

Control BVD: Save Money

BVD (Bovine Viral Diarrhoea) is caused by a virus and there are two types of infection caused by BVD:

Acute infection:

All problems begin with an acute infection. Infected animals shed the virus in nasal secretions, saliva, faeces, urine and semen. Animals experiencing an acute (sometimes called a transient infection) will experience mild disease caused by the virus which may not be noticeable. They will shed virus during this time but will clear infection from their system within about 10-14 days. After experiencing an acute infection these animals will produce antibodies which will protect the animal in the face of further infection and will remain high lifelong.

The problem with acute infections is that while the animal is going through this his or her immune system will be suppressed. This means that they will be more susceptible to other infections, for example pneumonia and scour in calves and mastitis in adult dairy cows. Breeding cows will experience effects on their fertility ranging from failing to get in calf to losing pregnancies or giving birth to weak or wobbly calves. Bulls will become sub-fertile and may continue to shed virus in their semen for some time after an acute infection.

Persistent Infection (Creating PI animals)

Persistent infection in calves is a sequel to an adult female cow experiencing an acute infection in early pregnancy. If a pregnant cow experiences an acute infection in the first 3 -4 months of a pregnancy then the virus will cross the placenta and infect the unborn calf as well as its mother. Unlike the mother who can mount an immune response and fight the virus, quickly becoming antibody positive, the calf does not yet have a competent immune system and cannot do so. The calf is born 'persistently infected' with the virus so it will continue to shed virus throughout its entire life in vast quantities acting as a reservoir for infection for all other animals on the farm.

These animals also often succumb to Mucosal Disease where the BVD virus mutates to form a more aggressive form of the virus which kills the animal. This often occurs before animals reach slaughter weight. PI animals are classically thought to be poor doers who are easily picked out from a group. However it is important to realise that not all animals succumb to mucosal disease and that they can look totally normal. Many are surviving past 2 years old and are often capable of breeding.

The only way to make sure an animal isn't a PI is to test it.

Buying in pregnant animals is very risky as we cannot find out the status of the calf until it is born. This is a common and easy way to bring PI animals onto a farm.

PI animals will be virus positive and antibody negative regardless of whether they have received a vaccine. This



allows us to identify them when screening herds.

Costs of BVD

BVD will affect:

Fertility

- Extended calving pattern due to failure to conceive and early pregnancy losses.
- Increased barren rate leading to an increased culling rate.
- Affected bulls will experience fertility problems.

Calf health

- Increased number of scour and pneumonia cases.
- Ill-thrift in calves.

Costs of BVD coming into a naive herd of 100 suckler cows

Practice experience would suggest this is an underestimate.....

Cost type	Calc	Cost /herd	Cost/cow
Increased barren rate from 5% to 12% , amounts to 7 fewer suckled calves at sale @£540/head. Production costs/calf to weaning are assumed to be £54/head*	7 X £486	£3,402	£34
Calf mortality increased – 5 calves died up to 6 months of age at forecast sale value of £540 less production costs*	5 x £486	£2,340	£24
TOTAL		£5,832	58

Notes: 270kg live weight @£2.00/kg less *£54 production costs – marketing £12, transport £17, vet meds £5 and feed £20

Source: ADAS Economic Impact of Health and Welfare Issues in Beef Cattle and Sheep in England

Costs of poor calf health:

- Standard pneumonia case (time, labour, drugs, costs in growth rates) - £80 per calf, £22 per in contact calf (growth rates)
- Calf scour case - £15-£180 (if calf dies)

Benefits of eradication!

Seen in Orkney already:

Farms where BVD has been eradicated are reporting 3-4 more calves per farm, less barren animals, less abortions and bigger, stronger animals!

Testing:

We recommend ALL breeding herds (including vaccinated herds) do an annual check test to prove freedom from BVD. This can often co-incide with TB testing.

What is a check test:

A check test involves testing 5 homebred animals between 9 and 18 months from each separately managed group.

Animals must be homebred to ensure we are learning about problems on your farm.

Animals are tested between 9 and 18 months to provide the most up to date information. We do not test animals over this age range as it is very common for older cattle to have experienced BVD infection and be antibody positive. We do not know if this was 6 years ago or last month therefore it is not useful! We also don't test animals under 6 months as if mum met the virus she will have passed on antibodies to the calf. The calf will therefore be positive only because it's mother met it at some point not because the calf met it. By 9 months these antibodies from mum have disappeared and any antibody present is due to exposure to the virus.

We are not looking for the individual test results but rather for this to give us an idea of on farm infection. If any animals come up antibody positive this provides evidence of exposure to virus (most likely a PI).

Hunting for PIs

If the results of your check test show evidence of exposure to the virus it is essential we check the herd to find the source of the problem. In these situations we are looking for virus as PI animals will always produce it. If a virus positive animal is found we should re-test in 3-4 weeks to check the animal is persistently infected rather than experiencing an acute infection. If the animal has two virus positive results it should be culled – regardless of age. This animal will cost you money every extra day it spends on your farm. Sometimes a PI is not found as it may already have left the farm.

We can utilise the fact that if a calf is not a PI then its mother cannot be (as a PI will ALWAYS produce a PI) to reduce the number of animals we test. There are two ways to do PI hunt:

- Blood sampling – Blood sample all youngstock and any animals (bulls, heifers, barren cows) that haven't produced any youngstock to test.
- Tag and Test – Ear tag all calves using tag and test tags. As you tag an animal the tag pushes a small amount of ear tissue into a vial which is then sent away to the lab. The lab can test for the virus in the tissue letting us know whether the animal is a PI or not. This generally adds about £2-£3 to the cost of the tag and all tag companies will provide this option. This needs to continue until we have a result for all animals - usually 3 years as any heifers born now that are to be kept will not produce a calf for 3 years. ALL calves should be tested even those that are born dead as we need to know this is not due to BVD.

It is essential that we test all calves born for a year after the last PI has left the farm to ensure no pregnancies were infected. This can be done using blood or tag and test.

Other on farm options:

If you don't have 9-18 month old animals on farm for a check test there are other options:

If animals are sold off at 6 months of age we can test but it is recommended to do more than 5 animals per group as results will be harder to interpret.

If you use Rispoval 4 (which contains BVD vaccine) then you need to wait at least 3 months until after the second vaccine to test (antibodies due to the vaccine will have reduced to low levels/nothing by this stage)

If you do both (and therefore there is never a suitable lot of animals to test) then it would be recommended to use tissue tags

There are two options here:

All tag companies will offer BVD Tag and Test options to go alongside your normal yellow ear tags. They will also offer this for management tags (a good way of screening bought in animals). This allows you to be sure that you have no PIs on your farm.

If you are selling animals and would like to use this as a marketing tool there is a new BVD Check Tag option. These are white tags (either management or normal). This campaign aims to make white tags associated with BVD tested animals and therefore to increase value. Results from these tests can be uploaded to a central database which can be accessed by everyone and by typing in the tag number you want to know about the database will bring up any results for this animal. (<http://bvdcheck.co.uk/>) The plan is for this eventually to become a mobile app.



Keeping BVD out

Once we have established a herd is clear (either initially or after removing PIs) it is essential that we don't bring BVD on. BVD can enter the farm in a variety of ways:

- The most common route is buying in an animal. It is essential that all bought in animals are bought either from recognised accredited herds or quarantined (no nose-to-nose contact with other cattle) and tested. Please be aware if buying in pregnant animals we cannot test the unborn calf – this is a very easy way to bring a PI onto your farm.

ALL BOUGHT IN ANIMALS SHOULD BE TESTED TO ENSURE THEY ARE NOT PIs.

Bought in animals (including calves or store animals) can be tested without the need for a vet visit using tag and test management tags or using cow side tests. Cow side tests involve testing tissue taken from the animal (ideally using a tagging system to prevent contamination of any equipment) and mixing it with various liquids to put on a testing stick to give a result with 30-45 mins.

- A less common route of BVD coming onto farms is via animals experiencing an acute infection. Accredited herds must ensure there is no acute infection circulating by testing for antibodies in bought in animals. If your herd is vaccinated then the risk from acute infections is reduced. If you do not vaccinate then antibody testing would be recommended. You need to allow 28 days after animals arrive on farm to allow any infection to be processed and antibodies to appear.
- Show animals can also bring back acute infections from shows – animals should be quarantined and screened for antibodies 28 days after the last show before being mixed back in with the herd. Showing pregnant animals is even more of a risk. Any pregnant cows who test antibody positive after showing should have their calves tested for virus once they are born. These animals should also calve in isolation.

- Neighbours animals must not be able to contact yours – either over the fence or by holidaying in your field! Ensure boundary fencing prevents this. A 3m gap is required to prevent nose-to-nose contact over fences.
- BVD can be driven or walked in – disinfect boots and change overalls after helping friends with their cattle and avoid sharing equipment with other farms. If this does happen ensure it is thoroughly disinfected before using it on your own farm.
- Source embryos only from accredited companies who will have done the appropriate testing.

Vaccination

If you can't guarantee all of the above will happen (which very few people can) then vaccinate your cattle to provide extra protection. This involves an initial course of two injections 3 weeks apart followed by annual booster. The initial course should be completed at least 1 week before the bull goes in (ie before any pregnancies).

Vaccines provide an excellent extra level of protection for your herd however they WILL NOT solve all your problems if PIs remain on the farm:

- No vaccine can provide 100% protection for 100% of animals. For BVD we require 100% of pregnancies to be protected from 1 viral particle – this is impossible.
- It is easily possible to unknowingly vaccinate a PI – this won't stop it shedding virus, nor will it produce antibodies.
- PIs shed vast quantities of virus – easily enough to overwhelm a vaccine.
- Vaccines have to be stored and given appropriately. Make sure you give the right dose, the right way at the right time. Also if an animal is under the weather, delay vaccination as the body will be unable to process a vaccine while trying to clear something else. It is also important not to do too many things at once – allow the vaccine the best chance of working by not overwhelming the animal with other treatments on the same day.

Also be aware that if buying from vaccinated herds then more questions need to be asked.

- Did they vaccinate because they were clear and they continue to test annually and screen bought in animals?
- Did they vaccinate because they had a problem but didn't remove their PIs?
- Did they vaccinate because it was the thing to do and therefore we have no knowledge of the herd status?

If you can't be sure the animals are clear – quarantine and test them!

Accreditation:

Clear herds can seek to become accredited for BVD under a health scheme – Biobest HiHealth Herdcare or the Premium Cattle Health Scheme. Biobest offer a BVD only option for accreditation rather than accreditation for more diseases. Becoming accredited involves having yearly check tests (as described above) and quarantining and testing appropriately bought in animals and animals returning from shows. After two years of clear tests herds receive accredited status which is then maintained by continuing to test and screen appropriately. Vaccinated herds can still become accredited.

Buying Accredited animals

Many people are now aware of the benefits of buying replacement bulls and heifers from accredited herds and the status of many vendors can be checked via the Biobest or Premium Cattle Health Scheme website and it is sensible to do so. All accredited herds should provide certificates of accreditation at the point of sale – you are paying a premium for these animals so make sure they are what they say they are. Also be aware that if they come through a sale they lose their accredited status as they could be standing in a pen next to someone else's PI! Society or breed sales often have strict rules about the health status of animals that attend but this is often that the animals have been individually tested and vaccinated, not that they all come from accredited herds.

However there is no point buying accredited cattle if you do not know the status of your own herd!

Bulls:

Many people buy bulls from accredited herds. As advised above please be sure of the status of the farm you are buying from.

If not from accredited herds then the bull needs to be tested.

A PI bull is a disaster and needs removing as soon as possible.

It is also recommended to test bulls for antibody. An antibody positive bull could have recently experienced an acute infection. After an acute infection bulls can excrete virus in their semen for some time therefore it would be recommended not to work an antibody positive bull for a few months just in case. Rarely (although it has happened!) if a bull encountered the virus before puberty, the virus can become walled off in their testicles at puberty meaning they will always excrete virus in their semen. Testing semen in antibody positive bulls can be done if required.

Elsewhere in the world:

Europe is a long way ahead of us in terms of herd health. BVD has been eradicated from many European countries already.

Northern and Southern Ireland are both undertaking an eradication scheme using tissue tagging, Scotland's eradication scheme involves yearly check tests and has been compulsory since 2012. It is now illegal in Scotland to knowingly sell a PI and herds who cannot demonstrate freedom from disease must test every animal before sale.

Over the last few years surveillance schemes have been run in England with the aim of feeding into a national eradication scheme. Further discussion on this will be taking place in March 2015. The ultimate aim is for us to have a national eradication scheme too....knowing you are BVD free will mean as well as having a healthier herd who is more productive that you can take advantage of market premiums as the demand for BVD free animals increases.

For more information or to speak to us about the best course of action for your farm, please contact the farm team at Burcote Rd. As well as taking the opportunity to do blood testing on Defra funded TB tests we also often have funding available to help with the lab costs involved with testing. Until the end of February we also have funding available for on farm discussions about BVD and your herd.