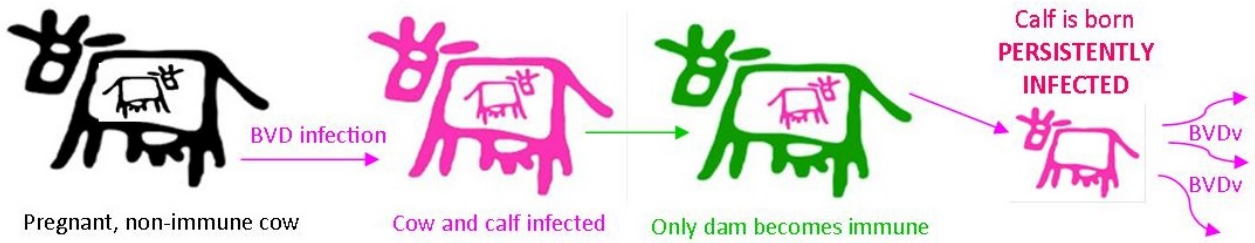
BVD Vaccination

Bovine Viral Diarrhoea is a creeping, grumbling disease causing symptoms far more wide-ranging than just diarrhoea, and losses that may be massive despite not being obvious. Highly effective vaccines protecting against BVD virus have been available for many years, and are widely used. So why are we still struggling with this tedious disease? Because vaccination isn't that simple – and to understand why, a brief recap of how the disease spreads is necessary.

When a non-pregnant, susceptible animal comes into contact with virus it will become transiently infected and show varying degrees of illness. It will excrete virus for 2-3 weeks and then become immune. The story is very different for an unborn foetus, however. If a susceptible (non-immune) cow is exposed to virus in early pregnancy, the calf's immune system will never mount an immune response and the calf is born 'persistently infected' – a PI. PIs are virus factories and are the reason that BVD infection will persist within a herd. PIs are only created during pregnancy – an animal cannot become a PI unless it is born that way. Once a PI, it will always be a PI – even if it is vaccinated. The animal's immune system is incapable of developing immunity to the disease. Should it survive to breeding age, a PI will always give birth to a PI.



The main point of BVD vaccination is not to protect the animal itself, it is to protect the pregnancy and avoid the birth of PIs. Therefore vaccination must be completed well in advance of first service. The older vaccines – *Bovidec* and *Bovilis BVD* – require a 'primary course' of two injections a few weeks apart with a booster usually given on an annual basis. These vaccines contain inactivated virus: the first dose primes the immune system, the second dose provides the full immune response and immunity after a few weeks.

In contrast *Bovela*, which became available in 2015, contains live (modified) virus and therefore provides immunity for one year a few weeks after a **single** dose. Its other key difference is that it protects not only against BVD Type 1 but also BVD Type 2. Type 2 disease is much more severe and is common in the USA. Whilst it has not yet been identified in the UK, it has been confirmed in Northern Europe so may become a concern in due course.

CALWETON
VETERINARY GROUP, 79 Tavistock Road
Callington, Cornwall, PL17 7RD

BVD Vaccination continued

So where can vaccination go wrong?

Mis-timing of the Primary course

Various studies have revealed that the second dose is often given too soon, too late or not at all. This is likely to render all subsequent doses ineffective – in other words the herd may not actually be protected. This is not a concern with *Bovela* as only a single dose is required.

Primary course given too late

If animals are served too soon after vaccination, or are already pregnant when vaccinated, a PI may arise. The primary course should be completed (i.e. 2nd dose of *Bovidec* or *Bovilis BVD*, 1st dose of *Bovela)* four weeks before service.

Booster given too late

If the annual booster is given later than 12 months after the previous dose, full onward immunity may not be achieved. This is less of a concern with *Bovela*, providing the dose is given long enough pre-service.

Failure of immune response

Cows which are not 100% healthy when vaccinated may not develop full immunity.

Vaccination mishaps

The list is almost endless but includes poor vaccine storage (too hot, too cold), failure of injection (the dose doesn't end up in the animal), wrong route of injection (subcutaneous versus intramuscular – always check the datasheet) and missed cows.

PIs present within herd

Vaccinating a PI is of no benefit – they will continue to excrete huge amounts of virus. In extreme cases this may overwhelm the immune system of vaccinated pregnant cattle and risk the birth of further PIs. In addition, any of their offspring will also be PIs.

SO WHAT?

Vaccination is an essential part of the BVD toolkit, but it is not a panacea. Vaccination is only truly worthwhile if you have checked for – and removed – any PIs within the herd: at Calweton vets we can help you achieve this. BVD is a highly infectious disease and a BVD-free herd will be at risk of incoming disease unless biosecurity is exceptional. BVD vaccination offers excellent protection against this – providing it is carried out correctly.

CALWETON
VETERINARY GROUP, 79 Tavistock Road
Callington, Cornwall, PL17 7RD