

Blood samples

Bloods are used to test for antibody – antibody appears slowly, so it demonstrates the infection history of a herd.

Antibody generally indicates exposure and/or immunity to virus. It can take 10 days or more for infected animals to produce a detectable antibody response so bloods have limited use early on in an outbreak. Antibody testing in serum is also known as serology.

A single clotted blood sample from each animal can be used to test for the presence of antibody specific to each of the following viruses:



BVD antibody – to test the level of antibody to BVD virus.

BRSV antibody - to test the level of antibody to BRSV virus.

PI3 antibody – to test the level of antibody to PI3 virus.

IBR antibody (gB) – to test the level of antibody to IBR virus.

IBR antibody (gE) – to test for IBR marker vaccination.

Note that two different types of antibody test are employed for IBR antibody detection. The IBR gB ELISA which detects antibodies in all animals previously exposed to the virus (both vaccinated and infected) and the IBR gE ELISA which detects antibodies produced by infected animals but not by animals which have received a marker vaccine.

Ensure each tube is completely filled to allow for more tests, if necessary.

Sample between 5-10 animals minimum

Serology is most powerful when different groups of animals are tested (different by age, management, clinical history, etc) and then the levels of antibody in the two groups compared. This is especially useful when an agent is endemic in a herd.

Specific maternal antibody from colostrum persists for 5-6 months in calves, (perhaps 9 months in the case of BVD). Colostral antibody is indistinguishable from antibody produced by the calf itself. Be wary of this when interpreting results from animals less than 5-6 months old.

In animals less than 14 days old, a ZST result can give a very useful insight into the efficiency of colostrum transfer and neonatal management in your herd. Effective colostrum transfer is essential to protect against both respiratory AND enteric agents.



Blood samples (contd)

The ELISA antibody test is based on detecting a specific protective antibody, immunoglobulin G (IgG).

An animal typically takes between 8 and 28 days to produce an IgG response to any particular agent, the average being ~10-12 days. Antibody production is part of the convalescence process. If an animal is sampled for testing when in transition from antibody negative to antibody positive status, it may give an inconclusive test result (neither positive nor negative). As an animal moves from being antibody negative to antibody positive, it can often be antibody inconclusive for a brief period. Finding a large number of animals with inconclusive levels of antibody is an interesting result. Talk to your vet about such patterns in your herd's serology results.

The SNT is another valuable laboratory test based on antibody.

Available for BVD, BRSV and IBR, it gives a more quantitative result than the ELISA and is commonly used to demonstrate vaccination efficacy and as proof of seroconversion. However the SNT is an older, more expensive and much slower test than the ELISA.

Unless otherwise stated, it will be assumed that all bloods from respiratory investigations will be tested using the ELISA.

Paired blood samples from the same animals are an excellent method of solving the more difficult respiratory disease problems.

Collect paired samples from more than one animal to allow for individual variation.

Remember to leave a sufficient period (~21 days) between dates of sampling to allow the antibody response to develop.

It makes sense to mark the animals you bleed on Day 1 (with marking paint, tail tape, etc) to make collection of these animals on Day 2 much quicker.

Ideally both sets of samples should be tested on the same day. Clearly mark the Day 1 samples with “**paired samples**” so they can be held in the CVRL until the Day 2 samples arrive.

To minimise deterioration, it is critical to treat paired samples with the utmost care (refrigerate immediately, post quickly, hand-deliver if possible).

Not all antibody responses within a herd are identical. Discuss with your vet the different patterns of positive antibody (such as singleton animals, clinical cases only, clusters of positives/negatives, and blanket patterns) and how to interpret those levels with relevance to your herd.

Send all blood samples to the CVRL or your local RVL, clearly marking which tests are required on the submission form.

