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Research and Scientific Reports Update

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Linking genetic distribution of BVDV strains in the UK to animal movements

R. Booth, C. Thomas, L. El-Attar, G. Gunn, J. Brownlie

BOVINE viral diarrhoea virus (BVDV) causes significant economic losses in the beef and dairy industries. The virus is currently divided into two genotypes, BVDV-1 and BVDV-2. BVDV-1 has been divided into 12 sub-genotypes, including 1a to 1k. The aim of the study was to investigate the phylogenetic distribution of BVDV in the UK and to link information on BVDV sub-genotype to cattle movement data. Viral isolates were collected from persistently infected (PI) animals from 40 farms across six regions of the UK. Animal movement data were collected from 62 farms, including 31 farms from which blood samples had been genotyped.

The authors note that BVDV-1d had not previously been identified in the UK and that their results support other reports suggesting that the genetic diversity of BVDV in the UK has increased in recent years. When genetic analysis data and movement data were compared, in some cases the same isolate seemed to have infected multiple farms. In one such case, the authors were able to track animal movements between two farms that seemed to have become infected by the same isolate, with direct animal movements having occurred between these two farms during the study period.

The authors conclude that the presence of BVDV-1d, which was previously unreported in the UK, may have implications for BVDV control programmes, as vaccines currently in use may not offer cross protection for these new strains. **Veterinary Research (2013) 44: 43**

NK comment: This report highlights the importance of good biosecurity and in particular the importance of direct animal movements between farms in the spread of BVD. Where new strains are introduced it is vital that vaccines continue to ensure that animals are protected.

1. Ragwort toxicity in cattle

Jo Payne[1] and Alan Wight[2]

RAGWORT toxicity is frequently discussed in relation to equine matters but is rarely mentioned with regard to farmed stock. We wish to remind colleagues of the serious consequences of feeding ragwort-contaminated forages. We also wish to point out some current food safety views concerning pyrrolizidine alkaloids (PAs).

Many PA-containing plants, when growing, are not palatable to livestock and are usually only eaten as they die back and if other feed is restricted, or when they are cut and incorporated into forage. In the past 10 years, the AHVLA (formerly the VLA) and SAC have confirmed 18 ragwort poisoning incidents in cattle in which Ragwort toxicity was confirmed to be the cause of ill thrift and death in a beef suckler herd. Histopathology confirmed ragwort toxicity. It is estimated that 50 adult cows, age range two to 12 years, died over a period of two years and that, in total, 200 cattle were exposed. Ragwort toxicity was diagnosed in a 2nd herd by histopathology following postmortem examination of a beef fattener. There were six deaths in a group of 40, following clinical signs of wasting and scour. The history was that, following a neighbour's complaint about high levels of ragwort, the farmer had cut the ragwort but left the cut ragwort in situ. The cattle then ate the dried ragwort.

From the farming view, better control of ragwort should be promoted and, to avoid the type of incidents reported above, there should be a greater awareness of the problem, especially in light of the increase in conservation and wild flower schemes on farms. More information about ragwort poisoning is available at www.gov.uk/government/uploads/system/uploads/attachment_data/file/69264/pb9840-cop-ragwort.pdf

NK comment: The increasing prevalence of ragwort raises the risk of toxicity, especially in view of the irreversible changes to the liver of affected animals.

The changing face of mastitis in Irish dairy herds

MASTITIS is the most economically significant infectious disease affecting dairy cattle worldwide. It is also the foremost reason for antimicrobial therapy in dairy cattle. In dairy cows, it is likely that antimicrobial therapy, particularly dry cow therapy, will come under increasing scrutiny if antimicrobial use in dairy cattle is to be diminished.

The paper by Keane and others (2013), is one of the first research outputs of the Cell Check initiative on the etiology of mastitis in Irish dairy herds. Hopefully, the establishment of Cell Check in Ireland will create an environment conducive to further research on mastitis in Irish dairy herds.

Bacteriological testing is most frequently used to inform antimicrobial selection. However, it can also serve a broader purpose as a tool in investigating the etiology of the disease. The isolation of contagious mastitis pathogens (organisms adapted to the udder tissues and readily spread from cow to cow); such as *Staphylococcus aureus* or *Streptococcus agalactiae*, indicates that implementation of the 40-year-old mastitis five-point plan is incomplete. Therefore, the control strategy must focus on improving milking hygiene, milking machine maintenance, culling and dry cow therapy. The isolation of environmental bacteria, such as *Escherichia coli* and *Streptococcus uberis*, indicate weaknesses in environmental management, such as an insufficient ratio of cubicles to cows and bedding quality. While *S uberis* originates in the environment, it may also be spread from cow to cow in the milking parlour, and is effectively the worst of both worlds. There has been an overall decline in the prevalence of *S aureus* and increased prevalence of *S uberis*, since studies carried out in the 1980s, when *S aureus* was the predominate isolate by a large margin (Egan and O'Dowd, 1982). It is interesting to note that once the prevalence of contagious mastitis pathogens decreases, it affords an opportunity for an increase in the prevalence of environmental pathogens.

NK comment: This is a very valuable piece of research, highlighting the changing trends in mastitis etiology in association with housing environmental, regulatory and market demands.