

## BOVINE VIRAL DIARRHOEA ANTIGEN (BVD Ag) ELISA TEST

### Outline

Bovine Viral Diarrhoea Virus is a pestivirus which causes Bovine Virus Diarrhoea (BVD) / Mucosal Disease (MD). A closely related virus, Border Disease Virus (BDV) causes Border Disease/Hairy Shaker Disease in sheep. BVD virus causes two types of infection.

**Persistently Infected (PI)** animals were born with BVD infection and will have it all their lives. They are the main source of new infections as they can pass the disease on to all susceptible animals they come into contact with. PI animals will remain BVD Ag positive and BVD Ab negative in most cases.

**Transiently Infected (TI)** animals have acquired a BVD virus infection from another infected animal. They create an antibody response to clear the infection and retain antibodies to the virus which help to protect them against re-infection. TI animals will initially test positive for BVD Ag and in > 14 days' time become BVD Ag negative and BVD Ab positive (seroconverted).

### TEST: BVD Antigen ELISA (serum)

This is a serology test to determine the presence of viral antigen which indicates a current infection. Repeat testing is required to determine if the infection is transient or persistent. The interval between tests should be long enough to allow for the elimination of viral antigen from the system of a transiently infected animal (21-28 days). Animals that test positive after this period may be considered persistently infected.

### TEST: BVD Antigen ELISA (Ear notch (EN))

Testing can be carried out on animals of any age. In calves the EN sample is not affected by maternal antibodies. The Ag ELISA test when used with EN and with the standard cut-offs has been shown to be able to differentiate a PI from a TI.

### Sample Types:

**For Cows:** Serum (red top tube), plasma (EDTA) [min vol 1 ml], whole blood, milk or ear notch

**For Calves >3 months:** Serum, Plasma, whole blood or ear notch (at any age).

**For aborted fetus:** Ear notch

**Note:** This test can only be performed on individual samples.

**Turnaround Time:** 2-3 days

**Results:** The results for the BVD antigen test are reported as positive, equivocal or negative.

### BVD Antigen ELISA (Serum) INTERPRETATION (POSITIVE RESULT):

There is evidence of a persistent or transient BVDV infection. To differentiate between PI vs TI consider retesting in 10-14 days. A subsequent positive result confirms persistent infection whilst a subsequent negative result is confirmation of a transient infection.

### BVD Antigen ELISA (EN) INTERPRETATION (POSITIVE RESULT):

With sensitivity and specificity of 100% there is high confidence that a positive result indicates a PI.

### BVD Antigen ELISA (serum) INTERPRETATION (NEGATIVE RESULT):

There is no evidence of persistent or transient BVDV infection if older than 3 months of age.