**BOVINE VIRAL DIARHOEA (BVD)**

**WHAT IS IT?**

* Bovine viral Diarrhoea (BVD) is considered to be one of the most important cattle diseases worldwide.
* Surveys have shown that over ¾ of the UK diary herds have evidence of infection.
* Although initial infection with BVD is often unseen with only mild clinical signs, the costs of a herd being endemically infected with BVD can soon mount up due to abortions and ill-thrift.
* SAC costing calculated the typical costs of BVD infection to be £21 per cow (dairy herd) and £38 per cow (beef herd) in endemically infected herds.

**SYMPTOMS and EFFECTS**

* None if early disease
* Diarrhoea
* Mildly elevated temperature, drop in milk yield
* Infertility and abortion
* Poor doing calves
* Birth defects in calves including cataracts, in-coordination and other brain defects
* If the mother is infected in the first 110 days of pregnancy, the calves will be born **Persistently Infected (PI)** with BVD virus. Such PI calves will appear normal, or may be ill-thriven.
* PI calves may also go on to develop **Mucosal Disease**. Symptoms include high fever, severe diarrhoea, ulcers in the mouth as well as occasionally on the tongue and coronary band of the feet; small widespread haemorrhages may also develop in the mouth. Mucosal Disease is fatal.

**WHAT CAUSES IT?**

* A virus
* **Persistently Infected (PI)** animals are the most important factor in the spread of this disease. These PI animals shed the virus from nasal discharges**,** urine and aerosol droplets.
* PIs are usually born with no other abnormalities, but will excrete BVD virus all their lives infecting other cattle.
* Other routes of transmission are from contaminated equipment/clothing, semen from transiently infected (or PI) bulls, blood sucking insects and also other species such as sheep and deer which can carry the virus.

**DIAGNOSIS**

* Testing for BVD is most commonly carried out on either blood or milk samples.
* BVD antibody levels show the animal has come in contact with BVD through infection or vaccination, but is not a PI. We recommend testing at least 5 young calves to assess the level of infection in the herd.
* BVD antibody bulk milk tank testing in dairy herds can rapidly screen for the presence of infection.
* Virus antigen shows that the animal is at that time infected with the virus, either due to an initial primary infection or it is a PI.
* Testing for virus antigen cannot be done reliably on blood samples from calves under 3 months of age, due to maternally derived antibodies ingested via colostrum just after birth.
* In young calves, a plug of ear tissue can be taken from calves at tagging and can be used to test for the virus.
* In dairy herds, a **BVD Bulk Milk PCR** can detect the presence of virus. The test can detect PI’s (or acutely infected cows) from a bulk milk sample of up to 250 cows.

**TREATMENT**

* No specific treatments which directly affect the course of the disease. Symptomaticc and supportive treatments are useful to aid recovery.
* There is no treatment for PI animals and they should be culled to prevent spread of infection.

**PREVENTION/CONTROL OF BVD**

-Identification/removal of PI animals

* All PI animals produce vast amounts of virus, and so represent a source of infection for other animals. They need to be identified and removed as soon as practical from the herd.
* In dairy herds, a bulk milk tank PCR test can be used to test for the presence of a PI animal in the milking herd.
* Blood sampling 5-10 unvaccinated young stock or 1st lactation heifers can also be used to identify the presence of active circulation BVD infection within the group or herd.
* If active BVD infection is identified within the herd, then it is necessary to test all animals within the group to see if they are Persistently infected. Any PIs should be removed as soon as practically possible.

-Biosecurity

* Buying in cattle represents the main method of introducing infection into the herd (e.g replacement heifers, stock bulls that are PIs).
* The herd history (and status if known) that the purchased animal is coming from should be established as far as possible.
* Quarantine all bought in animals for at least 4 weeks. Blood samples should be taken to assess individual animal BVD status before entry into the main herd.
* Nose-to-nose contact via neighbouring stock also risks introducing infection into the herd. Minimise such risks by double fencing or making sure that stock are not kept in adjacent fields.
* There are a number of BVD accreditation schemes using CHeCS standards. If possible, buy replacement stock from accredited BVD-free herds.

-Vaccination

* In herds where potential source of infection cannot be excluded, vaccination should be considered, although no vaccine can guarantee 100% protection.
* There are a number of BVD vaccines, to be used according to manufacturer’s recommendations, and correct administration of booster vaccines is essential.
* All breeding stock should be vaccinated prior to service.
* Vaccinations of PI animals will NOT have any effect on virus shedding, and so it is important that such animals are identified and removed prior to a vaccination program starting.

-BVD Eradication Schemes

* Joining a BVD cattle health scheme is one way of ensuring all testing is done on a formal basis with clear pathways to follow. The entry level only requires monitoring of representative animals for BVDV antibody to determine the BVD ststus of the herd. There are several schemes available in the UK, and all follow the rules within the technical document of the Cattle Health Certification Standards (CHeCS). More information can be found on the CHeCS website: [www.checs.co.uk](http://www.checs.co.uk)

Any BVD control programme should be discussed thoroughly with your own vet.