

Feeding strategies to improve dairy calf welfare during long-distance road/ferry transportation

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Summary

- Extended feed intervals present challenges to calves undergoing long-distance transport.
- Pre- and post-transport feeding strategies that may alleviate the negative effects of extended fasting are being investigated on commercial exports from Ireland to the Netherlands.

Introduction

Due to its seasonal calving system and growing herd size, the Irish dairy industry produces a large number of calves that are not needed for replacement in the dairy herd. Every year, over 120,000 of these unweaned calves are exported to continental Europe for veal and beef production between the ages of two and six weeks. These long-distance journeys via road and ferry typically take more than 48 hours in total, during which calves must undergo a period of extended fasting.

Livestock transport, especially of young animals, is a topic of growing public concern due to its many challenges to animal welfare. Adverse effects on the welfare of calves can include hunger, dehydration, social stress, discomfort, injury and infection, handling and mixing with other animals, and exposure to novel pathogens. Transition to a new housing and management system following transport can additionally affect calf health. Long-distance transport is particularly challenging for calf welfare due to the prolonged fasting times and resulting energy loss and hunger.

Pre- and post-transport diet may improve calf welfare

Pre- and post-transport diet are key factors in managing the adverse effects of extended fasting periods. For example, dehydration, low blood glucose levels, and stress are reduced when feeding calves milk replacer instead of electrolytes before long journeys. Feeding larger volumes of milk replacer pre-transport than is current standard practice may help calves to maintain a positive energy balance and reduce hunger. Additionally, increasing the nutritional value of calves' diets following transport may contribute to a faster recovery post-transport and improve immune function, potentially reducing the risk of disease and mortality on destination farms.

Investigating the effects of alternative feeding strategies

A study was carried out during the 2022 spring calving season to investigate the effects of different pre- and post-transport feeding protocols on calf welfare during and following long-distance transport. Two commercial transports from Ireland to the Netherlands were monitored, during which a number of physiological, immunological, and health-based welfare indicators were measured in 120 calves. At the assembly centre, calves were either fed according to standard feeding practices (no feed the evening before transport and 2L of milk replacer on the morning of transport) or with an alternative feeding protocol

providing higher volumes of milk replacer and an additional pre-transport feed (3L of milk replacer the evening before and on the morning of transport). On the destination farm, calves were fed milk replacer either according to the standard veal farm protocol (1.6L twice daily increasing to 2.9L over three weeks) or received 25% more milk replacer for three weeks after arrival (2.0L twice daily increasing to 3.6L).

Welfare indicators were measured at an Irish assembly centre prior to transport and at a control post in Cherbourg, France, after ferry transport. At the control post, calves were fed and rested for 13 hours before continuing by road transport to a Dutch veal farm. Measurements were taken upon arrival at the veal farm and for the following three weeks (Figure 1). Changes in body weight over the journey reflect calf hydration and metabolic status. Blood samples were analysed for parameters indicating energy balance (e.g. glucose), hydration (e.g. urea, haematocrit), immune status (e.g. white blood cell count, immunoglobulins), and stress (e.g. cortisol). Calf health was monitored by regularly recording rectal temperatures, clinical health scores (e.g. eye and nose discharge, coughing, diarrhoea, hanging ears), lung ultrasounds to identify respiratory disease, and medicine use on the veal farm.

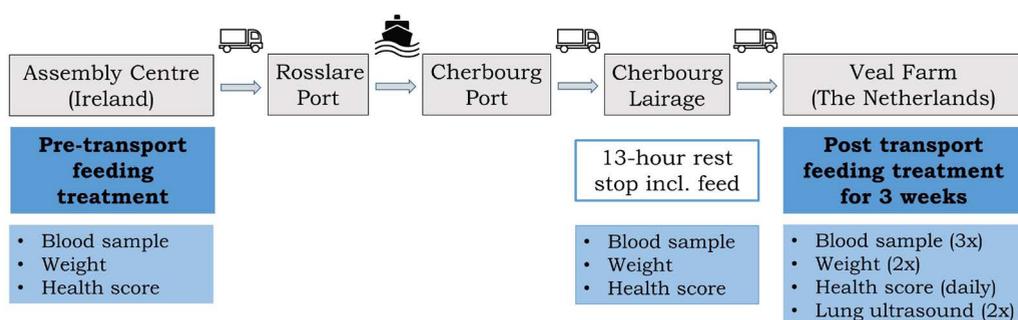


Figure 1. Calf transport feeding study outline and sampling schedule

Conclusions

Data analysis to investigate the effects of alternative feeding strategies on calf welfare is ongoing. The outcomes of this study may inform the introduction of optimised feeding protocols to improve the welfare of Irish calves undergoing long-distance transport to continental Europe.