

TIPS & TOOLS

SOUTHERN CATTLE

Dark cutting

Improving MSA compliance from the pasture up

Peak times for non-compliance to Meat Standards Australia (MSA) requirements for pH levels of beef, which must be <math><5.71</math>, can vary between regions depending on seasonal conditions. The most challenging periods for high pH levels are when pasture availability and quality are at their lowest. These are:

- in **temperate pastures** – late summer to early winter
- in **tropical pastures** – late autumn to spring
- in **drought** – any season.

Understanding the causes of dark cutting, how to manage and supplement stock and prepare pastures to guard against it, will ensure that money is not being lost from non-compliant carcasses.

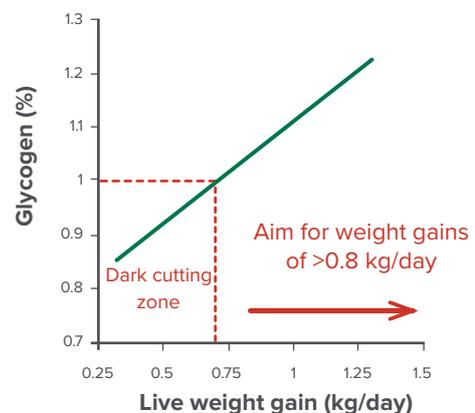
What causes dark cutting?

Every animal has a certain amount of energy contained in its muscles in the form of glycogen. Post-slaughter, this muscle glycogen converts to lactic acid, which causes the meat's pH to fall. Insufficient muscle glycogen hinders the production of lactic acid, which results in high pH and the classification as a 'dark cutter'. Therefore, producers must ensure that muscle glycogen levels are optimised before slaughter to avoid non-compliance.

Tips for optimising muscle glycogen

- Provide cattle with a rising plane of nutrition, particularly in the 30 days prior to slaughter.
- Ensure there is enough Food on Offer (FOO) – ≥ 1500 kg/ha.
- Maintain animals in their social groups in the 14 days prior to slaughter.
- Ensure livestock always have access to water prior to consignment.
- Identify if low magnesium (subclinical grass tetany) and mycotoxin levels in temperate pastures exist.
- Reduce stress during handling and transportation to abattoirs.

Muscle glycogen storage vs weight gain



Acceptable supplements to improve feed gaps

There are several forage products and supplements producers can feed during periods of low pasture quality and availability to manage against dark cutting. All supplements listed are compliant with the Pasturefed Cattle Assurance Scheme (PCAS).

Forage products:

- lucerne cubes and pellets
- forages, forage cubes and grass cubes or pellets
- hay or silage from any forage without grain
- leucaena.

Supplements:

- canola seed, canola meal and canola meal pellets or cubes
- coconut meal, copra meal and coconut meal pellets or cubes
- whole cottonseed, cottonseed meal and cottonseed pellets or cubes
- flax seed, flax seed meal and flax seed pellets or cubes
- linseed meal and linseed meal pellets or cubes
- oat hulls and oat hull pellets
- peanut meal and peanut meal pellets or cubes
- rice hulls and rice hull pellets
- soybean meal and soybean meal pellets or cubes
- Sunflower seed, sunflower meal and sunflower meal pellets or cubes
- urea
- molasses.

Magnesium matters

Research has shown that pasture with a magnesium concentration **greater than 0.24%** can decrease the risk of dark cutting. Magnesium absorption is hindered by high potassium and nitrogen levels in improved temperate grass pastures that are green and lush. The acceptable range of magnesium levels will vary according to soil type, profile and pasture composition. Properties where grass tetany occurs in breeder cows (especially >5 years of age) are most at risk.

Urine Mg concentrations, in association with serum magnesium, are the best indicators of health – adequate levels are: urine >3.00 Mg/mosmol and serum >0.8 mosmol/L.



Boost low magnesium levels by:

- applying magnesium-based fertiliser to improve magnesium in soils and pastures
- supplementing stock with magnesium-based lick feeds or by applying Causmag® to hay, pellets or liquids
 - Causmag® is bitter to taste, so introduce slowly
 - magnesium is not stored in the body, so ensure daily supply
- using intraruminal magnesium bullets.

Managing mycotoxins

Mycotoxins are naturally occurring toxins produced by endophytes in pasture. Common in perennial rye grasses, mycotoxins can improve plant drought tolerance and disease and pest resistance, but can adversely affect cattle. Effects include reduced feed intake and growth rates, increased risk of heat stress, anxiety and dark cutting.

The mycotoxin content of pastures is unpredictable, costly to measure, and difficult to evaluate in commercial production system environments. Prior knowledge of which paddocks potentially cause ryegrass staggers is essential to ensure these pastures are avoided for finishing slaughter stock.

More information

For more information on managing magnesium and mycotoxins to reduce dark cutting, visit mla.com.au/research-and-development/reports/2020/supplementation-to-reduce-the-impact-of-mycotoxins-and-insufficient-magnesium/

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