calves as there are within the pig and poultry sectors. When the drinking water



samples collected within the calf houses were compared with the Red Tractor pig standards, only a small proportion of the samples met the standards.

Preliminary results from samples taken from calf feed and feed preparation equipment have also indicated a high level of bacteria, thus putting young calves at high risk of ill health.

These results stress the fact that much opportunity exists to improve hygiene on farms. It is known that such improvements will contribute positively to calf health.

The next phase of the project will involve a series of controlled studies utilising metabolism chambers funded by CIEL to measure impacts and interactions between level/type of calf nutrition, bedding, calf grouping & environmental conditions.

Impact

Results to date highlight that much opportunity exists to improve hygiene on farms and that such improvements will contribute positively to calf health. Conclusion of the research will help inform best practice and refine calf rationing systems to better reflect performance under a range of environmental conditions.



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