Beefing up your biosecurity to beat back BVD

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The eradication of rinderpest from the world last year is an example of what is possible with determination and cooperation.

Various factors influence the practicalities of eliminating a disease and bovine viral diarrhoea (BVD) is recognised as being top of the list as far as ticking the boxes for suitability.

So what boxes need to be ticked?

√ COST BENEFIT

BVD causes losses through reproductive failure, immunosuppression (exacerbating respiratory and enteric disease) and death through mucosal disease.

The cost of this is estimated at £61 for a dairy cow and £46 for a beef cow a year.

Improvements in animal welfare and reduced carbon emissions due to improved production will also follow on from elimination of BVD. Our farmers would list the lifting of personal stress from continually dealing with ill calves where BVD is present as another benefit.

√ DIAGNOSTIC TESTING

Cost-effective, reliable, easily-interpreted lab tests with quick turnaround times make any eradication programme much easier. For BVD the following are available:

- Antibody ELISA – detects antibody in blood or milk
- Antigen ELISA – detects virus in blood or milk
- PCR – detects viral genetic material in blood or milk
- Immunohistochemistry – detects virus in skin punches

√ UNDERSTANDING OF THE DISEASE PROCESS

BVD is spread almost exclusively from cattle to cattle through urine and faeces. It can spread horizontally, causing transient infection (TI) that lasts two to three weeks before the animal becomes immune.

It can also spread vertically from cow to calf. In-utero infection can produce a persistently infected (PI) animal which when born continually sheds loads of virus.

These animals can appear quite normal and are the main reservoir of infection to other cattle.

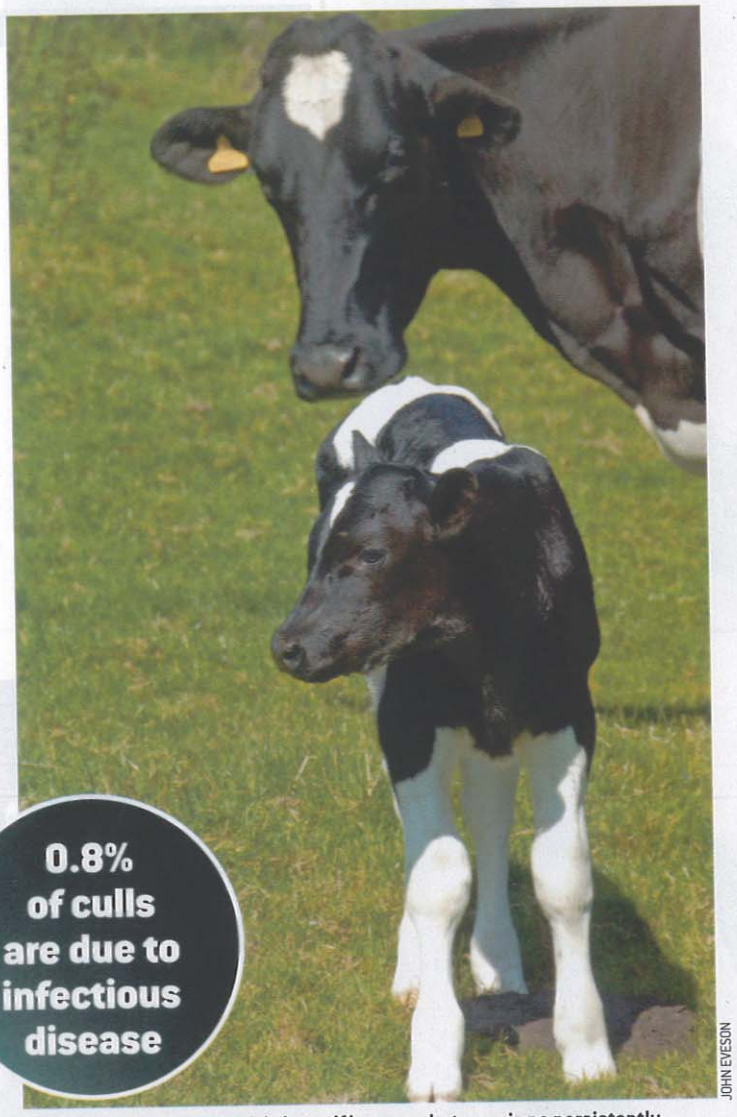
It is critical for any eradication strategy to identify and eliminate these animals from the herd immediately.

√ AVAILABILITY OF VACCINE

Improving the resistance or immunity of a herd through vaccination is often part of any elimination strategy. Bear in mind that the use of vaccine can affect laboratory test results. The biggest challenge in BVD elimination is stopping the production of PI animals. BVD vaccines licensed to protect the unborn foetus from trans-placental infection should be used. The vaccination course should be completed prior to the cow or heifer becoming pregnant. This will stop the creation of PI animals.

Watch out for BVD's survival tricks

- The bought-in, pregnant "Trojan cow" – immune on the outside, persistently-infected calf on the inside (you are buying two animals). Test the calf when born.
- Maternally derived antibodies can "hide" a PI calf on ELISA tests, skin punch tests get around this.
- Bulls – semen can be actively infected long after a transient infection.
- You might not find a PI – it may be dead and gone and acute transient infection can take time to clear from a herd.
- When you find a PI check its mother is not also a PI.



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Buying a 'Trojan cow' which is herself immune, but carrying a persistently-infected calf is one common route of introducing BVD into a herd.

√ BIOSECURITY – UNDERSTANDING THE RISKS

Bought-in animals and over-the-fence contact from neighbours are the two common entry points for BVD. Three-metre gap boundary fencing and robust quarantine measures for bought-in cattle should be in place. If attending shows, quarantine on return. Although a lower risk, look at hygiene of personnel and machinery and where they have been.

There are five key steps to eliminating BVD:

1. Assess current disease status
2. Identify and cull PI animals in your herd
3. Vaccinate your breeding stock
4. Implement biosecurity
5. Follow up surveillance

In practical terms you must complete all five steps to progress. Missing out one will compromise the whole process.

PI animals tend to be concentrated in younger groups due to the fact they often die, but some live long enough to have calves and enter the milking herd. BMT testing, first lactation cohort milk and yearling blood screens can narrow down where to look first. Individual animal testing will then lead you to finding PIs.

Once found, PI animals should be eliminated from the herd immediately – do not listen to anyone who tells you otherwise.

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