

# On tips & tools

*Meat Standards Australia : MSA12*

## How ageing affects beef eating quality

### What is ageing?

Just as wine or cheese can mature with age, beef also can be improved with time. Ageing is a process that occurs as the muscle fibres in meat are slowly broken down. Naturally occurring enzymes continue to act in the meat resulting in a slow breakdown of the proteins that make up the muscle fibres. This leads to the muscle fibres being weakened and, as a result, aged beef tends to be more tender. The appearance of beef does not change with ageing, as the breaking down of the muscle fibres happens on a microscopic level.

### The influence of ageing on eating quality

MSA research has shown that ageing can improve eating quality. The ageing effect is different for various muscles as shown in the table below. The rate of ageing also decreases over time with most improvement in the first 21 days.

Days Aged	Cube Roll		Tenderloin	
	MSA Score	MSA Grade	MSA Score	MSA Grade
5	60	3	76	4
14	62	3	77	5
35	65	4	77	5

*The above data is taken from a standard MSA carcass with the following specifications: HSCW 240kg, male, 25% Bos indicus, AT hang, ossification 160, US marbling 230, meat colour 1C, rib fat 7mm, pH 5.55, loin temp 7.0°C, cooking method grill.*



### KEY POINT

- Ageing can improve the eating quality of beef by improving the tenderness.

As all factors that affect eating quality interact, ageing rates and effects also differ. For example, tenderstretch carcasses age at a different rate relative to those that are not tenderstretched (See MSA tips & tools *How tenderstretch affects eating quality*).

### How can beef be aged?

Beef can be aged in carcass form, on the bone in primals, or in vacuum packaging for long periods. In practice carcasses tend to be aged only for 5 days. Further ageing can be carried out, but good chilling and food safety considerations need to be taken into account. Primals can be aged up to 14 days on the bone, although the edges of the meat may tend to spoil and will need to be trimmed.

Product from a boning room is packaged in vacuum-sealed plastic bags that are oxygen free. Meat can be safely stored this way, under refrigeration for up to 12 weeks. Meat that is aged beyond this time may develop “off” odours and give the beef what is described as a “liver” taint.

### How ageing is applied in the MSA system

The MSA grading model determines the ageing effect for each cut. This establishes the date the cuts will reach the applicable MSA grade. Some cuts may achieve a higher grade with additional ageing. For example, if the cut grades as 4 Star product after 5 days, the model will then determine if the cut can reach 5 Star and the date at which it occurs.



The product is labelled at the production level with a release date that specifies these time periods or dates. This is shown in the sample butcher label below:

**Body 1L** **Rump**

**EQS** Release Date

22-Jul-00



Cook	Grade	Until	Then
Grill	3	19 Aug	4
Roast	4		

Est xxxx Plant xxxx Kill **20000717** Body No: **1L**

- ✓ In this example the rump can be released after 5 days on 22-July as a 3 Star grilling cut or as a 4 Star roast.
- ✓ If it is aged until 19-August, it can be sold as a 4 Star grilling cut.

In large abattoir boning rooms, carcasses are often assigned into boning groups. This enables the carcasses that have the same grades for the same cuts to be boned out and packaged together. Carton labels are produced showing the required ageing period. A sample carton label is shown below.

**BONELESS BEEF 0320**  
**PRODUCT OF AUSTRALIA**

**STRIPLOIN - EQS**  
 IW/VAC  
**PKD ON 23 JUL 1999 10:17** **6 PC**

**GRILL EQS 4 at 5 Days - EQS 5 at 21 Days**  
**Roast EQS 4 at 5 Days - EQS 5 at 21 Days**

**USE BY 23 AUG 1999**

**47.70kg** \* \* \* \* \* **lb** **NET WEIGHT**

**KEEP CHILLED**  
**EQS MEAT COMPANY** **EST 1234**

## Who is responsible for ageing?

All MSA product has a minimum 5-day ageing period that is easily achieved by both the butcher and packaged meat trades. Ageing meat requires refrigerated storage which adds cost. When MSA product has two grade options, it can be sold at either grade. In this way, the processor, wholesaler or retailer who is prepared to bear the cost of ageing, can then gain the benefit of a value added product. Using the carton label below as an example: the processor may wish to age the product for 5 days to be sold as EQS 4 (Eating Quality Standards 4 Star). The wholesaler may wish to move the product quickly and also sell it as EQS 4. The retailer, having determined a demand for 5 Star product, may wish to store the product for the remaining 16 days to be able to charge a premium for 5 Star quality.

## Can anything affect ageing?

The pH temperature decline maintained at the abattoir can have a significant effect on the potential ageing of a product. Carcasses that go through a very rapid pH decline will be heat shortened. When this happens the enzymes that enable the ageing process to occur are destroyed. This results in the product not being able to age at all (See MSA tips & tools *The effect of the pH temperature decline on eating quality*).

## For more information

Visit the MLA web site at [www.mla.com.au](http://www.mla.com.au)

Or contact your nearest MSA grading office or MLA for other tips & tools on the factors that affect eating quality.

## Contact

### Meat Standards Australia grading offices:

Brisbane: telephone 07 3842 3114  
 Wagga Wagga: telephone 02 6931 0371  
 Bunbury: telephone 08 9725 7638



165 Walker Street, North Sydney NSW 2060  
 Tel: (02) 9463 9333 Fax: (02) 9463 9393 [www.mla.com.au](http://www.mla.com.au)

Published November 2000  
 ISBN: 1 74036 504 6  
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