

tips & tools



MSA14

MEAT STANDARDS AUSTRALIA

Fat distribution and eating quality

What is fat distribution?

Fat distribution is the coverage and distribution of subcutaneous (external) fat on a carcase.

Why do we need fat cover?

An even coverage of subcutaneous fat leads to even chilling throughout the underlying muscles. The greater the fat depth on a carcase, the slower and more uniform the muscle-chilling rate will be. The coverage and distribution of subcutaneous fat over primals helps prevent dehydration and provides protection for the muscles from microbial contamination.

Uneven fat coverage causes the muscles with inadequate coverage to chill at a faster rate. An irregular pattern of pH-temperature decline occurs, which can create cold-shortening conditions near the surface and heat-shortening in the deep core. The rate of pH decline can impact on the predictability of eating quality, specifically by falling too slowly and increasing the potential for cold-shortening or by falling too quickly and increasing the potential for heat-shortening. (See *MSA Tips & Tools: The effect of pH-temperature decline on beef eating quality*).

Uneven fat distribution can occur due to cattle type, nutritional background of cattle or when fat is removed from a carcase during the mechanical removal of the hide, exposing the underlying muscle. This is known as hide puller damage and can lead to uneven chilling throughout the exposed muscles.

MSA grading requirements for fat distribution

The MSA accredited grader must assess the distribution of fat over primals to ensure coverage is sufficiently adequate to prevent severe chilling.

A minimum of 3mm of subcutaneous rib fat at the quartering site, or 5mm at the P8 site is required. Where parts of the carcase are void of fat coverage, affected primals or the entire carcase are ungraded.

Key points

- Fat distribution is the coverage and distribution of subcutaneous fat on a carcase.
- Even fat distribution is required to ensure the carcase chills at a uniform rate.
- Carcasses may fail to meet MSA specifications if the fat distribution is inadequate.
- It is important that cattle have access to an increasing plane of nutrition for at least one month prior to slaughter to assist in even fat coverage.

Fat distribution standards

Rib fat	3mm minimum
P8	5mm minimum
Fat distribution	Must be even and adequate Void area <10cm x 10cm

Adequate fat distribution



Hide puller damage

Key points

- Hide-puller damage leads to uneven chilling of the exposed area of the carcass.
- Where hide puller damage of greater than 10cm x 10cm occurs on a single primal cut, the affected primal or the whole carcass is downgraded.

What is hide-puller damage?

Hide puller damage occurs when fat is removed during the mechanical removal of the hide, exposing the underlying muscle.

Example of unacceptable hide puller damage.



Why is it important to maintain even fat coverage?

A carcass that has patches of fat removed during the hide removal process will not chill evenly in the exposed muscles. These muscles will chill at a faster rate with a larger temperature difference within those muscles. An irregular pattern of pH-temperature decline occurs, which can create cold-shortening conditions near the surface and heat-shortening in the deep core. Commercially this is often seen as 'two toning' in cuts such as the rump where meat colour can be light in the centre and dark at the edges.

(See MSA Tips & Tools: The effect of pH-temperature decline on beef eating quality.)

MSA grading requirements for hide puller damage

The MSA accredited grader assesses hide-puller damage during grading, with the main focus over the major primals where effects are most severe, such as the cube roll, striploin and rump. The MSA standard will accept hide-puller damage less than 10cm x 10cm on a single primal or if the damage occurs over a cutting line, for example, the caudal end of the striploin and the cranial end of the rump.

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Managing downgraded cuts for hide puller damage

Where a single primal is void of fat coverage (>10cm x 10cm), the primal or the carcass may be ungraded (fail to meet MSA requirements). Processors have the option of either ungrading the entire carcass or removing the primal affected by the hide-puller damage. When choosing to remove the primal:

- The MSA accredited grader must identify the affected primal at the time of assessment.
- The processor must be able to show MSA there is a process in place to exclude the affected cut, written in the enterprise quality manual.

For more information

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