

# TIPS & TOOLS

MEAT STANDARDS  
AUSTRALIA

## The effect of cooking on beef quality

### How cooking method affects eating quality

Muscle is made up of muscle fibre groups, surrounded and supported by connective tissue which contains collagen fibres. Collagen fibres form cross-links to stabilise and strengthen muscles. Different muscles have varying amounts of connective tissue related to the amount and type of work the muscle has to do. For example the shin muscles, which are used constantly, have a high connective tissue content. This can be seen in the picture below which compares a cross section of shin with tenderloin.



Tenderloin



Shin

The collagen and connective tissue can be partially broken down through slow or casserole cooking which use low heat and moisture over a long period of time. The broken down connective tissue provides the gelatinous or thickened texture of the casserole. This is why shin beef is best suited to casseroles and why it is commonly known as gravy beef.

By contrast, a muscle such as the tenderloin (fillet) which sits on the inside of the spine near the pelvis, does very little work, so contains almost no connective tissue. As a result this muscle is very tender.

The tenderloin would not be suitable for casserole cooking as its structure would be completely broken down. This cut is best suited to pan frying or grilling.

### Key points

- The cooking method used is one of the most important factors in eating quality and can be used to optimise the performance of a piece of beef.
- MSA uses cooking method eating quality calculations.
- MSA provides up to 11 recommended cooking methods for each cut within the carcass

### Why is it important to include cooking method on the label?

Different cooking methods can alter eating quality. A rump steak, for example, is a traditional BBQ meat in Australia. MSA research indicated rump was better utilised as roast, stir fry or thin slice. However other cuts, such as the tenderloin, were not improved by roasting. Some examples of these relationships are shown in the table on the following page.

Today's consumers do not have extensive cooking knowledge. Beef is a particularly confusing subject as there are many different cut names and no clear direction as to the best cooking method for each of these. Consumers are reliant on the information from their butcher or on finding a label in a supermarket.

Using the correct cooking method with the correct cut of beef is the most important factor in maintaining eating quality. MSA grading predicts the eating quality of each carcass muscle when cooked by various methods. The retailer can use this information to prepare and sell each cut in the form, which provides the best eating experience.

Retailers have the opportunity to display an MSA retail label or their own branded labeling that provides the required cooking advice to the consumer in conjunction with the grade. This provides the consumer with confidence and removes the need for them to have any knowledge of beef cuts and their usage.

|   | Grill | Roast | Stir Fry | Thin Slice | Slow Cook | Corned | Sous Vide | Yakiniku | Shabu Shabu | Roast Combi |
|---|-------|-------|----------|------------|-----------|--------|-----------|----------|-------------|-------------|
|   | CMQ4  | CMQ4  | CMQ4     | CMQ4       | CMQ4      | CMQ4   | CMQ4      | CMQ4     | CMQ4        | CMQ4        |
| <b>Tenderloin</b>                             | 77    | 76    | 75       | 64         | N/A       | N/A    | N/A       | 68       | 66          | 74          |
| <b>Cube Roll</b>                              | 61    | 65    | 66       | 63         | N/A       | N/A    | N/A       | 64       | N/A         | N/A         |
| <b>Striploin</b>                              | 57    | 64    | 65       | 51         | 63        | N/A    | 63        | 56       | 49          | 54          |
| <b>Rump</b>                                   | 53    | 60    | 60       | 60         | 59        | N/A    | N/A       | 57       | 49          | 59          |
| <b>Oyster Blade (flat iron same as grill)</b> | 69    | 62    | 69       | 69         | 68        | N/A    | 68        | 68       | N/A         | 65          |
| <b>Blade</b>                                  | 57    | 60    | 61       | 65         | 60        | N/A    | 60        | 61       | 50          | 60          |
| <b>Knuckle</b>                                | 42    | 48    | 44       | 52         | 42        | N/A    | 51        | 51       | N/A         | 51          |
| <b>Outside Flat</b>                           | 40    | 43    | 44       | 61         | 55        | 51     | 54        | 61       | 41          | 48          |
| <b>Eye Round</b>                              | 48    | 50    | 48       | 51         | 51        | 48     | 54        | 51       | N/A         | 58          |
| <b>Topside</b>                                | 41    | 47    | 47       | 61         | 50        | N/A    | 50        | 56       | 42          | 50          |
| <b>Chuck Rib Side</b>                         | 55    | 55    | 55       | 60         | 63        | N/A    | 59        | 57       | 44          | 58          |
| <b>NE Brisket</b>                             | N/A   | 42    | 42       | 58         | 54        | 33     | 54        | 58       | N/A         | 47          |

The above data is taken from a standard MSA carcass with the following specifications: 290kg HSCW; male; no HGP-treatment; 60mm hump; AT hang method; 150 ossification; 320 MSA marbling; 6mm rib fat; 5.60 pH; 71°C loin temp, and aged 5-days.



## MSA cooking methods

The following cooking methods are used as part of the MSA grade. Where MSA is used to underpin a brand, that brand can have its own cooking label but the

corresponding cooking method for the cut and grade must be displayed.



### Roast

Cuts displaying this symbol are suitable for roasting in a moderate oven (180°C). Accurate cooking is best determined using a meat thermometer. Internal temperatures should be as follows for the different degrees of doneness: Rare 60°C; Medium 65°C; Well done 75°C. When the roast is removed from the oven, allow it to rest for 10 minutes prior to carving.



### Casserole or slow cook

Cuts displaying this cooking method should be cooked in sauce or gravy on low heat for two hours. The product is prepared in 20mm cubes.



### Stir-fry

Cuts suitable for this cooking method can be purchased already cut into strips. If cutting is required, slice strips at right angles to the grain and approximately 10mm in width and depth, and approximately 75mm in length.



### Thin slice

Products displayed as thin slice should be prepared by cutting the product to 2mm thickness.



### Grill/pan fry

Steaks displaying either of these symbols are suitable for cooking in a pan, grill or BBQ. Must be sliced a minimum of 21mm thick.



### Shabu shabu

Products displayed with this symbol are suitable for wet cooking and should be prepared by cutting the product to 1.5-1.8mm thickness. To get the best result, chill the product and cut on a slicing wheel.



### Yakiniku

Products displayed with this symbol are suitable for dry cooking methods and should be prepared by cutting the product to 4mm thickness.



### Corn

Products displayed with this symbol are suitable for corning. The product is corned using a cure of the value-adder's choice and prepared by a slow, wet cook.



### Sous vide

Cuts suitable for this cooking method can be purchased already cut into cubes. If cutting is required, dice into cubes 21mm x 21mm x 21mm and cook for 3 hours at 62.5°C in a water bath with circulated water. After removal the cubes are drained and transferred to a mild stock as used in casserole.



### Combi-roast oven

Products displaying this symbol are suitable for roasting in a Combi Oven set to 80°C in combination mode. Product is removed when internal temperature reaches 65°C.



### Roast thin slice (2mm & 10mm)

Products displayed as Roast thin slice should be roasted and chilled after cooking and sliced across the grain into 2mm slices or 10mm slices.

### Further information

Visit [www.mla.com.au/msa](http://www.mla.com.au/msa) or contact MSA 1800 111 672



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