Heat Stress in Beef Cattle

Heat stress during summer can have significant negative impacts on herd health and farm profitability. Special care needs to be taken to manage heat stress in feedlot cattle compared to pastured cattle. One of the main reasons for this, is the fact that these cattle are on predominately high energy grain diets which produces additional heat through the fermentation process in the rumen.

Temperature Humidity Index (THI) vs Accumulated Heat Load Unit (AHLU)

Air temperature and relative humidity together affects the severity of heat stress within cattle. THI was a index developed by combining both these measurements. It does not incorporate impacts such as solar radiation and wind speed. Therefore, AHLU is considered a better indicator compared as it gives a more wholesome picture showing heat gain and rate of heat dissipation at any time during the day. This would also give us a better idea of heat stress implications. Factors such as health status of animal, breed, coat colour, access to shade, acclimatization and time spent on feed affect how much heat load is accumulated.

Note: Don't forget to browse and sign up to Katestone. https://chlt.com.au/

Katestone is a new weather forecasting service is available that forecasts HLI and AHLU values for a range of locations in the major lot feeding regions of Australia

Behavioural signs of heat stressed cattle include:

- Actively looking for shade
- Panting
- Depressed feed intake
- Increased water intake
- Salivating
- Higher breathing rates

Implications of heat stress?

- Reduced dry matter intake
- Immune suppression
- Fertility issues
- Poor production
- Metabolic issues as a result of the above
- Increased mortality rates

Managing heat stress?

1. Shade

• Blocks solar ration and is considered the most effective way to reduce heat load. Where possible ensure there is enough shade with trees in the lot feeding area.

• Artificial shade cloths would also work provided it has a minimum solar rating of 80% and a 10 year warranty against UV degradation. Best colours to use are green or black.

• Air movement is an important factor to minimise heat stress in cattle. Therefore, design of shade structures should ensure that ventilation is not restricted. Avoid crowding under shade as this will not help with minimising heat .

2. Water

• The normal intake of water doubles during warmer weather episodes.

• Cattle will drink about 250l/day during this period. Therefore it is important to ensure flow rates to troughs are fast enough(25l/100kg body weight) that the trough never runs dry.

• Ideally troughs should be shallow and linear (with spacing of 77 mm/head). This will prevent any crowding and restricts access to less dominant cattle.

• Additional portable water troughs could be used in high risk pens.

• Be mindful of the quality and temperature of water (stock troughs made from concrete will aid in maintaining a constant temperature).

3. Management Factors

• Stockmanship: low-stress stock handling techniques reduces physical heat

• Time of feeding - If possible delay feeding 70% of the daily ration in cooler parts of the day.

• Removal wet manure before build up to reduce the humidity in pens.

4. Cooling

Use of sprinklers

• Have sprinklers positioned to over a portion of the feed yard away from water troughs or where feed is.

• The effectiveness of sprinkling is dependant on the size of the droplets (bigger over smaller droplet size) and removal of water vapour through air movement. Cattle need to be saturated for the sprinkler to do anything otherwise it will make for more humidity and make them hotter.

5. Nutrition

i. Provide quality forage to maximise dry matter intake.

• This will in turn encourage cud chewing —> rumen stability—>maintain ruminal contractions and total volatile fatty acids.

ii. Use buffers to maintain rumen stability and manage Sub acute Ruminal Acidosis (SARA)

iii. Consider including a slower fermenting grain such as maize.

• It favours propionate over lactic acid which will help maintain DMI as it reduce the heat load in cattle.

iv. Effective feed additives such as yeast and betaine

Contact us to discuss effective nutritive feed additives that could help manage heat during summer.

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