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A campaign to promote the control and prevention of BVD in cattle

# BVD: Not just one type of problem

**B**ovine viral diarrhoea (BVD) affects both beef and dairy cattle across the world. About 60-90 per cent of cattle throughout the world have been exposed to the virus, although frequently the disease can lurk hidden and unseen in a herd, leading to significant performance and economic losses.

BVD can be detected in a herd by testing milk (individual or bulk tank) samples, or via blood or ear notch testing. An unusually high abortion rate (anything above 5 per cent) or ongoing fertility and calf health issues can act as warning signs BVD is in a herd and a veterinary investigation should take place.

## Two genotypes

Dr Richard Booth, of the Royal Veterinary College, says: "Two genotypes of BVD are in circulation; BVD type 1 and BVD type 2."

"Type 1 BVD is the most common genotype circulating within Europe, while type 2 is found in the US and Canada, where it is thought to account for between 10-15 per cent of BVD cases."

"That said, a warning notice published last summer issued by the UK's national animal health surveillance organisation AHVLA stated type 2 outbreaks had occurred as nearby as Belgium."

"It warned, considering the



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DR RICHARD BOOTH

level of live animal trade with Belgium and neighbouring countries, vigilance was of the utmost importance to stop type 2 entering the UK." (See map).

## BVD type 2 outbreaks in Europe



"Type 2 BVD emerged in the late 1980s in the US and Canada and was initially characterised as causing a severe haemorrhagic diarrhoea and up to 75 per cent

mortality [death rates] in affected lots," Dr Booth explains.

"Type 1 BVD, most commonly seen in Europe, is generally considered to be a more subtle



disease which often underlies other herd level problems – particularly respiratory disease and scours in calves, poor fertility and abortion.

"This is because type 1 BVD causes immunosuppression, thus making other diseases such as pneumonias and scours worse. It is also a cause of poor fertility since infection can result in early embryonic deaths [and return to service], abortions and the production of more persistently infected (PI) animals."

BVD type 2 manifests in a markedly different way, often with significant virulence and frequently devastating consequences.

It also leads to immunosuppression meaning other diseases are more severe and sometimes fatal. Frequently, a typical viral respiratory disease will be seen with fever, depression, inappetence, and ocular (eye) and nasal discharge, followed by diarrhoea several days after onset. Sores or ulceration in the mouth and gums may be present, along with reduced milk production in cows.

Type 2 BVD can also lead to Thrombocytopenic (bleeder) syndrome, where the virus infects blood cells and bone marrow,

causing destruction of red blood cells, reduced clotting function, bleeding from wounds, lesions, and internal organs. Mortality rates are always high.

## Fertility

"That said, BVD is not a completely straightforward picture, and while rumbling health and fertility issues are by far the most common way herds are affected by BVD type 1, occasionally it can cause severe clinical disease and conversely Type 2 BVD outbreaks can appear mild," Dr Booth adds.

Recent studies of BVD in the UK indicate in some cattle dense regions, up to 60 per cent of herds are actively infected with type 1 BVD and BVD type 2 is unlikely to be present. However, isolated type 2 outbreaks can and do occur.

"The recent identification of BVD type 2 in Germany and the subsequent spread to the Netherlands through calf movements highlights the need to be vigilant for this strain of the disease, especially if buying in cattle from abroad," Dr Booth says.

## BVD type 2 emerging in Europe

### Germany

Germany reported at least 23 herds in North Rhine Westphalia and Lower Saxony have suffered outbreaks caused by BVD type 2.

The outbreaks were characterised by signs of respiratory distress, depression, high fever, weakness, drop in milk yield, bloody diarrhoea, abortions and high mortality (30-50 per cent, in some groups of calves up to 90 per cent) affecting both calves and adult animals.

Professor Klaus Doll, from the University of Giessen, Germany explains: "These dramatic outbreaks were caused by a highly virulent BVD type 2 strain, which was propagated from herd to herd mainly by cattle dealers."

"Because of the atypical clinical picture at the beginning, it

took four weeks in some herds until BVD virus was diagnosed as the cause of disease."

About 5 per cent of the German BVD strains are type 2. It remains to be seen whether the tide of events such as these recent outbreaks result in further dissemination of this genotype.

Before the start of the national control programme, BVD was endemic in Germany, with seroprevalence of about 80 per cent. Now, due to the elimination of many persistently infected animals, the number of seronegative cattle has considerably increased.

Such herds are highly endangered, because of sometimes insufficient biosecurity measures. Moreover, the frequency of vaccinations has decreased significantly,

caused by a false sense of security.

"This has increased the risk of BVD introduction, resulting in some dramatic outbreaks, also caused by BVD type 1, in previously unexposed herds. We know after the introduction of BVD virus in such naive herds, the economic losses are more extensive than in herds with endemic BVD," he says.

### Netherlands

The Netherlands has reported five infected veal calf herds all with imports directly from Germany. The infection has had a large impact in these veal herds, with a case mortality of up to 90 per cent of calves.

### United Kingdom

A vet in the South West of

England reported a farm with beef cattle, a breeding herd, sheep and goats because of an unexpectedly high number of abortions in the goat herd.

Testing for Schmallenberg virus gave a negative result, but subsequent screening was positive for BVD type 2.

No other testing was undertaken, but it was speculated BVD was a likely cause, with a total of 33 does either aborting, producing dead kids or kids which died shortly after birth.

Although not proven, the source of virus was thought to have originated from the beef herd, which regularly sources replacements from market.

In addition to the countries mentioned above, BVD type 2 has been reported in Austria, Slovakia and Italy.