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# LIMOUSIN

*Carcase, Yield, Efficiency.*



# Muscle up with Limousin *for heavyweight profits!*

Invest in Limousin genetics and take advantage of the unique Limousin Muscling Gene which can get your beef herd producing up to:

**19% more high value cuts**  
**8% more in yield of retail cuts**  
**6 -11% more tenderness**  
**...with no extra feed!**

Source; Dr Wayne Pitchford, University of Adelaide



# Questions & Answers about the *Limousin Muscling Gene*

## What is the function of the myostatin gene?

A normally functioning myostatin gene inhibits muscle growth. A mutation of this gene reduces its powers to switch off the multiplication of muscle fibres which can result in an increase of the size and number of muscle fibres. There are nine known mutations of the myostatin gene of which six are "loss of function" mutations meaning they inactivate the myostatin gene causing muscular hypertrophy (larger muscle fibres) and hyperplasia (more muscle fibres). The best known mutation is the 11 pair deletion nt821 which has a high frequency in the Belgian Blue breed causing the typical "double muscling" effect. This mutation also occurs in low frequencies in other breeds such as the Angus, Murray Grey and South Devon breeds.


Other loss of function mutations include the Q204 mutation in Charolais and the C313Y mutation in Piedmontese. The loss of function myostatin mutations are associated with high levels of calving difficulty and lowered fertility and longevity.

## What is different about the Limousin muscling gene?

The mutation known as F94L which has a high frequency in the Limousin breed is one of three missense mutations which does not cause a loss of function of the myostatin gene. It appears not to cause an increase in the size of the muscle fibres but does cause an increase in the number of muscle fibres. It is not associated with high levels of calving difficulty or lowered fertility and longevity.

## What are the effects of the Limousin muscling gene?

The research conducted by the Adelaide University group led by Dr Wayne Pitchford has clearly documented the effects of the Limousin muscling gene as shown below.

	Two copies of the gene	Zero copies of the gene	% difference
Hot Carcase weight	390.8kg	380.2kg	+3%
Weight of Silverside	11.58kg	9.76kg	+19%
Eye Muscle Area	102.0 sq cm	86.1 sq cm.	+19%
Retail Beef Yield	73.4%	68.1%	+8%
Shear force of loin muscle*	4.06	4.30	-6%
Shear force of silverside*	3.94	4.43	-11%

\* lower shear force indicates more tender beef

## How big is the effect if I use a Limousin bull over cows of another breed?

Most Limousin bulls carry two copies of the Limousin muscling gene so each of the progeny will get one copy of the Limousin muscling gene. Animals with one copy of the gene are likely to exhibit about half the differences shown above. A Limousin cross calf is expected to have about 9.5% more silverside, 9.5% more eye muscle area 4% more retail beef yield, with a 3% increase in tenderness of the loin muscle and 5.5% more tender silverside.

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