AM: Registration Policy

Policy of the American Angus Association relating to the registration status of potential and known carriers of arthrogryposis multiplex (AM).

by ***American Angus Association***

On Nov. 15, 2008, the Board of Directors of the American Angus Association amended its policy and rules relating to abnormalities and genetic defects. Among other things, this amendment recognized, for the first time, a genetic defect known as arthrogryposis multiplex (AM), an abnormality originally referred to by veterinarian David Steffen of the University of Nebraska, on Sept. 5, 2008, as curly calf syndrome.

Pursuant to Rule 307, approved on the same date, the Board was authorized to "develop, establish and implement a specific policy" in those situations in which there is a reliable test, approved by the Association that can conclusively identify and separate carriers of recognized genetic mutations from animals free of it.

The following is a specific policy approved by the Board. Its procedures became effective Dec. 31, 2008, the date the Association provided notice on its web site that it had approved one or more laboratories to process test results that can conclusively identify and separate carriers of the AM mutation from animals free of it.

This policy and these procedures apply to the AM mutation and that mutation only.

The impacted genetics

On Sept. 16, 2008, the Association posted an "important update" on the status of AM on its web site in which Jon Beever of the University of Illinois tentatively concluded that AM appeared most likely to be caused by a simple recessive gene, traced at that time from a most recent common ancestor, GAR Precision 1680, Registration No. 11520398. However, Beever emphasized (as did the Association), that his tentative conclusion did not preclude other ancestors of this bull, on either the sire or dam side, from potentially being identified as a carrier at a later time.

Over the course of the weeks that followed, Beever was ultimately able to identify the mutation that he believed was responsible for causing AM. On Nov. 3, 2008, he reported to the Association (in an update that was posted on the Association's web site) that he had "developed an accurate DNA-based diagnostic test that can be used to assess an individual's status for AM." In that same update, he also revealed that as a part of that test's development, he had tested samples of 736 registered Angus AI (artificial insemination) sires, the results of which he believed would be beneficial to release to the industry. The results were posted on the Association's web site that day.

As he had cautioned readers on Sept. 16, 2008, an ancestor of 1680 — his maternal grandsire, Rito 9J9 of B156 7T26, Registration No. 9682589 — has now been identified as a carrier of AM. Accordingly, for purposes of the procedures that follow, the phrase "the impacted genetics" currently refers to all animals with Rito 9J9 of B156 7T26, Registration No. 9682589, in their pedigrees. This current conclusion does not preclude other ancestors of this bull from potentially being identified as carriers at a later time.

Procedures

The following procedures shall be followed in connection with the registration status of potential and known carriers of AM (formerly referred to as curly calf syndrome):

I. Status of currently registered females and bulls

1. As used herein, the word "currently" in the phrase "currently registered" shall mean that date on which laboratories approved by the Association shall begin to provide a commercial DNA test for the AM mutation to the membership (Dec. 31, 2008).

2. All currently registered females and bulls with the impacted genetics in their pedigrees shall remain registered. In other words, their registrations will not be revoked, cancelled or suspended.

3. All currently registered females and bulls with the impacted genetics in their pedigrees that are tested and determined to be carriers of the AM mutation shall remain registered.

II. Resulting progeny of currently registered AM-carrier females and bulls

1. All resulting calves of currently registered AM carrier females and bulls, born on or before Dec. 31, 2009, must be DNA-tested for the AM mutation at a laboratory authorized by the Association in order to be eligible for registration. The results of such a test (reflecting whether the animal tested is a carrier of the mutation or free of it) shall be denoted on the animal's registration and performance certificates in the manner prescribed below.

2. All resulting calves of currently registered AM-carrier females and bulls born on or after Jan. 1, 2010, must be DNA-tested for the AM mutation and found to be free of that mutation in order to be eligible for registration.

III. Currently registered AI sires determined to be carriers of the AM gene mutation

1. All calves sired artificially by non-owned bulls (calves that would require an AI service certificate) shall be ineligible for registration if conceived after sixty (60) days following the date on which that sire is listed on the Association's web site as a carrier of the AM mutation. Calves resulting from embryos conceived artificially by non-owned bulls with embryo removal dates after 67 days following the date on which that sire is listed on the Association's web site as carriers of the AM mutation shall be ineligible for registration.

2. The Association will publish the names and registration numbers of such sires on its web site only upon receipt of a test determination from an approved laboratory.

IV. Registration of clones with impacted genetics

Clones of any animal determined to be a carrier of the AM mutation shall be ineligible for registration. Clones of untested animals with the impacted genetics shall also be ineligible for registration.

V. Testing of animals

1. Testing to determine whether an animal is a carrier of the AM mutation or is free of it shall be conducted at those laboratories approved by the Association.

2. The results of such testing shall be provided to the Association and the submitting member as soon as practicable after the test results are available.

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VI. Publication of test results by the Association

Upon receipt of a test result from an approved laboratory that determines whether an animal is a carrier of the AM mutation or is free of it, the Association shall list the name, registration number and test result of each such animal on its web site.

The Association shall also maintain an updated list of each animal determined to be a carrier as well as those who have tested free of such defect. Upon request, the Director of Member Services shall provide such a list at no cost to the requesting member.

VII. Right to request a second DNA test

In those instances in which an animal previously registered or seeking registration is tested and determined to be a carrier of the AM mutation (and is identified as such on the Association's web site), the member owner of record may request that an approved laboratory conduct a second DNA test on a sample from such animal.

In order to process a request for a second test, the member owner of record must provide materials or samples sufficient to permit the laboratory to verify the parentage of the animal in question.

VIII. Notations on registration and performance pedigree certificates

1. Upon receipt of a test result from an approved laboratory, the Association shall place or electronically display the letter designation "AMF" on the registration and performance pedigree certificates of any animal that has been determined by such a test to be free of the AM mutation. AMF shall mean "Arthrogryposis Multiplex–Free," or that an animal is free of the mutation.

2. Upon receipt of a test result from an approved laboratory, the Association shall place or electronically display the letter designation "AMC" on the registration and performance pedigree certificates of any animal that has been determined by such test to be a carrier of the AM mutation. AMC shall mean "Arthrogryposis Multiplex–Carrier," or that the animal is a carrier of the AM mutation.

3. Six months following the availability of a commercial test for the AM mutation (at commercial laboratories approved by the Association), the Association shall place or electronically display the following notation on the registration and performance pedigree certificates of all registered animals that descend from an animal determined to be a carrier of the AM mutation, unless an intervening AMF status eliminates all genetic ties to a known carrier ancestor:

This animal has one or more ancestors known to carry a mutation that can result in calves with a genetic defect known as arthrogryposis multiplex (AM). The American Angus Association recommends approved DNA testing to confirm the absence or presence of the mutation.

Such notification will remain in place until the Association receives an official determination from an approved laboratory that the particular animal tested is a carrier of the AM mutation or is free of it, in which case its certificates will be denoted pursuant to paragraph VIII. 1 and 2 of these procedures. AJ

Association Note: *These procedures apply only to arthrogryposis multiplex.*