

EH GRAHAM CENTRE
 An alliance between Charles Sturt University and Industry & Investment NSW
 for Agricultural Innovation

CHARLES STURT UNIVERSITY
 NSW Industry & Investment

2010 Annual Beef Field Day

Nutrition Minerals and Trace Elements

Ivan Caple
University of Melbourne

FIGURE 17: Southern slopes region, NSW
..... produces 4% of Australia's beef cattle and 1% of its sheep.

http://www.futurefarmcra.com.au/documents/SaltlandProspects_C.pdf

MLA More Beef from Pastures – Module 7:

mla

Herd health and welfare

Key actions

- ✓ Know the common cattle diseases in your locality and whether they are likely to affect production.
- ✓ Map any historic areas or sites of old yards and stock routes for potential disease.
- ✓ Implement a disease management plan using veterinary advice.
- ✓ Vaccinate against specific diseases that can infect cattle and people.
- ✓ Seek veterinary advice for any unexplained health problem.
- ✓ Quarantine all introduced stock to prevent the transfer of infectious diseases.

Cattle Welfare

- **Law** – Prevention of Cruelty to Animals Act
- **Model Code of Practice for the Welfare of Cattle**

Model Code is being revised into:

- **Standards** –will be regulated
- and
- **Guidelines** – principles will not be regulated

- **Detailed advice** – will be provided by Government and industry extension material.

Australian Animal Welfare Standards and Guidelines for Cattle

Chapter 2 Feed and Water

Standards

S2.1 A person **must** give cattle access to adequate and appropriate feed and water

Draft

Australian Animal Welfare Standards and Guidelines for Cattle

Chapter 2 Feed and Water

Guidelines (19 in the current draft)

Feed

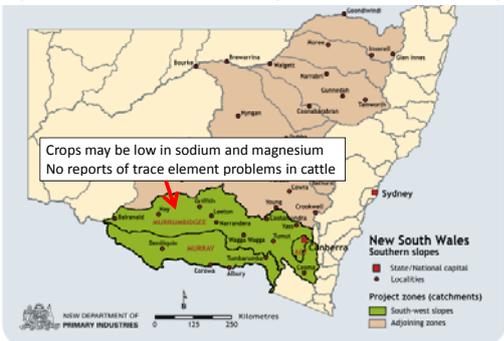
G2.1 Feed supply for cattle **should** be based on:

- body weight, and/or fat/body condition score
- Extra demands associated with growth, pregnancy, lactation and exercise
- Prevailing/predicted weather conditions

Draft

FIGURE 17: Southern slopes region, NSW

..... produces 4% of Australia's beef cattle and 1% of its sheep.



http://www.futurefarmrc.com.au/documents/SaltlandProspects_C.pdf

<http://www.animalhealthaustralia.com.au>



ANIMAL HEALTH

SURVEILLANCE

QUARTERLY REPORT

1 July to 30 September 2008

NSW

Grass tetany

- In the south of the state, deaths from grass tetany (hypomagnesemia) over autumn and winter have generally been sporadic, but occasionally very serious.
- In one case investigated by a district veterinarian, 12 of 200 Angus cows died.
- A number of other properties recorded losses of three or four animals overnight.
- The affected stock were usually found dead, with evidence of paddling.

ANIMAL HEALTH

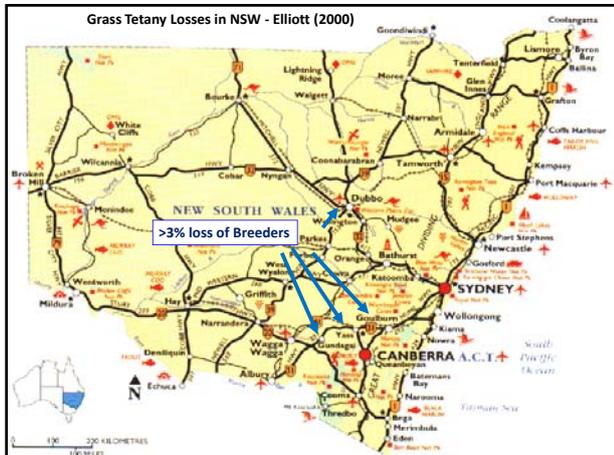
SURVEILLANCE

QUARTERLY REPORT

1 July to 30 September 2008

- Grass tetany occurs when the level of magnesium around the brain and spinal cord decreases below a critical level, causing central nervous signs.
- It may arise from a simple deficiency of magnesium, or from high levels of potassium in the rumen that may interfere with the absorption of magnesium
- This can occur on crop or short green pasture during the autumn and winter.

Grass Tetany Losses in NSW - Elliott (2000)



Grass tetany in cattle

Mac Elliott
Livestock Officer,
Extensive Industries Development, Taree

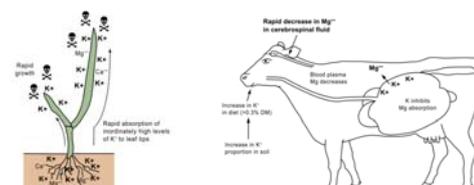


Figure 1. The rapid, fast growth of green grasses or cereal crops after germinating open that contain high levels of potassium.

Figure 2. Cow with a temporary magnesium deficiency as a result of a high intake of K in her diet.

The first warning of grass tetany is generally a dead cow



A triggering event is often required to cause deaths from grass tetany

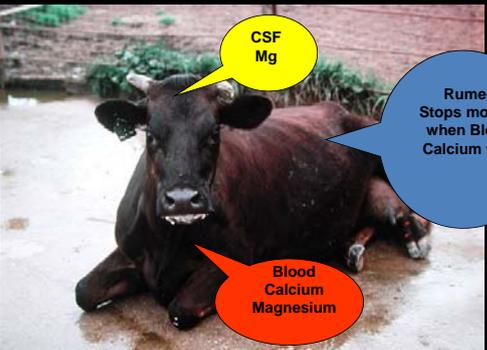
- Short-term starvation
- Fresh paddock toppedressed with potash
- Inclement weather

Has this cow died from Grass Tetany?



CSF Mg
Less than
0.6 mmol Mg/l

Eye
Vitreous Humour
Less than 0.5 mmol Mg/l

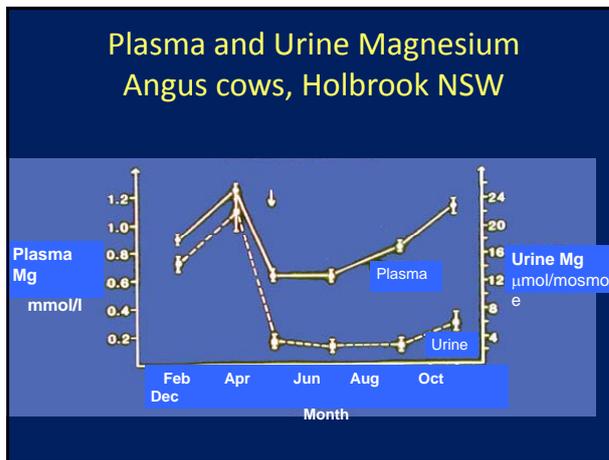


CSF Mg

Rumen Stops moving when Blood Calcium falls

Blood Calcium Magnesium

Grass Tetany is a complex disorder



PRIMEFACT 785, GRASS TETANY IN CATTLE – PREDICTING ITS LIKELIHOOD

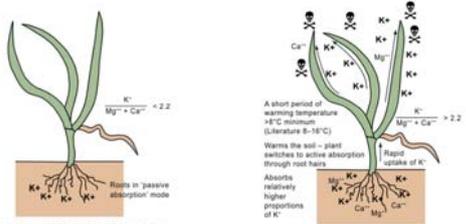
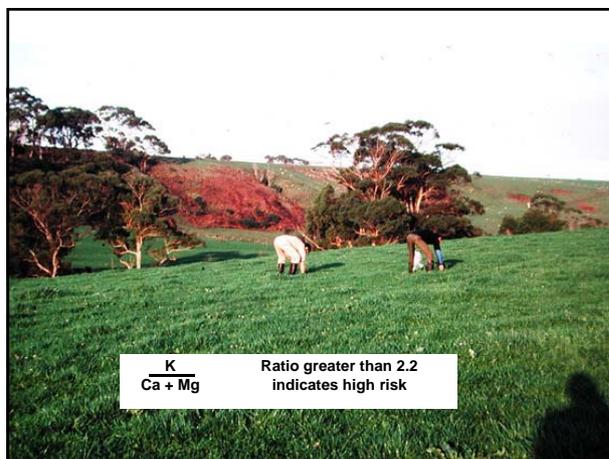


Figure 4: A grass in 'passive absorption' mode as a result of several days of cold weather. At the same time K⁺ is accumulating around its roots.

Figure 5: A plant with high potassium (K⁺) in the leaves and a K⁺ to Ca²⁺ and Mg²⁺ ratio greater than 2.2, which if eaten can cause grass tetany.

A short period of warming temperature >15°C minimum (Literature 8-15°C) warms the soil - plant switches to active absorption through root hairs. Absorbs relatively higher proportions of K⁺. Rapid uptake of K⁺.



http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0006/226743/Grass-tetany-in-cattle-predicting-its-likelihood.pdf



Feed Hay to Avoid Losses from Grass Tet

Liveweight loss in Autumn-calving Hereford cows

Age of Cows (years)	Liveweight loss (kg)	
	February to May (85 days)	May to July (93 days)
9	38	82
7	25	76
5	41	65
3	23	58

* 25 cows in each age group, all groups grazed together

Feed hay to reduce risk of losses from Grass Tetany

- Prevent excessive liveweight loss
 - 4 kg hay/day to prevent 1kg liveweight/day loss
- Maintain blood calcium levels.
 - increases saliva.
 - Maintains acid-base balance
 - Increases absorption of minerals

Take home message

- Seek expert advice if you suspect minerals and trace elements may be limiting the health and production of your beef cattle

Best Practice Indicators

- There is a copy of the MLA *"More Beef from Pastures Manual"* on the farm
- There is a map of the farm showing where soil has been tested and records of pasture fertiliser applied.
- There is a record of mineral composition of bore water supplies

Best Practice Indicators

- Old dip sites and sources of lead have been excluded from where cattle may graze
- Beef cattle performance on the farm is benchmarked with other farms in the district