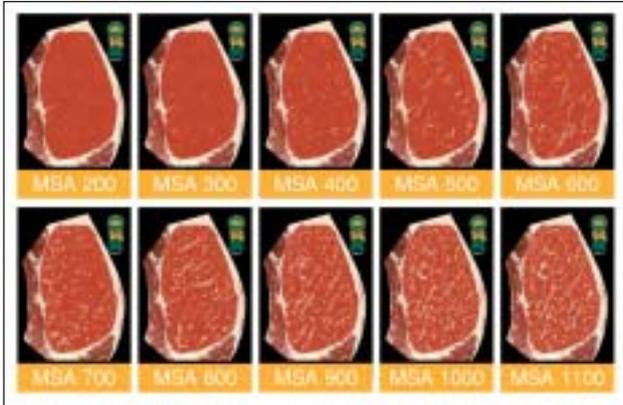


BEEF CARCASS GRADING SYSTEM

MSA MARBLING (MSAMB)



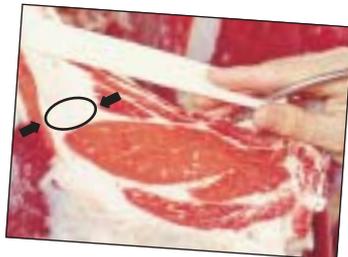
The MSA marbling system provides an indication of the fineness of distribution and the size of marbling pieces. The AUS-MEAT Marbling system provides an indication of the amount of marbling in beef. MSA marbling reference standards and AUS-MEAT Marbling reference standards can be used in harmony to provide more detail about the product.

Marbling is the fat that is deposited between individual muscle fibres of the longissimus dorsi muscle.

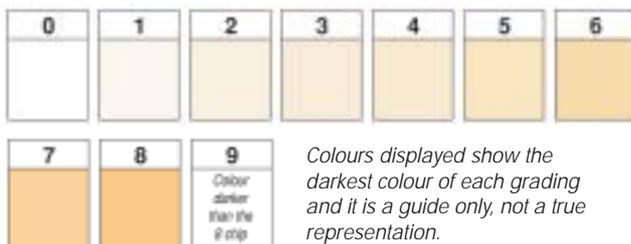
The assessment of marbling provides an indication of distribution and piece size as well as the amount of marbling. The steps between the MSA marbling standard are judged to tenths for grading, creating a score range from 100 to 1100 in increments of ten.

FAT COLOUR (FC)

Fat colour is the colour of Intermuscular fat lateral to the rib eye muscle. It is assessed on the chilled carcass and scored against the AUS-MEAT Fat Colour Reference Standards. Fat Colour is assessed

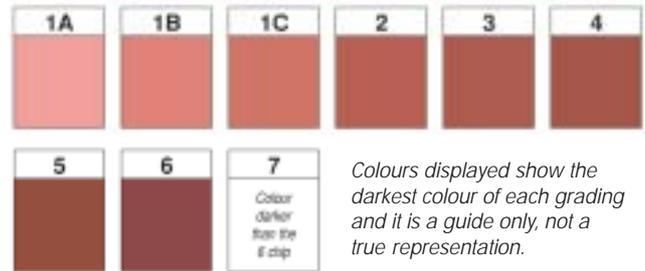


by comparing the Intermuscular fat colour lateral to the M. longissimus dorsi and adjacent to the M. iliocostalis scored against the AUS-MEAT Fat Colour reference standards.

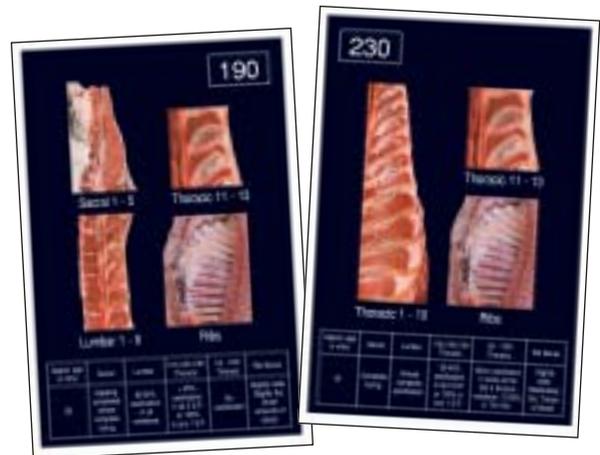


MEAT COLOUR (MC)

Beef Meat Colour is the colour assessed at the rib eye muscle (M. longissimus dorsi). It is assessed on the chilled carcass and scored against the AUS-MEAT Meat Colour reference standards in that area of the M. longissimus dorsi that displays the most predominant colour.



MATURITY/OSSIFICATION (OSS)

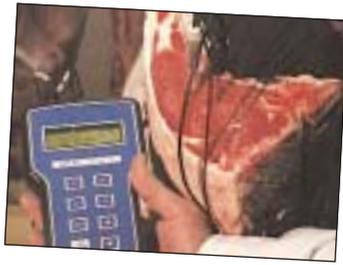


Maturity scoring provides a scale for the assessment of physiological age of a bovine animal. The term refers to the cartilage turning to bone in the spinous processes in three sections along the backbone - sacral (tail), lumbar (loin) and thoracic (head). The process starts in the sacral region in the form of red spots and as the process increases turns to hard, yellow bones.

The shape and colour of the rib bones are also used to determine scores. Maturity is measured in increments of ten with the lowest being 100 and the highest being 590.

ULTIMATE pH (pHu)

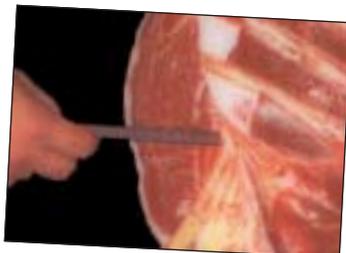
Ultimate pH is a measurement of lactic acid within the muscle. Measurements are taken from a pH probe that is calibrated daily before each grade. The optimum pH level of meat is 5.70 and below, with levels above this being downgraded to non-MSA product. When measured correctly, pH is one of the most accurate indicators of eating quality and is an essential part of the grading process.



The Ultimate pH is affected by treatment, temperament and condition of the live animal. The speed at which pH declines from the live state (approx pH 7.0) to the Ultimate pH affects eating quality. This is affected by post-slaughter treatments such as quantity of electrical inputs and temperature.

HUMP HEIGHT (HUMP HT)

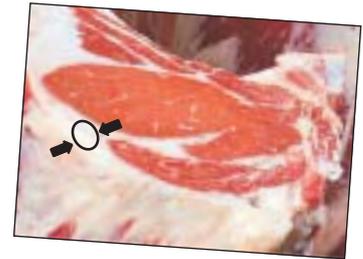
Animals of the same breed type can show different levels of visual (phenotypic) Tropical Breed Content.



The hump is measured by holding a ruler parallel to the ribs. The ruler is moved to the position of the greatest hump width and includes all of the meat from the top (dorsal) edge of the paddywhack (ligamentum nuchae) and across to the top (dorsal) surface of the rhomboideus (hump) muscle.

SUBCUTANEOUS RIB FAT (RF)

Subcutaneous rib fat is a measurement in millimetres of the thickness of Subcutaneous fat at a specified rib.



LABELLING INFORMATION



MSA 3 Grl @ 5 days

MSA 3 Rst @ 5 days, MSA 4 @ 34 days

MSA 3 Sfr @ 5 days, MSA 4 @ 28 days

MSA 3 Tsl @ 5 days, MSA 4 @ 14 days

MSA 3 Cas @ 5 days, MSA 4 @ 14 days

The labelling information must include MSA quality grade 3, 4 or 5, recommended cooking methods and required ageing period.

For more information, visit the MSA web site at:
www.msagrading.com

