



**meat standards australia**

*beef*

**Meat Standards Australia** is the world's only consumer based eating quality grading system.



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*Meat Standards Australia (MSA) is a grading program designed to take the guess work out of buying and cooking Australian beef.*

MSA graded beef is labelled with a grade and recommended cooking method that identifies the eating quality of a cut of beef according to standards developed by consumer taste panels. All beef underpinned by the MSA symbol has met strict criteria to ensure it meets consumer expectations for tenderness, juiciness and flavour.

#### **Developing the MSA Standard**

Research shows that an enjoyable meal experience is of paramount importance to Australian beef consumers. They expect a tender, tasty, juicy cut of beef at every meal occasion. To develop the MSA standards over 86,000 consumers participated in taste panels sampling 603,000 individual beef samples to identify the key factors that deliver consistent quality beef.

#### **How the MSA grade is calculated**

MSA Certified Graders collate information provided from the cattle producer, supervise processing standards and assess each individual carcass on its attributes known to influence the eating quality of beef including meat colour, marbling, fat depth, carcass weight, maturity and ultimate pH.

#### **Integrity**

All participants in the program are licensed to use the MSA Trademark, and certify products via an approved Quality Management System in accordance with the MSA Standards Manual. Licensees are subject to independent random audit programs for compliance to the Standards. MSA Standards are backed by independent audit to the AS/NZS ISO 9001/2008 Standard.



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## production



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An important element contributing to **eating quality** is the on-farm or feedlot management of cattle.

### **Breed**

All cattle breeds are eligible to be graded by MSA; however MSA research has shown that tropical breed content can impact the eating quality of many cuts. Processing techniques and ageing of meat can aid in optimising the eating quality of meat from these breeds.

### **Nutrition and growth**

For consistent eating quality, cattle need to be managed on a rising plane of nutrition to ensure sufficient muscle glycogen levels and adequate growth.

### **Glycogen**

Maintenance of high muscle glycogen through adequate nutrition and minimizing animal stress will result in improved pH and meat colour compliance.

### **Handling**

Cattle must be handled in a manner that keeps stress to a minimum during mustering and transport. Stress is a major contributor to a condition that results in dark, tough beef.

### **Cattle eligibility**

MSA cattle are accepted via direct consignment and saleyard selling pathways provided all MSA Standards are met and producers are registered with the MSA program.

All cattle other than entire males, are eligible for MSA grading. The animals must be accompanied by a MSA vendor declaration when cattle arrive at the processing facility.

## grading

Individual carcass attributes are collected by an **MSA certified grader**. The attributes are calculated through the MSA grading model and an eating quality grade is generated for individual carcass cuts according to cooking method.

### Processing treatments

Cattle must be processed according to the MSA standard and on-site quality system to optimise eating quality. Critical points include monitoring carcass pH and temperature decline, chilling regimes and electrical inputs used during processing.



### Meat Colour (MC)

Meat colour is assessed at the rib eye muscle (M. longissimus dorsi) on the chilled carcass and scored against the AUS-MEAT Meat Colour Reference Standards. MSA Certified products can range from Meat Colour 1B to 3.



### MSA Marbling (MSAMB)

Marbling is assessed at the M. longissimus dorsi at the ribbing site of the carcass. It is calculated by evaluating the amount and distribution of marbling in comparison to the MSA standards. Scores range from 100 to 1190.



### Fat Distribution

Even fat coverage enables uniform chilling rates throughout the carcass. Fat distribution involves the measurement in millimeters of subcutaneous fat at the ribbing site and must be 3mm or greater. Fat must be evenly distributed over the loin, hind and forequarters.

## grading (cont.)

**Beef brands** may also impose additional specifications to further differentiate their product. These specifications can be applied at the time of grading.



### Ultimate pH (pHu)

Ultimate pH is one of the most significant indicators of eating quality. It involves measurement of lactic acid within the muscle, taken from a pH probe. The optimum pH level of meat is 5.7 and below. Carcasses with pH above 5.70 are ineligible for an MSA certification.



### Maturity (Ossification)

This is the assessment of the physiological age of a bovine animal. The term 'ossification' refers to cartilage turning to bone in the vertebrae. It is measured in three sections along the backbone; sacral (tail), lumbar (loin) and thoracic (head). Scores range from 100 to 590.



### Tropical Breed

The breed content of each animal can have a significant effect on beef eating quality. The tropical breed (bos indicus) content of every consignment is declared on the MSA vendor declaration. To verify the declared Tropical Breed Content, the hump height of the carcass is measured in gradients of 5mm.

## msa labelling

MSA certified beef is identified on the carton label. Eating quality grades, recommended cooking methods and ageing requirements are displayed.

MSA calculates three levels of eating quality, MSA 3, 4 and 5 star. All MSA product requires a minimum ageing period of 5 days, with eating quality up to 35 days ageing also calculated.

The MSA model is able to predict the improvement in eating quality of cuts with extended ageing periods.

MSA may also be identified at the point of sale to the consumer with eating quality grade and cook method specified.



## cooking

**Cooking methods** are some of the most important factors in consumer satisfaction and eating quality.

### roast

- Preheat oven to recommended temperature - see table.
- Brush roast lightly with oil and season, place on a rack in a roasting tray.
- Follow suggested cooking times - see table.
- Periodically check internal temperature using a meat thermometer.
- Remove from oven and cover with foil when cooked.
- Rest in a warm place for 10 minutes before carving across the grain.

SUGGESTED COOKING TIMES / 500G	Oven temp	Rare	Medium	Well done
Internal meat temperature		60°C	65-70°C	75°C

### BEEF CUTS

Rib eye/Scotch fillet, Rump, Sirloin, Fillet, Topside	200°C	15-20 min	20-25 min	25-30 min
Silverside, Blade, Round	160°C	20-25 min	25-30 min	30-35 min

### stir fry

- If buying steaks, cut into strips of 75mm x 10mm x 10mm.
- If stir-frying steaks cut across the grain into strips of even thickness.
- Brush the meat with oil instead of adding oil to the wok.
- Ensure the cooking surface is hot - the meat should sizzle on contact.
- Cook meat in small batches (about 200g at a time) to keep the pan hot and prevent the meat from stewing. Remove from pan.
- Add aromatics (garlic, chilli and spice).
- Add vegetables and sauces. Return meat and stir to combine.
- Serve immediately.



## cooking (cont.)

### pantry / grill

- Brush meat with oil instead of adding oil to pan.
- Ensure the cooking surface is hot - the meat should sizzle on contact.
- Minimum recommended thickness 21mm.

#### Rare

- Cook for a few minutes on one side (depending on thickness).
- Turn and cook until the steak feels 'very soft' with back of tongs.

#### Medium

- Cook on one side until moisture is visible on the top surface.
- Turn and cook on the second side until moisture is just visible.
- Continue to cook until steak feels 'springy' with back of tongs.

#### Well done

- Cook on one side until moisture appears on top surface.
- Turn and cook on the second side until moisture reappears
- Reduce heat slightly and continue to cook until steak feels 'very firm' with back of tongs.

#### After cooking

- Rest steaks for 2-4 minutes in a warm place before serving.



### casserole

- If buying steaks cut into 20mm cube for casserole.
- Brush the meat with oil instead of adding oil to the dish.
- Brown meat in small batches (about 200g at a time) to seal in the juices. Set aside.
- Reduce heat and add onions, garlic and spices and sauté until transparent.
- Add flavourings, firm vegetables and liquid.
- Return beef and bring all ingredients to the boil then reduce heat to low, cover and simmer for approx 2 hours or transfer to oven dish and cook on low (160°C) for 2 hours.
- Add soft vegetables in the last 20 minutes of cooking.

### corn

- Beef is corned using a selected cure and is prepared by a slow wet cook.
- Place beef in heavy based pot and cover with cold water, bring to boil.
- Add desired ingredients then reduce heat to low simmer.
- Cover and simmer for approximately 25-30 minutes per 500g.

TIP: If serving the corned beef cold, allow the meat to cool in the cooking liquid.

### shabu shabu

- A Japanese variant of the hot-pot cooking method, shabu shabu is prepared at the dining table.
- Cut beef into 2mm thin slices. For best results, chill the product before cutting on a slicing wheel.
- Submerge meat in a pot of boiling water or broth and swish back and forth for just a few seconds until slightly pink.

TIP: Cooked meat and vegetables are then usually dipped in sauce before eating immediately.

### yakiniku

Product is prepared by cutting to 4mm thickness. A style of cooking small thinly sliced meat pieces and vegetables over a charcoal or gas burner.

### thin slice

Product is prepared to 2mm thickness and suitable for dry cooking methods.

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## msa accreditation



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**Licensed branded beef** companies can underpin their brand with the MSA Trademark, this allows a brand owner to communicate that their product has been graded to MSA standards.

The use of the MSA symbol is subject to a brand license agreement with Meat & Livestock Australia (MLA) to ensure the integrity of the product.

All beef sold under the license agreement must be MSA graded and the enterprise's quality systems must adhere to MSA Standards Manual for Trademark Usage.

Extensive mandatory training is provided to all participants in the MSA supply chain. Audits are conducted on all licensed participants at regular intervals to check compliance to the Standards.

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*The Meat Standards Australia program allows end users to assure and communicate to their customers that their product has met stringent **MSA standards.***

End users including wholesalers, retailers and food service enterprises must be licensed by MLA and adhere to the MSA Standards Manual for Trademark Usage to ensure product integrity. Independent audits are conducted on all licensed participants to check compliance to the Standards.

Point of sale material is available to licensed end users for display and to inform customers.

All new Licensees must complete MSA End User Licensee Training to ensure compliance to the MSA Standards are understood. Other training programs are available to identify opportunities to capture value from the MSA program.

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## training

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*Training programs have been developed for all participants in the **MSA supply chain.** Training ranges from general program overviews to technical practical modules for the various supply chain sectors.*

Producer workshops - can be tailored to suit group requirements. Workshops include how to become a MSA registered producer, MSA program background, producer recommendations and how to implement change on-farm to meet consumer expectations.

Saleyards and agents - provides MSA program overview and information regarding management of saleyard sheep to meet MSA licence requirements. This includes livestock handling and lairage conditions.

Processor training - consists of technical modules for on-site staff covering MSA standards and requirements based on each critical control point identified in processing. This training is a pre-requisite for MSA licensed processors.

AUS-MEAT Ltd deliver MSA beef processor and grader training. Processor operatives may undertake all training modules or be trained in their specific area of responsibility.

End user training - Includes information on how to eliminate eating quality failure using MSA technology, the factors impacting on eating quality and how to comply with MSA standards.

All MSA training programs may be customised for a particular supply chain.



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Further reading: MSA tips & tools beef information kit