DAMORY VETERINARY CLINIC

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BOVINE VIRAL DIARRHOEA VIRUS

There are 2 types of virus

Non-cytopathogenic, BVDnc

- Doesn't cause cell damage
- Maintained in cattle population
- Typically causes transient disease in healthy population
- Capable of maternal transmission
- Cause of reproductive loss and persistently infected (P.I.) calves.

Cytopathogenic , BVDc.

- Causes cellular damage
- Arises due to mutation of BVDnc
- Not capable of causing persistent infections

ACUTE B.V.D. INFECTIONS

In non-pregnant cattle is generally inapparent, clinical signs include; high temperature, viraemia, and may be recovered from nasal discharge for up to 10 days post infection. May, cause a more serious life threatening disease.

MIXED B.V.D.V. INFECTIONS

B.V.D.V. mixed with other pathogens e.g. I.B.R. R.S.V. Pasteurella, Rotavirus, coronavirus, Leptospirosis, Salmonella causes a more severe disease. This is thought to be due to the immuno-suppressive effects of BVD.

IN-UTERO AND CONGENITAL INFECTIONS

Virus will cross the placenta if an animal is exposed for the first time. It is thought that this would result in abortions 10-18 days after the introduction of the disease. Placental infection will result in

- Early embryonic death
- Infertility
- Repeat breeder cows

The outcome of foetal infection is dependant on two main variables

1. Age of foetus at time of infection
2. Biotype of infecting virus usually BVDnc

Infection in first third of pregnancy may result in

- Abortion
- Congenital damage
- Birth of PIs.(persistently infected animals)

Infection in middle third of pregnancy may result in

- Congenital malformations
- Foetal loss

Infection in last third of pregnancy may result in relatively few problems as the calf's own immune system has developed but foetal loss may still be a problem.

BVD infection causes significant intra-uterine growth retardation in many of the foetal tissues e.g. CNS, skeletal system, thymus.

The virus has a preferred site within the testicles and ovaries. The virus has been isolated from follicles and been shown to be persistent for up to 60 days.
The Bull has been shown to play a very important role in transmission of the virus. All PI bulls produce semen that is infected with the virus and therefore it is ESSENTIAL THAT ALL BREEDING BULLS ARE BLOOD SAMPLED to determine their status, some bulls, depending on time of infection can harbour infection in their testicles and although a blood sample will show that they have developed an immune response to natural infection they can still shed the virus in their semen. This would have obvious disastrous consequences if such an animal was introduced into a group of virus free heifers (or those that have never been exposed before). We will soon have equipment available to test bull's semen for sperm quality and also prevalence of BVD virus.
Acute infection in the previously unexposed bull is not without risk. BVDV infects the testicle and can be recovered from the semen for a limited period. The semen is often of poor quality and has the potential to spread infection to seronegative heifers. Acute infections in adolescent (6-9 months) bulls have led to the virus being excreted in the semen for a prolonged period.

<u>MUCOSAL DISEASE</u>
Caused by the BVDc strain. This is a fatal condition mainly in young cattle aged 6-18 months but has occasionally been seen in very young calves and adult cattle.

BVD CAN BE ERADICATED FROM YOUR HERD.

CONTROL PROGRAMMES

To initiate a good control programme we need to know

1. Current level of infection.
2. Risk factors involved- see above.

CURRENT LEVEL OF INFECTION

1. This can be determined by a bulk milk sample tested for antibodies or for virus. NMR are currently offering a quarterly bulk tank analysis to test for BVD, LEPTOSPIROSIS, IBR AND JOHNES.
2. If there is evidence of antibodies in your sample then there will be a strong possibility that a PI animal is running with the herd.
3. To determine whether or not this is the case a second bulk milk sample can be taken and sent to the lab for virus isolation. If virus is found then this confirms that at least one PI is in the herd.
4. As a follow up individual milks can be taken during a milk recording and sent to the lab to determine antibody levels. PIs will be negative for antibodies and any negative animals should be blood sampled to determine presence of virus.
5. Youngstock should NOT be forgotten and blood samples for antibody should be taken from a group of animals in the 9-18month age bracket. It has been recommended that 5 samples are taken as this will give us an accurate estimation as to the likelihood of a PI existing.
6. Bulls are a special case as infection can be isolated in the testicles and hence spread of infection can occur by natural service even in an antibody positive bull. We will soon have the equipment to be able to ejaculate bulls to test quality of semen and also to be able to sample for the presence of BVD.

To find out more re costs of tests and procedures please phone us at the surgery

CONTROL REGIMES

While trying to eradicate BVD from your herd it would be advisable to continue with a vaccination regime while performing the various tests to determine the identity of those animals persistently infected.

If you have any questions relating to the above please phone and speak to one of the farm staff at the surgery.