

**Predisposing factors for disease and immunocompetence in artificially-reared dairy and suckled beef calves from birth to weaning (RMIS 6476 - DAFM Stimulus 11/S/131)**

Calf health was recently prioritised as one of the most important animal health issues facing the Irish livestock industry in a recent expert Policy Delphi study and farm opinion survey conducted on behalf of Animal Health Ireland (AHI). In Ireland, 5.3% equivalent to ca. 100,000 calves, excluding stillborns, die in their first year of life, with enteritis and pneumonia being the major causes of death. There are no published Irish studies (and few studies internationally) that have i) reported the exposure to and prevalence of infectious disease or morbidity in artificially-reared dairy and suckled beef calves or ii) evaluated on-farm environmental conditions and management practices, associated with calf health status. By means of a large-scale on-farm national observational survey, prevalence of infectious disease, morbidity and mortality will be determined and, environmental conditions, health management practices and passive immune status for artificially-reared dairy and suckled beef calves from birth-to-weaning will be characterised. Case study farms, divergent in calf health status within dairy and suckler herds, will be identified. Predisposing risk factors for disease and, influence of disease on calf pre-weaning performance will be determined using this sub-population. A HACCP-based blueprint targeting critical control points required to ameliorate infectious disease in dairy and beef calves will be developed. Through bio-economic modelling, costs resulting from different health status and management options will be quantified. Underpinning complementary research will investigate the relationship between passive transfer of immunity, molecular predictors of immune function in colostrum, and the development of immunocompetence in artificially-reared dairy and suckled beef calves.

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