



CVM

Notice of recessive gene in the pedigree:

If the wording “Suspect CVM” is written on the top right hand corner of the Registration Certificate. This means your animal has within its first 3 generations an ancestor that has been tested positive for the genetic recessive CVM.

As a promoter of Holstein cattle, our aim is to inform you as much as possible when your animal may be affected and what you could do in this situation. Your animal may or may not be a carrier, as per the information outlined below:

What is a genetic recessive?

CVM is passed on by “carrier” animals (both cows and bulls). The reason why carriers survive is because every animal carries two copies of every gene. One copy is inherited from the sire and one is inherited from the dam. CVM is a recessive gene. When the animal has one copy of the recessive CVM gene and one normal gene, the animal is a carrier (Dd, where D is the dominant normal gene and d is the recessive lethal gene), the normal gene is Dominant and the animal survives. If the animal has two copies of the recessive gene, the normal Dominance is not there and the combined effect is lethal.

A carrier animal, having only one copy of the recessive gene still has the possibility of passing on the gene to its progeny.

The following table may help to explain this:

Normal Gene = N	Faulty Gene = F		
	Progeny: (Possible gene combinations)		Progeny: (Possible gene combinations)
Sire (Carrier) = NF	NN	Sire (Carrier) = NF	NN
Dam (Normal) = NN	NN	Dam (Carrier) = NF	NF (Carrier)
	NF (Carrier)		NF (Carrier)
	NF (Carrier)		FF (Affected-Lethal)

Symptoms:

CVM deficiency is a lethal condition. It causes early abortion due to foetal death or, if the calf survives to term, it usually dies within a week of birth.

Its discovery was delayed because the high level of foetal death masked the condition. The reason why that animal failed to calve was that it was just another failed pregnancy, for whatever reason they occur. In this case it was a very good reason.

An animal that is a “carrier” of the gene may not show any of these symptoms, yet it may pass the gene onto its progeny.

The Test:

A laboratory test for CVM is available at the option and expense of the owner of the animal.

This test determines whether your animal carries the recessive gene for CVM or not. An animal tested positive for CVM is a carrier and an animal tested negative does not have the recessive for the CVM disorder.

The test is available via the Queensland University Laboratory. Hair samples can also be sent to Holstein Australia Office who will forward the sample for testing. Please contact Holstein Australia Office for more details (telephone: 03 9835 7600).

Code on Pedigree and how to read it:

Once tested, and Holstein Australia is notified, the test result is stored on the HA database. Whenever the animal's name is published (i.e. extended pedigrees etc), the test result should also be published. Currently, a carrier animal is labelled by the letters "CV", while the animal which has been tested and found to be free of the condition is labelled as "TV". This CV label is very important, as it designates an animal that has been certified free of the condition, and assists in the control of the disease. Holstein Australia may even request the original registration certificate to be returned to HA office for reissue with the test result printed on it free of charge.

Please Note: Genetic recessive carrier status of a sire or dam may not be known until after its progeny has been registered. In this case, the "Suspect" wording would not be listed on the Registration Certificate of the progeny. It is worthwhile to periodically examine an animal's pedigree for genetic recessive test results.

Methods of control through breeding:

Dairy farmers can avoid the spread of CVM through controlled breeding. When mating suspect CVM or "carrier" cows, use bulls that have been tested free of this genetic recessive or ensure that the bulls used do not have CVM carriers in their pedigree. This will reduce the number of carrier progeny to a minimum.

Control of CVM and other significant genetic disorders in the dairy cattle population depends entirely on self-regulation and cooperation between all those involved in the dairy breeding industry in Australia. Holstein Australia advocates the screening of all AI test sires as well as embryo donors, and the open disclosure and clear publication of BLAD status at sales and in all information, education and marketing material disseminated to dairy farmers. This stimulates awareness and allows farmers to make clearer breeding decisions.