CVM – What does it Mean to You?

What is CVM?

CVM stands for Complex Vertebral Malformation. This genetic disorder was identified in 2000, it is a lethal gene that is inherited as a simple recessive gene, in a similar way to BLAD or Mulefoot.

What are the symptoms?

The symptoms are not always obvious, which makes its identification quite difficult. It is believed that in the majority of cases cows or heifers that are confirmed pregnant with a CVM calf either reabsorb the calf or have an abortion. The remaining calves may go to full term but no live calves have been born.
The symptoms associated with CVM include:
Twisted Spine, Shortened neck, Twisted and rotated legs, Some of the ribs fused together, Heart malformations.

How is a recessive gene like CVM inherited?

A CVM "Carrier" does not exhibit the symptoms of CVM, but will transmit the gene to 50% of their offspring, the other 50% will inherit the normal gene. The disorder requires 2 copies of the CVM gene (i.e. from mother and father) to exhibit the symptoms.

The following examples will hopefully make the situation clearer

C = CVM Gene
T = Normal Gene

Mating 1: Carrier Dam (CT) x Carrier Bull (CT)
25% of Matings TT i.e. Clean *TV
50% of Matings CT i.e. Carrier animals *CV
25% of Matings CC i.e. Exhibit symptoms therefore lost calf

Mating 2: Non-Carrier Dam (TT) x Carrier Bull (CT)
50% of Matings TT i.e. Clean *TV
50% of Matings CT i.e. Carrier animals *CV

How do you know if your cows are CVM Carriers?

All bulls sold in the UK should be identified as a Carrier *CV or not *TV, however in order to find the actual status of all your animals, you would have to do an individual DNA test on all of them, which is not practical due to the cost of £35/animal. Therefore you can only make an estimation of the risk level of your herd, which is based on the use of CVM positive bulls in the past in your herd. Due to the fact that the recessive has been traced back to Carlin-M Ivanhoe Bell (possibly the most genetically significant bull of the last 20 years), there is a good chance many of you will have numerous CVM carriers in your herd.

We have analysed a random group of herds recently based on parentage information from Milk Recording records and found many of them to have in the region of 25% at risk cattle i.e. those that could be carrying the CVM gene.

What is the Cost of CVM to an individual farmer?

It is almost impossible to put a value on the cost, however the questions to ask yourself are:
- How much time and money do I loose when a cow or heifer re-absorbs her calf in early pregnancy?
- How much money do I loose when a cow aborts mid to late pregnancy, and how often do I have to get rid of that cow?

Should I Avoid Using CVM positive Bulls in my herd?

The choice is yours, however with the current economic climate, and the wide variety of world class bulls available that are not CVM Carriers, our advice has to be to take the safe option and avoid all *CV bulls. If there is a *CV bull you are interested in using for a particular reason, it is best to check the parentage of the cows you want to use it on, at least 3 generations back, for possible CVM carriers.