

tips & tools



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MEAT STANDARDS AUSTRALIA

The effect of hanging method on sheepmeat eating quality

Traditionally, sheepmeat carcasses are suspended or hung from the Achilles tendon. An alternative hanging method that can improve eating quality performance is the 'tenderstretch' method. For achieving sheepmeat of good eating quality, tenderstretch hanging provides an alternative. It is particularly beneficial for improving the tenderness of loin and hindquarter cuts.

Achilles hanging method

The traditional method of hanging sheep or lamb carcasses is by gambrels inserted behind the Achilles tendon. In the Achilles-hung carcass, the spine is curved and the hindquarter muscles have less tension on them. As a result, when these large hindquarter muscles go through rigor mortis they can contract. When this occurs, the muscle fibres overlap resulting in slightly tougher meat.

If Achilles-hung meat is cooled to achieve the pH/temperature target of 18–35°C, and the meat is stored for five days at 1°C before retail sale, the eating quality of all cuts will be consistently good when they are cooked in the recommended way. The best way of attaining this pH/temperature target is with electrical stimulation which would be suitable for a processor selling lamb, hogget or mutton into the domestic market.

Tenderstretch hanging method

Tenderstretch hanging involves sheep carcasses being suspended by the pelvic or aitchbone, so that the leg drops down at a 90° angle. As a result, a number of muscles are held in a stretched position so they cannot contract during rigor mortis. Tenderstretch is most effective in the hindquarter and has a varying effect on each cut.

Key points

- Tenderstretch hanging improves eating quality of the loin and hindquarter cuts.
- Tenderstretch can be used as an alternative for electrical stimulation to optimise eating quality.
- Achilles hung carcasses destined for the domestic market will generally require electrical stimulation.

Figure 1: Conventional Achilles hanging (left) and tenderstretch hanging.



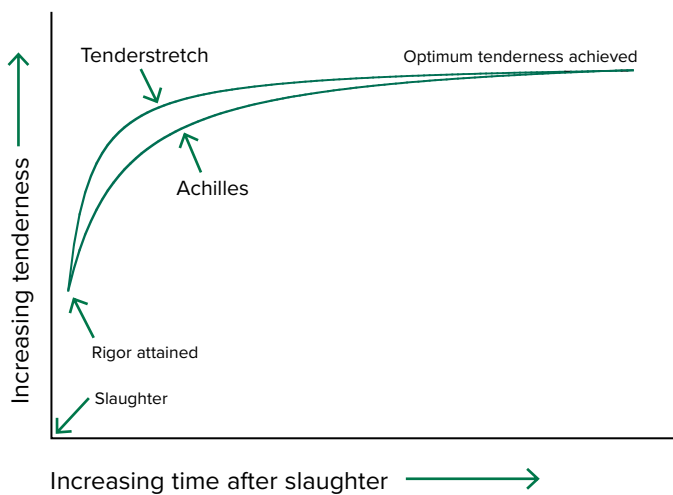
Advantages of tenderstretch hung carcasses

When tenderstretch hung, hindquarter muscles assume a more 'life-like' posture. Muscle shortening is prevented and improved eating quality will be attained. Although tenderstretch hanging requires some additional labour, it does have some significant advantages to eating quality:

- Ageing will occur more rapidly in tenderstretch carcasses compared to Achilles-hung equivalents (Figure 2)
- Eating quality is improved for loin and most leg cuts, when compared to Achilles hung carcasses.

Figure 2 compares the tenderisation kinetics of Achilles hung with tenderstretch carcasses. Tenderstretch clearly yields acceptably tender meat more quickly, although, when given sufficient ageing, Achilles-hung sheepmeat ultimately achieve the same degree of tenderness.

Figure 2: Tenderisation kinetics during ageing for Achilles hung and tenderstretch carcasses.



Source: *Improving lamb and sheepmeat eating quality – a technical guide, 2006.*

The tenderstretch effect varies for each muscle according to the muscle's position in the carcass and the degree of stretching. Although the tenderstretch effect on eating quality is slightly negative in the tenderloin (which is stretched in an Achilles-hung carcass), it is strongly positive in most other hindquarter cuts and largely neutral in forequarter cuts.

Another advantage of tenderstretch lies in the uniformity of eating quality between cuts. If older sheep are Achilles hung, there are marked differences in quality between the different cuts, to an extent not seen with lamb. However, if older sheep are tenderstretch hung, the differences between cuts are minimised.

It should be noted that tenderstretch hanging will alter the shape of several of the leg cuts (see figure 3). Cuts are more evenly distributed around the bone than in Achilles-hung carcasses. This even distribution is well suited to the foodservice industry and the 'evenness' of the eating quality throughout the leg cuts is a bonus for consumers. However, adoption of tenderstretch hanging requires changes to operations that will not suit everyone.

Figure 3: Tenderstretched hindquarters.



Tenderstretch hanging provides an alternative to electrical stimulation for achieving sheepmeat of good eating quality. It is particularly beneficial for improving the eating quality of loin and hindquarter cuts. This method is well suited to the domestic market where rapid tenderisation is important and electrical stimulation is not a valid option.

For more information

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