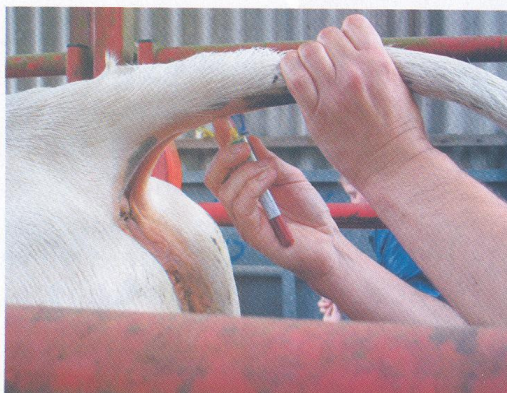


Initial BVD infection in a naïve herd may be obvious and devastating with abortion storms and the birth of deformed or unthrifty calves, but there is an even bigger effect in long-term poorer herd performance. Shirley Macmillan reports.

How BVD can wreak havoc in herd if left unchallenged

Niggling cases of mastitis, more lameness than is acceptable, or conception rates constantly below expectation? All can be the result of cows which have had their immune systems undermined by the BVD virus. As some 95% of Britain's dairy herds have now been exposed to BVD, many are simply living with this poor performance. However, one 200-cow Holstein herd in Essex has bucked the trend, achieving BVD-free status in less than three years after joining the Norfolk and Suffolk BVD Eradication Campaign.

The 9000kg herd, at Thorpe Park Farm near Clacton-on-Sea, has been under a full vaccination, screening and culling programme as owners Doug and Val Roberts, together with son James, have worked closely with their vet Mike Bardsley from The Three Rivers Vet Group in Norfolk. Although the herd is closed and is Leptospirosis and IBR free, BVD has been present for over 20 years. "Whenever the odd abortion was tested, it came back BVD positive; we never had abortion storms, just occasional losses. When we moved to a new vet practice about three years ago, Mike said that if we wanted to keep milking and progress herd health, then we should vaccinate," says Doug. Neither he nor James can recall any particular health patterns or problems that could be associated with BVD. But the herd does have a lingering mastitis problem caused by *Strep uberis* and it has digital dermatitis. "We have always had calves that were poor doers and died at 4-5 months old – looking back, their dams had BVD," adds James. It's a typical picture, maintains Mike: "BVD is a constant background disease, making it difficult to see major improvements immediately after vaccination – it



Blood tests for BVD are quicker and cheaper and heifers can now be blood tested from one month of age to allow early culling.



Their new MRI stock bull comes from a BVD free herd.

takes time. Many farmers don't realise that a lot of problems could be solved if they got rid of it. My research suggests the cost of BVD on a dairy farm is likely to be in the region of 1.0ppl to 1.5ppl," he says. "Usually with BVD, calf disease is higher and there are more cases of scours and pneumonia. The virus takes advantage, reduces immunity and allows other diseases in. BVD also comes in

waves, particularly in herds where all cows are pregnant at the same time. This means that infection early on in pregnancy is more devastating as the virus can lead to a large crop of PI (Persistently Infected) calves being born." This is why, ideally, a vaccination course should be completed one month before serving. Vaccination prevents a PI from being formed and it reduces clinical signs of

infection. But on its own, it doesn't remove virus from the herd.

"BVD virus is carried by PI animals which eventually die from mucosal disease or secondary infections. The virus can't survive without a PI as a source of infection. Therefore tracking these animals down and removing them from the herd will remove the threat of this disease. If we eradicate virus from a herd, stock won't be challenged by BVD and so will be healthier."

After about a year of vaccinating, the Thorpe Park herd joined the eradication campaign. Mike carried out an initial screening for BVD using bulk milk. This is quick and easy and costs about £6. "In this herd, the antibody level was too high to be the result of vaccination stimulating antibody levels – it was due to virus circulating. This meant there was a PI animal in the herd," he says. Any animals not contributing to the milk tank at the time (because they were dry or had antibiotic-treated milk) were blood tested, as were all heifers over nine months. The aim was to identify PIs so that they were culled rather than served. "Mike fitted it into his routine visit and we vaccinated all stock when they were inside. We also give them their boosters in Jan-Feb," says James.

Four PI heifers were found and culled. "They didn't look any different to the rest of the group and we had to pay to have them put down. This was our biggest cost, particularly when we struggle for replacement numbers," says Doug. However, Mike points out that these PI heifers would have had knock-on effects in each group they joined, from weaned calves to bulling heifers. "I have picked up PI cows that were seven or eight years old so there is a lag effect," he adds. Further blood tests (including the PIs dams and grand dams) found no more PIs. Both Mike and Doug

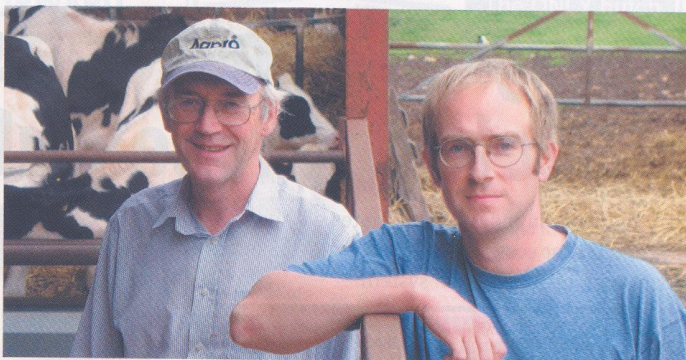
agree that, on reflection, it's likely that such animals had already been culled for poor herd performance probably due to BVD.

Tests of all livestock on the farm, when no animal was pregnant, revealed the herd was officially BVD-free. (If a herd is pregnant during testing, one of them could be carrying a virus-positive foetus, therefore the calf crop has to be tested.) To be completely sure, Mike tested the 2007 calf crop (which had the all-clear) and re-tested them again in early 2008. The herd has now achieved full BVD virus free status.

He points out that new tests have since made screening and monitoring much easier and cheaper. It's possible to test calves for virus at one-month-old allowing PIs to be detected sooner and culled before incurring rearing costs. "We can also test a batch of 25 blood samples. If they are negative this saves a lot of money. Obviously when positive, they all have to be tested again individually. Furthermore, a new bulk milk test can identify one PI cow from milk contributed by 300 cows. The cost of BVD eradication is much lower than it used to be," says Mike.

In vaccinated herds, monitoring involves quarterly testing of bulk milk taken from first lactation animals only. The rest of the herd will have antibodies because they have met virus. "But we know the level of antibodies we expect from vaccination is low, so if we find it to be higher than we should this indicates virus is present," he explains.

Vaccination at Thorpe Park could now stop. But Doug and James know the herd would be naïve to



Doug and James Roberts.

new infection, so they would still have to keep up regular sampling. They believe stock are noticeably more thrifty and there are fewer stillborn calves these days. However, with

changes to nutrition also in place, they say it's too early to pin down results specifically to BVD eradication. Mike hopes to see a difference in culling rate soon, as fewer cows are culled for poor performance such as fertility and other general background problems.

Norfolk and Suffolk BVD Eradication Campaign

■ Dairy and beef herds in E Anglia includes Norfolk, Suffolk, Essex and Cambridgeshire.
■ Project overseen by Prof Joe Brownlie at RVC.

■ Testing by SAC.
■ Initial subsidised funding from EBLEX and Holstein UK.

■ Aim to eradicate BVD virus from farms.
■ Target 100 beef and dairy herds to be BVD free.

■ 75% East Anglia herds infected with BVD.
■ Nationally 95% of herds.
■ Initial screen of bulk milk plus five blood tests from separately managed groups of 9-18 month-old heifers.

■ Main risk factors for getting BVD:

- Hiring bulls
- Buying-in stock
- Contact with sheep
- Contact with neighbouring stock

■ 60% of the 45 dairy herds tested in 2007 were BVD-free.

■ PI (Persistently Infected) animal created when virus infects foetuses in first five months of pregnancy. Immune system is unable to identify the virus as a foreign agent and does not mount a defence against it.

■ Herds testing BVD-free will become accredited.

■ Vaccination of BVD-free stock allowed.

■ Status monitored to ensure freedom.

■ Biosecurity essential to prevent re-infection.

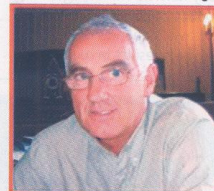
■ For more information go to www.threeriversvetgroup.co.uk

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