Hypotrichosis in Galloway Cattle

All living things, including cattle, can be subject to disease – whether it is a disease which is transmitted, such as pestivirus or foot and mouth disease, an environmental disease such as grass tetany, a disease caused by pests such as ticks, or a genetic condition which can be present in the DNA of every living creature.

Inherited genetic conditions can be beneficial – polledness, marbling of meat, conformation and temperament. They can be detrimental, resulting in undesirable conditions such as alpha mannosidosis and hypotrichosis. These genetic conditions can be passed from parents to their offspring through their genes.

Hypotrichosis is a condition that refers to abnormal hair development, resulting in a less than a normal amount of hair in a calf. While it is not lethal, the condition occurs in varied degrees of severity and will cause welfare issues such as the risk of secondary infections and sunburn. Cattle affected with hypotrichosis will also usually fail to thrive.

Hypotrichosis is passed on through the genes of a sire and dam to their calf. For an animal to have hypotrichosis, they must have two copies of the hypotrichosis gene variant. If the animal has one copy of the hypotrichosis gene variant, they are known as a “carrier” animal, and they will not display any hair loss. If one parent is a carrier of the hypotrichosis gene, the offspring may also carry the gene. If both parents carry the hypotrichosis gene the offspring may have two copies of the hypotrichosis gene variant and therefore be affected by the condition. The table below shows the combinations of various joinings of affected, carrier and non-carrier cattle and the likely status of the potential offspring.

Until recently, hypotrichosis was not at the forefront of breeders’ minds, however the NSW DPIRD have confirmed test results of carrier animals which may have birthed suspected affected calves. Since then, several breeders have identified cattle that have been born affected with hypotrichosis. Similarly, several breeders have identified bloodlines which contain cattle that have been identified as carriers of the hypotrichosis gene. It is present in both Belted Galloways and Galloways, and as an extension, although none have as yet been identified, Miniature Galloways. Further research shows that Belted Galloways are affected globally and have been for many years.

As hypotrichosis is contained in a single gene, known as HEPHL1, a highly accurate single gene DNA test is available to ascertain whether an animal is a carrier. This then allows breeders to carry out effective management of their herd, as good breed management is sufficient to manage incidences of hypotrichosis and maintain genetic diversity.

The Committee of the Australian Galloway Association has discussed the management of hypotrichosis at great length and is currently working on the breeding and registration By-Laws to assist in the management of this disease going forward.

Test kits for hypotrichosis testing are available from the Association's office. For more information on testing or submitting samples, contact the Biotechnology laboratory, NSW DPIRD directly on 02 4640 6417 or emai.genetics@dpird.nsw.gov.au

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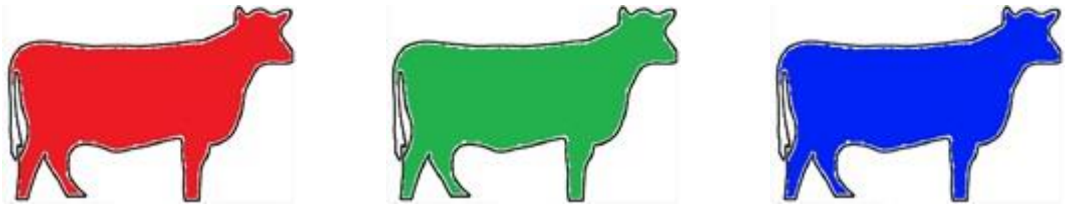
Potential Offspring Status of Various Combinations of Joinings



Affected **Non-carrier** **Carrier**

Status of Parents **Potential Offspring Status**