

tips & tools



MSA16

MEAT STANDARDS AUSTRALIA

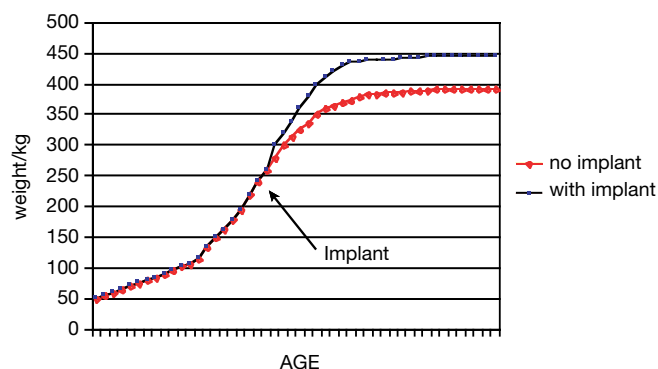
The effect of growth promotants on beef eating quality

What are growth promotants?

Growth promotants registered for cattle are pellets that are implanted under the skin of the ear. Growth promotants play a vital role in delivering the required productivity gains in various sectors of the beef supply chain through increased weight gain and improved feed conversion efficiency.

Growth promotants contain synthetic forms of oestradiol, progesterone and/or testosterone as the active ingredient. Their action is anabolic, that is, they increase nitrogen retention and protein deposition in animals. These compounds occur naturally in untreated animals; treatment simply increases the concentration and metabolic effect. The well-proven effects of growth promotants are heavier weights for age, a reduction in marbling at a constant carcass weight, or an increase in carcass weight at constant fat levels. A plentiful supply of good quality feed must be available to achieve this growth response.

The effect of using anabolic implants on growth



What is the impact on eating quality?

MSA research has established that growth promotants may have an effect on the eating quality of some cuts. The effect differs between muscles and is reduced with cut ageing. The striploin and cube roll are worst affected, the rump and topside intermediate, and other cuts are less affected. MSA research was conducted with product from male and female cattle produced in both northern and southern Australia utilising both grass and grainfed systems. Breeds included purebred Angus and *Bos indicus* composites sourced from commercial and research herds. A number of growth promotant products and combinations

Key points

- Growth promotants can have an adverse effect on eating quality.
- The effect varies across different muscles.
- The effect can be managed utilising other MSA pathways, eg ageing and or tenderstretching.
- Cattle treated with growth promotants are eligible for MSA grading.
- Growth promotant usage is to be declared on both the MSA and LPA national vendor declarations.

were used with between one and seven treatments at various stages of production.

What is the effect on marbling?

The use of growth promotants reduces the amount of marbling at a constant carcass weight. With reduced marbling there is a reduction in MSA score for many cuts. (See *MSA Tips & Tools: The effect of marbling on beef eating quality*).

What is the effect on ossification?

Australian and US research has shown that ossification is increased by growth promotant use. This increase can be quite dramatic when the growth promotant is applied at a young age. The research concluded that the increase in ossification score is variable depending on the time of implanting. If ossification were constant, then the increased carcass weight gained from using the growth promotant would lead to a higher MSA score, however this is not the case in commercial application.



Hang method	Achilles (AT)		Tenderstretch		Achilles (AT)		Tenderstretch		Achilles (AT)		Tenderstretch	
Ageing	5 days		5 days		14 days		14 days		21 days		21 days	
Growth promotant treatment	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Tenderloin	MSA4	MSA4	MSA4	MSA4	MSA4	MSA4	MSA4	MSA4	MSA4	MSA4	MSA4	MSA4
Striploin	MSA3	ungrade	MSA3	MSA3	MSA3	ungrade	MSA3	MSA3	MSA3	MSA3	MSA3	MSA3
Cube roll	MSA3	MSA3	MSA4	MSA3	MSA3	MSA3	MSA4	MSA3	MSA3	MSA3	MSA4	MSA3
Rump	MSA3	ungrade	MSA3	MSA3	MSA3	ungrade	MSA3	MSA3	MSA3	MSA3	MSA3	MSA3
Blade	MSA3	ungrade	MSA3	ungrade	MSA3	MSA3	MSA3	MSA3	MSA3	MSA3	MSA3	MSA3
Topside	ungrade	ungrade	ungrade	ungrade	ungrade	ungrade	ungrade	ungrade	ungrade	ungrade	ungrade	ungrade

The above information is based on a carcass with the following carcass characteristics: 250kg male; 260 ossification; MSA marble 280; 90mm hump; rib fat 7mm; pH 5.55; loin temp 7.0 and cooking method grill.

How will my cattle grade?

Growth promotant use is to be declared on the MSA and LPA National Vendor Declarations. If a producer is unsure of the growth promotant history of the animals, the 'yes' box should be ticked.

Growth promotant use will not exclude cattle from MSA grading but it will affect the MSA score obtained for different muscles, depending on how close they are to the grade boundary. The MSA score for each cut is determined by a combination of variables. Some, such as marbling and carcass weight, are positive, while others, such as increased maturity, are negative. It is the combination of all these factors that determines the difference.

How can grading outcomes be improved?

There are two principal post-slaughter management procedures that can be utilised to improve the eating quality of animals treated with growth promotants. The first is to increase the ageing period, especially on cuts that have high-ageing rates. The second is to use the tenderstretch method of hanging carcasses. The improvement with ageing correlates with the ageing potential of the muscles, so that cuts that improve significantly with ageing, such as striploin, will improve to a greater extent than cuts such as tenderloin.

Tenderstretch has a positive impact on eating quality (See *MSA Tips & Tools How tenderstretch affects beef eating quality*). The table above shows the effect of ageing or tenderstretch on the example carcass shown above from a steer implanted with growth promotants.

MSA's objective is to accurately predict the eating quality as judged by the consumer, not to be prescriptive as to how to raise, process or sell cattle. The decision on whether or not to include growth promotants in a management program rests

with the producer and will be influenced by the mix of production and eating quality effects and their economic impact.



A tenderstretch carcass.

For more information

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



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