



Infectious bovine rhinotracheitis in the dairy herd

Maria Guelbenzu, bovine viral diarrhoea and infectious bovine rhinotracheitis programme manager, Animal Health Ireland, updates us on the latest data, research, and pilot programme relating to infectious bovine rhinotracheitis in Ireland

Infectious bovine rhinotracheitis (IBR) is a highly infectious disease caused by the bovine herpesvirus type 1 (BoHV-1). BoHV-1, one of eight herpesviruses known to infect cattle, is an alphaherpesvirus that can also cause infectious pustular vulvovaginitis (IPV) and infectious pustular balanoposthitis (IBP). However, in Ireland BoHV-1 is mostly involved in respiratory infections. It has worldwide distribution and it is estimated that 75% of dairy herds in Ireland have been exposed to this virus.

SIGNS, DETECTION AND EFFECTS

Clinical signs of BoHV-1 infection include nasal discharge, conjunctivitis, fever and inappetence and, on occasion, death. Infection can also be accompanied by decreased milk yield and a range of negative reproductive outcomes depending on the stage of the reproductive cycle at which exposure occurs (failure to conceive, early embryonic death and abortion). However, it is also recognised that, in herds with endemic infection, the course of infection can be sub-clinical but nevertheless, still be associated with a reduction in milk yield and negative reproductive outcomes.

After a primary infection, there is a rapid immune response and generation of antibodies against BoHV-1, which are first detectable after 10 days and remains detectable for years. However, this doesn't eliminate the virus which establishes latency in the trigeminal ganglion or pharyngeal tonsils. At times of stress, such as transport, calving, nutritional stress, mixing stock etc., the virus may be reactivated and can begin to multiply and be re-excreted, generally from the nose and the eyes. Several studies have investigated the effects that exposure to this virus can have on milk production. One of them used BoHV-1 prevalence data in Irish dairy herds to document associations between milk production, fertility, mortality and BoHV-1 status (Sayers, 2017). It found that multiparous cows in herds with a positive bulk-milk antibody recorded a reduction in milk yield per cow per year of 250.9L and that milk fat and

protein were also affected by the BoHV-1 status, highlighting sub-optical milk production in positive herds.

BOHV-1 ANALYSIS

In order to gain a better understanding of the epidemiology of BoHV-1 infections in Irish dairy herds, the within herd age-related prevalence in 81 Irish dairy herds was analysed, of which more than 80% has been exposed to BoHV-1. The analysis showed that older animals were more likely to be seropositive to BoHV-1. The effect of vaccination on the within-herd prevalence was also studied on herds that were sampled multiple times. It showed that most vaccinating herds have a reduction in the within herd prevalence of animals positive to BoHV-1 with time, even in the absence of formal biosecurity measures.

PILOT IBR PROGRAMME

Animal Health Ireland's IBR Technical Working Group (TWG) is currently developing options for a national control programme. The TWG also developed a pilot IBR programme for herds participating in phase III of the Teagasc/*Irish Farmers Journal* BETTER Farm Beef Programme with the purpose to assess the feasibility of such a programme. Data generated from both the pilot and the analysis presented will be used to advance and validate a mathematical model currently being developed. It is intended that the model will support the development of a sustainable national IBR programme by allowing to test different strategies and their effects on the success, duration and cost of such a programme. This, in turn, will provide options for a consultation on progressing to a national programme.

REFERENCES

Sayers, R.G., 2017. Associations between exposure to bovine herpesvirus 1 (BoHV-1) and milk production, reproductive performance, and mortality in Irish dairy herds. *J. Dairy Sci.* 100, 1340–1352