



tips & tools

Meat Standards Australia : MSA02

How MSA grades are determined

Why grade beef?

The aim of MSA grading is to guarantee consumers that a piece of beef will eat to the quality shown on an MSA label when cooked by the method shown. This simple description system can form a basis for retail pricing and generate product confidence. This has been lacking, with consumers unable to reliably select beef of the desired quality. Research shows that this lack of product confidence has restricted sales volume and price.

What is beef quality?

For a grading system to work, consumers have to agree on 'what is quality'. If individual opinions differed widely then grading would not be effective. MSA research has examined consumer beef quality judgements in detail using the results of 50,000 individuals tasting and scoring 350,000 beef samples. This has proven that groups of consumers have a very consistent opinion on beef quality.

How does MSA test consumers?

MSA has developed extremely detailed testing protocols to ensure that the scores obtained relate only to the individual consumer and the beef sample, and are not affected by random influences such as irregular thickness or cooking variation. The protocols also detail issues of sample preparation, order and method of serving. For example,

every consumer is served seven samples, which include a high and low quality product. The first sample is common to provide a standardised benchmark with the following six presented following a 'Latin square' arrangement as shown above:

KEY POINTS

- MSA grades are set from analysis of consumer test results.
- Grade standards are independent of all production factors.
- The MSA grade score is a composite of tenderness, juiciness, flavour and overall liking scores.
- The MSA grade score boundaries reflect consumer judgement.

Common Link Product

1	2	3	4	5	6
2	4	1	6	3	5
3	1	5	2	6	4
4	6	2	5	1	3
5	3	6	1	4	2
6	5	4	3	2	1

This ensures that each product is served an equal number of times in each position and that each is served an equal number of times before and after each other product.

Consumers are recruited from the community to represent diverse backgrounds and areas.

Selection criteria are: 20 to 50 years of age, eat beef once or more per week and prefer beef cooked medium.

Each consumer completes a score sheet for every sample tested. This involves marking lines to score tenderness, juiciness, flavour and overall liking and ticking one of four boxes to indicate whether the sample was of unsatisfactory, good everyday, better than everyday or premium quality.



Score Sheet

Tenderness

Not Tender ————— Very Tender

Juiciness

Not Juicy ————— Very Juicy

Liking of flavour

Dislike Extremely ————— Like Extremely

Overall liking

Dislike Extremely ————— Like Extremely

Please tick one of the following to rate the quality of the beef sample you have just eaten.

Choose **one** only (you must make a choice).

- Unsatisfactory
- Good everyday quality
- Better than everyday quality
- Premium quality

How is the MSA score calculated?

The MSA score, out of 100, is calculated by adding a percentage of the individual consumer scores for each sensory component as follows:

Tenderness	40%
Juiciness	10%
Flavour	20%
Overall liking	30%

These percentages have been established from statistical analysis and provide the best relationship between the 'lines and boxes' marked on the consumer score sheets.

How are the MSA grade standards set?

The MSA score that forms the cut-off point between each grade is also set from analysis of the consumer test data. The calculated MSA score is compared statistically to the 'box' ticked and the optimum division points become the grade boundaries. A safety margin is included at the low end of good everyday (3 star) to reduce the risk of any MSA product being unsatisfactory.

How are consumer results used to develop the MSA grading model?

The grading model predicts how each cut will eat. The prediction system used has been developed from consumer testing over 35,000 individual beef cuts selected to represent a wide range of cuts, cattle, production systems, processing practices, ageing times and cooking methods. Ten consumers have tasted each individual cut. The highest and lowest two scores are 'clipped' and the middle six averaged to produce the MSA score used in the database for research purposes.

Maintaining the system

Consumer standards are continually reassessed through the consumer taste testing program using research product and product sourced from mystery shopping (MSA beef randomly purchased at retail).

By continually monitoring consumer scoring, grade standards can be adjusted over time in line with any evident change in consumer preference to maintain eating quality satisfaction.

For more information

Visit the MLA web site at 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:

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