

tips & tools

MEAT STANDARDS AUSTRALIA

MSAS3

MSA requirements for handling sheep

How sheep handling can affect eating quality

An important element contributing to predictable eating quality is the management of sheep on-farm or at a feedlot prior to slaughter. For this reason MSA has produced guidelines to optimise the eating quality potential of the animal.

The long period of care and investment in producing an animal with high eating quality potential is most at risk in the two weeks prior to slaughter and the first few hours post slaughter. Optimum eating quality can be reduced to low quality, unacceptable product by inappropriate handling pre-slaughter.

The damage is caused by changes in muscle glycogen (blood sugar) levels. Glycogen is the energy reserve of the muscle. The glycogen level in muscle is increased by feeding (a process taking several days) and rapidly reduced by stress (which may only take minutes) or activity in the live animal. After stunning, the glycogen in muscle is converted to lactic acid that steadily decreases the pH of the muscle.

When there is insufficient glycogen in the muscle at the point of slaughter, inadequate lactic acid is produced and high pH meat can result. High pH meat is often referred to 'dark cutting' due to its unattractive dark colour and is often tough, cooks inconsistently and has a reduced shelf life.

Reduce stress pre-slaughter

Poor handling in the days and hours prior to slaughter can compromise the eating quality of even the best finished animals. Sheep and lambs are susceptible to stress and this must be minimised between mustering and slaughter. Some ways to consider reducing stress include:

- Minimising the use of dogs during mustering prior to loading.
- Adjust transport times to match favourable weather conditions. Dramatic changes in temperature during transport, such as a cold snap or heavy rain, will cause undue stress.

Key points

- Unweaned or sucker lambs are more susceptible to stress caused by handling than carryover lambs.
 - Allow a minimum of two weeks off shears (wool length >5 mm) before slaughter.
 - Minimise the time between mustering and slaughter.
 - Allow a minimum of two weeks at consignment property before dispatch.
 - Total time off feed must not be greater than 48 hours (for on-farm curfew, transport and lairage), before slaughter for MSA eligibility.
 - Minimise stress during curfew, transport and lairage.
 - Access to water should be available during on-farm curfew and lairage.
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- For product consistency from saleyards, producers and processors should aim to reduce the time between muster and slaughter, where practical. Transport and lairage principles for meat quality focus on two factors – minimising stress and reducing the time until slaughter.

A compromise between minimising carcass weight loss in transport and processor requirements for clean stock should be made. A minimum of two weeks between shearing and slaughter is required to manage stress occurring as a result of the shearing process.

Reduce dehydration pre-slaughter

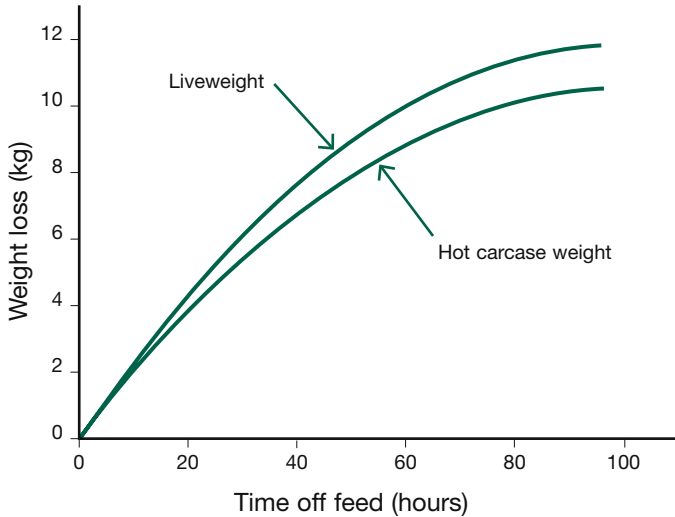
Dehydration can reduce muscle weight and eye muscle area, with preliminary data suggesting a possible 3% loss in carcass weight. Therefore, to maintain quality, it is important to ensure stock have access to water during curfew, transport and lairage periods.



Maintain carcass weight

Once sheep are taken off feed they have the potential to lose carcass weight and condition. Losses are not immediate because many hours pass before the digestive system is food free. However, the longer the period between mustering and slaughter, the greater the chance that losses in carcass weight will occur (figure 1).

Figure 1: Weight loss with time off feed



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

Pre-slaughter curfews

Processors may require that sheep be held off feed for a minimum of 12 hours before being presented for slaughter, as animal excreta contains immense concentrations of microbes, which present contamination risks during trucking, lairage and the preliminary stages of slaughter.

To accommodate food safety concerns of processors and minimise the impact on eating quality, animals destined for MSA are held for a minimum of 12 hours or up to a maximum of 48 hours without access to feed before slaughter. The minimum time will depend on feed type, weather, and processor food safety requirements.

Requirements from processors vary in each state. Producers, stock agents and transporters should contact processors prior to transport to understand their individual curfew requirements.

Time in lairage

It is recommended that slaughter take place between 4 and 24 hours after the start of lairage. Sucker lambs have been shown to suffer pH problems from tailgate slaughtering (straight from truck to slaughter floor), so it is recommended that these lambs have a short resting period pre-slaughter. Tailgate slaughter for carryover lambs and older sheep is not detrimental.

Lairage should be limited to 24 hours to minimise carcass weight loss and meat pH problems. A decline in carcass weight, as shown in Figure 1, can result in lower carcass value.

For more information

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