

TIPS & TOOLS

MEAT STANDARDS
AUSTRALIA

Maximising eating quality in tropical breed cattle

The effect of tropical breed content on beef eating quality

MSA research has shown that breed can have around a 12% effect on eating quality, and as tropical breed content increases, eating quality scores for particular cuts can decrease. The major effect is on the striploin, cube roll, tenderloin and oyster blade primals.

In the past, producers were required to declare the highest tropical breed content of a consignment. Hump height, in conjunction with carcass weight and sex, was used to verify or determine the tropical breed effect, however, this is no longer the case with hump height now used as the direct predictor of eating quality.

On farm management to maximise eating quality

To achieve higher returns on farm, producers should firstly focus on meeting the specifications of the processor and achieving compliance to MSA minimum requirements (see *MSA Tips & Tools: How MSA beef is graded*). Each processor will have their own specifications which need to be met to satisfy the needs of their customer, this may include specifications relating to breed.

On farm management of genetics, nutrition and weight gain can maximise the eating quality of all cattle, including cattle with tropical breed content.

Nutrition

Cattle should be kept on a rising plane of nutrition for at least 30 days prior to processing. This is a vital stage of cattle production, where set-backs can have a significant impact on meat eating quality.

Ossification

Since northern cattle are generally subjected to more environmental stresses than southern cattle, maturity or ossification occur at a more rapid rate, adversely affecting meat eating quality. Therefore, while the 30 days prior to processing are important, good nutrition right through the life of the animal can slow the rate of ossification, therefore maximising eating quality.

Key points

- All breeds of cattle are eligible for the MSA program.
- Hump height is measured on the carcass in conjunction with carcass weight to determine the effect on eating quality.
- On farm management of genetics, nutrition and weight gain will maximise eating quality of beef from tropical breed cattle.
- Processors can further improve product by ageing primal cuts for extended periods or using tenderstretch hanging techniques.



Weight

In order to enhance eating quality, on farm management practices should focus on reaching the optimal weight at the youngest possible age of the animal.

Tropical breed content is beneficial for cattle in harsh climates as they are genetically adapted to heat, can produce on low quality pastures, and are resistant to parasites. However, the introduction of European or British genetics to form composite breeds can significantly improve eating quality while maintaining an environmentally adapted herd.

Handling and drafting

Nutrition and weight gain are critical for ensuring that cattle have as much energy (muscle glycogen) pre-slaughter, while practices such as mustering, yarding and transport can use this stored energy.

Cattle should be handled in ways that both minimise stress and time-off feed before being sent to the processor. When cattle are mixed and/or drafted, the social hierarchy within the group becomes re-established, causing stress in cattle. For this reason drafting, mixing or boxing up mobs should be avoided in the two-weeks prior to slaughter.

Post slaughter management

Ageing primals to improve eating quality

Beef from tropical breed cattle can be further improved with ageing. Extended ageing of vacuum-packed primals improves eating quality in many cuts, as during storage in the bag under refrigeration, naturally occurring enzymes continue to break down muscle fibres in the meat. As the ageing period extends, the beef becomes more tender, with the most improvement occurring in the first 21 days.

See Table 1 which shows the effect of the ageing process on primals from an animal with an equivalent 50% tropical breed content. The striploin and rump primals improve to achieve MSA quality after 21 days ageing.

Table 1: The effect of ageing on meat eating quality (MQ4) scores.

Cut	Ageing period			
	5 days	14 days	21 days	35 days
Tenderloin	67	67	67	67
Cube Roll	48	50	51	52
Striploin	41 (fail)	44 (fail)	46	49
Rump	45 (fail)	47	48	50

MSA 5 MSA 4 MSA 3

Example animal: Male; HGP treated; 250kg HSCW; ossification 180; MSA marbling 280; rib fat 5mm; pH 5.55; Achilles hanging method; 120mm hump (50% TBC equivalent) and grill cooking method.

MSA eating quality scores range from 0–100. According to consumer research, scores <46 fail eating quality expectations, therefore are classified as 'ungrades' and may not be sold as MSA certified product.

Tenderstretch

Tenderstretch can be used as an alternative means of hanging the carcass during chilling to improve meat tenderness. The process can reduce the meat ageing period required to achieve the same eating quality result.

Tenderstretching a carcass involves suspension from either the pelvic bone (TX) or through the iliosacral ligament (TL), so the leg drops at a 90° angle. This differs from the mainstream method of hanging a carcass by the Achilles tendon (AT).

When a carcass is tenderstretched, a number of muscles are held in a stretched position so they cannot contract, especially muscles in the hindquarter.



A tenderstretch carcass.



An AT hung carcass.

Table 2: Tropical breed content for various cattle breeds

Breed	TBC
Hereford	0%
Angus	0%
Senepol	0%
Charolais	0%
Limousin	0%
Santa Gertrudis	38%
Droughtmaster	50%
Charbray	50%
Brangus	50%
Braford	50%
Brahman	100%

Table 3: Tropical breed content of common crossbreeds

Breed	TBC
Euro/British X Brahman	50%
Santa X Droughtmaster	44%
Euro/British X Droughtmaster	25%
Santa X Braford	44%
Santa X Santa x Euro	28%
Angus X Santa	19%
Euro/British X Santa x Brahman	34%
Brahman X Santa x Euro/British	60%
Euro/British X Charbray	25%

Further information

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