

Bovine Viral Diarrhoea (BVD)

Bovine Viral Diarrhoea Virus is one of the most economically significant diseases in cattle impacting around 80% of New Zealand's dairy and beef herds, causing losses in reproduction, increased disease, reduced growth and milk production. BVD is spread by carriers, known as persistently infected (PI) animals. Getting rid of PI animals is the only way to get rid of BVD from your herd.

PI animals are born with the virus in their body due to the virus crossing the placental barrier, either because their dam is also a PI animal, or because she was exposed to the virus in the first four months of pregnancy.

Cows that are infected with BVD in the first four months of pregnancy are more likely to miscarry or have a stillbirth but will produce a PI calf if carried full-term. The calf will carry BVDV for the rest of its life and is, by definition, persistently infected (PI). These infected animals don't grow well, and will shed BVDV virus through every bodily fluid, thereby not only contaminating the environment but also potentially infecting every animal it is commingled with.

PI animals are considered the single most important and effective transmission mode of BVDV, which creates a significant risk for other animals to become transiently infected (TI) with BVDV. While TI animals generally recover, they do present significant economic losses to the producer, causing spontaneous abortion, reduced weight gain, yield losses and if infection occurs in susceptible dams early in their pregnancy, the generation of more PI animals.

BVDV testing is conducted via **Neogen Australasia** using the ELISA method for TSU samples – this is a BVDV-antigen ELISA, that detects virus proteins in the tissue.

Frequently Asked Questions

Can a persistently infected (PI) animal recover?

No, by definition, a persistently infected animal can never clear the virus from its body. Since it was infected at a time when the immune system was immature and unable to react appropriately, a PI animal cannot mount an immune response and the virus cannot be fought off.

Can I test newborn calves?

Yes, calves can be tested, but it is important that nursing calves be tested using a TSU sample as maternal antibodies can cause a false negative if blood or sera is tested. Even after being weaned for a month or so, a false negative may still be detected.

If I have a BVDV PI calf, do I need to test the dam for BVDV?

It's possible that PI cows lead outwardly productive lives and don't appear sick. Even though their fertility is usually reduced, these cows can become pregnant and will always give birth to a PI calf. It is highly recommended to test the dam to make sure she's not a PI even though most PI calves are generated by transient infection of the mother that will get cleared after a while.

When is the best time to test?

In a BVDV biosecurity program, all calves born on the premise should be tested right after birth so that any PI animals can be readily identified and removed before they have a chance to come into the herd. Generally, the earlier in an animal's life it's tested the sooner potential PI animals can be removed.

Will the test be positive if I vaccinated my animals?

Generally no; however, if vaccination occurred recently some virus particles may be found in the blood, triggering a positive test result. In these cases, confirmatory testing becomes very important to determine the true BVDV status of the animal.

Do I need to do confirmatory testing when an animal has been found positive for BVDV ?

Generally, the diagnosis of BVDV PI has severe consequences since biosecurity considerations require the affected animal to be removed from the herd, usually by slaughter. The lab recommends doing (complimentary) confirmatory testing because not all animals testing positive initially turn out to be PI. Once the lab obtains a positive BVDV result, the animal is called "BVDV suspect" and a confirmatory (blood) sample is generally recommended. If confirmatory testing returns a negative result, this animal, then, is not a PI but a TI and simply needs some time to clear the virus. Not all confirmatory cases, however, are that clear. It is important to keep in mind that any presence of BVDV (TI or PI) on a farm is a potentially significant problem that should be addressed.

Last year I did not have a BVDV problem at all. This year I had several PI animals among my calves. How is that possible? It is likely when the cows just became pregnant with the calves that are now born, BVDV entered the farm; either from another animal that was bought without having been tested for BVDV, or from a person that had been in contact with a positive animal, i.e. a sale yard. When the virus came onto the farm, it infected the cows, but the infection remained mild and unrecognised. However, the virus crossed the placenta and infected the foetus, in more than one mother cow, and PI calves were generated.

I have a closed herd and have not bought any animals for some time. How is it possible that I have PI animals on the farm now? The virus was carried in by people or vehicles. BVD virus can last in the environment for some time and remain infectious.

What is the best sample to collect? The preferred sample type TSU, but hair can be used. Serum and semen should not be used for BVDV testing.

Can I use bull semen as a sample?

No. Semen is not a suitable sample type for testing as BVD virus is shed intermittently in semen, so may not provide an accurate result.

Neogen Australasia only offers BVDV-PI testing as an add-on service to our genomic testing, not a stand-alone test.