Answers to your questions
Arthrogryposis Multiplex (AM)

Producers who use Angus genetics can be assured that they are buying the best product available. Advanced technology and rapid DNA-testing has made more information available than ever before.

Arthrogryposis Multiplex (AM), commonly referred to as Curly Calf Syndrome is a lethal genetic defect with a simple recessive pattern of inheritance.

Commercial cattlemen should be aware of AM, and the genetics that trace back to AM so that proper breeding decisions can be made, but there is no need for undue concern.

Definitions

AM carrier (AMC) Any animal that has been tested and carries the recessive AM mutation in its DNA

AM non-carrier (AMF) Any animal that has been tested and determined to be free of the AM mutation

AM affected (AMA) A stillborn calf with a spine that is bent or twisted, that appears small and thin and has legs that are often rigid and may be hyper-extended

Angus producers are continually testing their herds, and a list of those results are posted to the American Angus Association Web site, www.angus.org.

Since AM is a simple recessive inherited defect, only a single pair of genes controls the condition, much like red vs. black coat color in the Angus breed.

Animals can be carriers (AMC) and when they are mated with other carriers (AMC), have a 25% chance of producing an AMA calf. However, when two carriers are mated, there is also a 25% chance that a non-carrier (AMF) live calf will be born and a 50% chance of producing a live normal-appearing carrier (AMC).

It is important to know whether an animal is AMC or AMF when making your breeding decisions. Carriers appear normal. The only way to tell if an animal is an AM carrier is to have a DNA-based test performed by an authorized lab (listed on Association Web site).

If you have bloodlines in your herd that you know trace back to carriers, you will want to select and purchase a bull that has been tested AMF to ensure that AM does not affect your operation. Irrespective of its pedigree, an animal that has been tested and found to be AMF did not inherit the mutation and will not carry or transmit this genetic defect to its progeny. If a cow has an AMA calf, it means that the cow is an AM carrier, and that the sire she was bred to also carries the AM mutation.

AMC x AMC =

- ¼ normal-appearing non-carrier (AMF)
- ½ normal-appearing carrier (AMC)
- ¼ (AMA)

If a carrier (AMC) is mated to a non-carrier (AMF), then all of the progeny will be normal appearing, but half of them will be carriers (AMC).

AMC x AMF =

- ½ normal-appearing non-carrier (AMF)
- ½ normal-appearing carrier (AMC)

If you do have cows in your herd that trace back to bloodlines that have known AM genetics, the goal would be to use bulls without AM genetics in their pedigree or tested free (AMF) bulls. If you breed your AM influenced cows to unrelated or tested-AMF bulls, you eliminate risk of having an AMA calf. Females that are tested AMF, and bred to AMF bull will never produce AMC or AMA calves.

Be sure to ask your seedstock supplier about the status of the bulls or females he or she is selling, and buy your next Angus genetics with confidence!

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