

Additional Information Section on Pedigree Certificate - You will find Myostatin results

What is Myostatin?

- **Myostatin** is a naturally occurring gene that regulates muscle growth in cattle.
- When the gene is inactive, animals can develop extra muscle, commonly called **“double muscling”**.
- There are **9** known myostatin mutations in cattle. The gene variants **E226X, F94L, NT821, NT419** have been identified in **Shorthorn** cattle.

Potential Benefits

- Increased muscle development
- Improved carcass conformation
- Higher meat yield

Possible Drawbacks

- Increased calving difficulty (larger calves)
- Slightly reduced fertility
- Lower fat cover, which can affect marbling

N.B. F94L differs from other myostatin variants (i.e., **E226X, NT821, NT419**) as it has been found to increase muscle **without** an associated increase in calving difficulty.

Testing for Myostatin

A DNA/genotype test can tell if an animal has:

Value	Status	Meaning
 0 Copies	Non-Carrier	Normal muscle growth - Animal does not carry the gene
 1 Copy	Carrier (Heterozygous)	Moderate muscle growth – single copy of the gene
 2 Copies	Affected (Homozygous)	Double muscled – two copies of the gene

What if a Result is Missing?

In some cases, a result may appear as **“No result”** for a specific gene variant. This can happen because:

- The result **could not** be read from the sample at testing.
- **Retesting** is needed to confirm myostatin status

Breeding & Inheritance:

Sire/Dam Combinations	Offspring Status
● Non-carrier dam x ● Non-carrier sire	100% ● Non-carrier offspring
● Carrier dam x ● Carrier sire	25% ● Non-carrier offspring 50% ● Carrier (Heterozygous) offspring 25% ● Affected (Homozygous) offspring (will be double muscled)
● Carrier dam x ● Non-carrier sire	50% ● Non-carrier offspring 50% ● Carrier (Heterozygous) offspring
● Non-carrier dam x ● Affected sire	100% ● Carrier (Heterozygous) offspring
● Carrier dam x ● Affected sire	50% ● Carrier (Heterozygous) offspring 50% ● Affected (Homozygous) offspring (will be double muscled)
● Affected dam x ● Affected sire	100% ● Affected (Homozygous) offspring (will be double muscled)

Key Takeaway:

If you use a ● Non-carrier **sire**, you will never produce affected (**double-muscled**) offspring. Otherwise, it's important to know the myostatin status of **each cow** and consider the **sire/dam combinations** shown above **before mating**.

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