



## **Genetic Defects: Mannosidosis (MA)**

[www.cdnangus.ca/breed/Mannosidosis.htm](http://www.cdnangus.ca/breed/Mannosidosis.htm)

### **The Condition**

Alpha Mannosidosis (MA) is an inherited condition in beef cattle that affects the nervous system. In affected animals the Alpha Mannosidosis enzyme does not work optimally to break down sugars in lysosomes causing a buildup of sugars and deterioration of the central nervous system. Like AM, NH and OS this condition is fatal, however, symptoms do not normally develop until the animal reaches sexual maturity. At about yearling age affected animals develop head tremors, loss of muscle control and difficulty walking, aggression issues, failure to thrive, and ultimately die.

### **The History**

MA is one of the oldest genetic defects known in beef cattle. The Australian Angus Association undertook an aggressive endeavor to eradicate the gene from their herdbook in the 1980s after several Australian calves were diagnosed with MA. Much of what we know about MA today is a result of their research and efforts. Calves affected by MA have been documented in several countries including Scotland and America, and in several different beef breeds including Aberdeen Angus, Galloway and Murray Grey.

### **The Genetics**

Similar to AM, NH and OS, the gene that causes Alpha Mannosidosis (MA) is a recessive gene, requiring two carrier parents to be bred before an affected calf is ever seen. To date there have been no reports of an affected calf in Canada. The frequency of the recessive gene in the Canadian herdbook is minimal. However, carrier animals, which look normal, can still pass on the gene to future generations. A DNA test has been validated in North America so that these carrier animals can be identified.

### **The Policy**

The Canadian Angus Association has a genetic defect policy in place designed to control and eliminate the frequency of undesired genes in the Canadian Angus herdbook. The policy states that any animal with a known carrier of a genetic defect (including MA) in the first two generations (parental and grandparental) of its pedigree, without an intervening free test, must be tested for the defect to be eligible for registration.

Commencing January 1<sup>st</sup>, 2011 any animal that is tested and found to be a carrier of the recessive gene that causes MA will not be eligible for registration. It is not recommended that these animals be marketed or used for breeding.

## **Testing**

DNA testing for MA is available at an economic fee of \$26 and can be requested by completing the [Genetic Defect Test Request Form](#). The test results will be indicated on our website and on the animal registration certificates where MAF will indicate that the animal has been tested free of the causative gene and cannot pass it on to further generations. MAC will indicate that the animal has been DNA tested and found to be a carrier of the gene that causes MA and will pass it on to 50% of its progeny. If bred to another carrier, the animal will have 25% normal non-carrier calves, 50% normal looking but carrier calves, and 25% affected calves.

## **Questions and Support**

Please do not hesitate to contact Kajal Devani at 1-888-571-3580 or [by email](#) if you have any questions in regards to MA or any other genetic defect.