

tips & tools

MEAT STANDARDS AUSTRALIA



MSA05

The effect of tropical breeds on beef eating quality

What are tropical breed cattle?

Tropical breed cattle or *Bos indicus* are genetically adapted to tropical environments, excelling in their ability to survive and produce under adverse conditions including heat and poor quality pastures. Tropical breed cattle are also resistant to parasites. They are an important breed option for the climate of northern Australia. Breeds include the Brahman and crosses of the Brahman such as Brangus and Santa Gertrudis. Non-tropical breeds include the Africander and its derivative, the Belmont Red.

Temperate or *Bos taurus* breeds include British and European cattle.

The effect on eating quality

MSA research has shown that tropical cattle breeds including the Africander have a negative impact on the eating quality of many cuts. The major effect is on the striploin, cube roll, tenderloin and oyster blade. In the cuts with high levels of connective tissue – such as the brisket, topside, outside flat and eye round – the effect of tropical breeds on eating quality is reduced. This can be seen in the table below.

Tropical breed content	Striploin		Eye of knuckle	
	MSA Score	MSA Grade	MSA Score	MSA Grade
100	42	Ungrade	44	Ungrade
50	48	3	46	3
0	55	3	48	3

The above data is taken from a standard MSA carcass with the following specifications: HSCW 240kg, male, AT hang, ossification 150, MSA marbling 270, meat colour 1C, rib fat 7mm, pH 5.55, loin temp 7.0°C, ageing 5 days, cooking method grill, non HGP-treated.

Key points

- Tropical breed content has a negative impact on the eating quality of many cuts.
- Hump height and carcass weight can estimate a 'tropical breed equivalent' for non-tropical breeds.
- Cuts from tropical-breed cattle can still grade MSA 3, 4 or 5.
- Good management is the most important factor in all breeds particularly nutrition and stress minimisation.

The percentage of tropical breed (or calculated equivalent) content is taken into account by the grading model in combination with other factors. All cuts from 100% tropical breed cattle can still meet MSA consumer grade standards if appropriate management strategies are applied throughout the production chain.

A distinctive physical characteristic of tropical breeds is a hump. In crossbred cattle the hump size relates reasonably to the percentage tropical breed content.

MSA research has found that an equivalent 'tropical breed effect' on eating quality can be estimated by relating the carcass hump height to carcass weight. This is done within the grading model as the MSA grader enters the hump height for each carcass.

How is hump height measured?

Hump height is measured by holding a ruler parallel with the surface of the sawn chine perpendicular to the 1st Thoracic or 6th cervical vertebrae. The ruler is moved to the position of the greatest hump width. Hump height is measured by the MSA grader and is recorded in gradients of 5mm. It is primarily used to verify the tropical breed content indicated on the MSA vendor declaration.



How can tropical breed content and tropical cattle be managed to improve eating quality?

Since tropical breed content has a significant influence on MSA grading, producers should consider the amount required in their herd for environmental tolerance. The use of *Bos taurus* cattle or cross-breeds where suitable, will enable better grading compliance. As with all cattle, management practices that result in cattle being heavier and fatter at a younger age will improve grading results. Many successful operators incorporate feedlot or supplementary feeding strategies to finish a younger and superior quality product (see *MSA Tips & Tools: Maximising eating quality with tropical breed cattle*).

Post-slaughter, many cuts from tropical breed cattle can be improved through the use of tenderstretch and longer ageing (see *MSA Tips & Tools: How tenderstretch affects eating quality*).

What is required of the producer?

Where tropical breed cattle or their crosses are being consigned for MSA grading, the tropical breed content must be declared. This is done by ticking the appropriate box on the MSA vendor declaration. If the mob being consigned has varying levels of tropical breed content, the highest amount should be indicated on the vendor declaration. For example, if a lot of cattle are mainly Hereford (0% TBC) and Hereford-Santa Gertrudis-crosses (19% TBC) but with a few Braford's (Hereford x Brahman, 50% TBC), the vendor should tick the 50% box on the declaration. Where possible, producers should consign cattle of similar tropical breed percentage together to get the best grading result, as they cannot be drafted after arriving at the abattoir.

MSA visual standards are available to assist in determining breed content. In addition to ticking the box on the vendor declaration, additional breed information should be provided in the comment section. Abattoir livestock personnel are trained in determining tropical breed content.

The following tables list breeds of cattle and their tropical breed content.

Breed	TBC	Breed	TBC
Boran	100%	Brahmousin*	50%
Brahman	100%	Santa Gertrudis	38%
Sahiwal	100%	Belmont Red	0%
Droughtmaster*	50%	Hereford	0%
Charbray*	50%	Angus	0%
Brangus*	50%	Tuli	0%
Braford*	50%	Senepol	0%

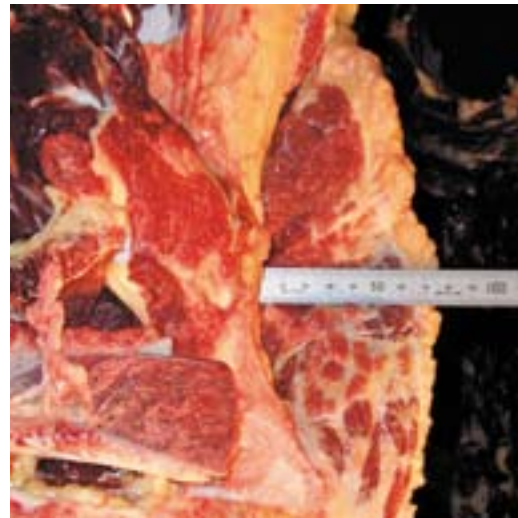
**It should be noted that these breeds may vary in their tropical breed content percentage from 25% to 75% depending on the actual breed make-up.*

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Bull	Crosses		TBC
		Cow	
Santa	X	Brahman x Hereford	44%
Santa	X	Droughtmaster	44%
Euro or British	X	Droughtmaster	25%
Euro or British	X	Santa	19%
Santa	X	Santa x Euro	28%
Belmont Red	X	Brahman	50%
Angus	X	Santa	19%
Euro or British	X	Brahman x Santa	34%
Brahman	X	Santa x Hereford	60%
Euro or British	X	Charbray	25%

Where can I obtain visual standards?

A pamphlet containing visual standards of tropical breed cattle content is available from MSA.



Measuring hump height.

For more information

Visit www.mla.com.au/msa or contact MSA 1800 111 672.



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