



REAP THE BENEFITS OF MYOSTATIN

Myostatin has been a topic much debated during recent months, with renewed interest fuelled by advances in knowledge about the gene. And there's certainly more to it than originally thought.

WHAT IS MYOSTATIN?

Myostatin is a naturally occurring phenomenon, which is well known. Myostatin-related muscular hypertrophy, more commonly known as 'double muscling', can be seen in many species, including dogs and humans and is created by a naturally occurring change in muscle growth. It is clearly present in cattle and some producers have actively bred for it to maximise its positive effects on their stock.

WHAT MYOSTATIN PROFILING CAN DO FOR YOU

The benefits of myostatin can include increased carcass yield, but there are other interesting aspects of myostatin that are less well known. Recent research, conducted in Spain¹ and Australia², has concluded that myostatin is also associated with lower levels of carcass fat, lower levels of saturated fat, increased meat yields, enhanced meat tenderness and even enhanced feed efficiency. In some, but not all, cases myostatin can also be linked to increased birth weights³.

'INSIDE INFORMATION'

The myostatin gene is present in many different breeds of cattle and there are nine different variants of the myostatin gene, even though some may not be found in all breeds. Six variants are classified as "disruptive;" these cause muscular hypertrophy (double muscling), larger birthweights, increased dystocia and enhanced tenderness. Three myostatin variants are referred to as "missense" and will increase muscularity and reduce external and intramuscular fat, with no change in birthweight.

For all myostatin variants, one copy is intermediate.

Disruptive variants are:

C313Y, E226X, E291X, nt419, nt821 and Q204x.

Missense variants are:

D182N, F94L, and S105C.

Myostatin results are reported as:

- 0 None of the nine possible variants are present**
- 1 One copy of the listed variant is present**
- 2 Two copies of the listed variant are present**

Meril's genetic profiling tool – IGENITY – now offers an analysis for myostatin so breeders can know for sure the status of individual cattle and select them for breeding accordingly.

Whether a breeder will select either for or against the myostatin gene and its associated effects will depend on cattle breed and their management system and goals.

And the breeder also needs to know how many copies of the myostatin gene the male and female are carrying if they want to know what the myostatin status of the resulting offspring will be.

For accurate selective breeding to be possible breeders need 'inside information'.

GENETIC PROFILING

IGENITY® is a tool that offers breeders the opportunity to know the myostatin status of individual cattle and to make strategic breeding decisions. And generating this 'inside information' is simple. A sample of each animal's hair has to be taken and then sent off for genetic profiling.

Breeders can also analyse for other traits to the genetic profile panel of individual cattle to identify key production and health traits, such as meat tenderness, and to verify parentage if required.

And there's more to come with new traits being added to the profile panel all the time. Marbling, fat thickness, carcass yield, rib-eye area, and retail meat yield are five of the latest additions to the panel.

A horning/polling marker is also available for some breeds, with more breeds set to be added shortly. And breeders will also be able to test and select for feed efficiency in the near future.

For more information about IGENITY call **0845 603 8895** or email: cscuk@cscuk.co.uk or visit www.igenity.com

References:

1. Genotyping methodology and frequencies of the myostatin F94L mutation in Australian cattle breeds. Diane M Vankan, University of Queensland. Proceedings of the XXXI Conference of the International Society for animal Genetics 20-24 July 2008. Poster Abstract 2144.
2. Characterisation of intramuscular, intermuscular and subcutaneous adipose tissues in yearling bulls of different genetic groups. N. Aldai, M.E.R. Dungan, R. Celaya, K.Osoro. Meat Science 76 (2007) 682-691.
3. Personal Communication: Myostatin Gene Polymorphisms And Their Associations With Birth Weight, Calving And Beef Traits Tette van der Lende, ProPhys Animal Science Consultancy, October 2008.

