TOP COUNTRY

MITIGATING THE EFFECTS OF
GRASS TETANY

Presented by: **Tamara Freitas-Kirk**

Date: May 25, 2022

Contents

TOP COUNTRY

Part 1:

Understanding

TOP COUNTRY

Etiology

TOP COUNTRY

Hypomagnesaemia, otherwise known as:

Grass tetany **Winter tetany** **Grass staggers** **Lactation tetany** **Wheat pasture poisoning**

Impacts lactating cows grazing young and lush pastures in Southern Australia in late Autumn, Winter and Spring when the conditions are cold, rainy & cloudy.

Hypomagnesaemia is caused by a deficiency of Mg in the blood.

Imbalance between Mg inputs. Dictated by dietary Mg intake, bioavailability and absorption, and outputs, mostly as a result of the large losses that occur.

Cows often do not develop signs of hypomagnesemia until blood calcium concentrations get low

Mineral Functions & Requirements

- Approximately 70% of the Mg in the body is located in bones, 30% is found in muscle and other soft tissues & 1% Mg is found in extracellular fluids.
- Ruminants generally do not store Mg, so it must be provided in the diet on a daily basis (from feeds or supplemental sources).
- It is necessary for normal bone formation
- Co-factor for many enzymes
- Contraction of muscles
- Rumen bugs require Mg to digest feed

Mineral Functions & Requirements

TOP COUNTRY

Dietary requirements vary:

- Age
- Physiological state
- Bioavailability from the diet

As a percentage of dry matter, recommended as follows:

- Growing and finishing cattle: 0.10 percent
- Gestating cows: 0.12 percent
- Lactating cows: 0.20 percent

Endogenous loss (Inevitable loss)	3 mg Mg/kg Live weight	Mature pregnant beef cows fed a dry semi purified diet required 8.5, 7.0 and 9.0 g Mg/d to maintain the blood serum Mg level at 20 mg/L at 155, 200 and 255 d gestation, respectively
	0.45 g Mg/kg gain	
	0.12 g Mg/kg milk	
Pregnancy Daily increment		
-early in concepts	0.12 g Mg/d	these cows then required 21, 22 and 18 g Mg/d during early, mid and late lactation to maintain the blood-serum Mg level at 20 mg/L, respectively
-mid	0.21 g Mg/d	
-late	0.33 g Mg/d	

Table 1: The amounts of Mg associated with the urinary and fecal endogenous loss, growth, pregnancy and lactation in cattle.

Mineral Functions & Requirements

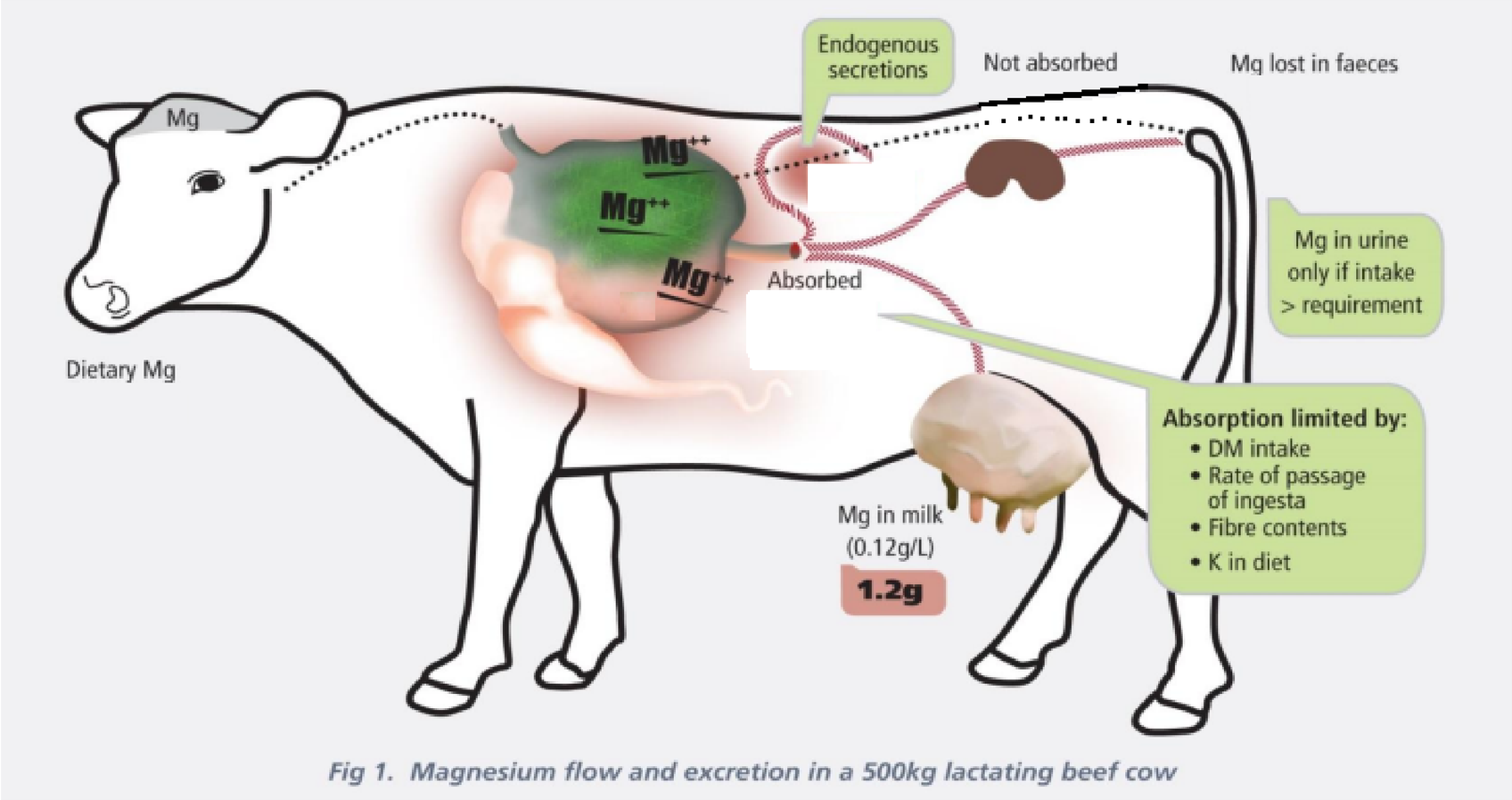


Fig 1. Magnesium flow and excretion in a 500kg lactating beef cow

Causes & Factors involved

Short, rapidly growing pasture & Lush winter cereals crops are:

- Low in Magnesium
- High in Potassium
- High in Nitrogen --> High Ammonia in the rumen
- High moisture and low fibre

Causes & Factors involved

- Soil properties can contribute
- Reduction in feed intake
- Environment
- Lactation
- Older cows (third or more pregnancy)
- Can also occur in young calves
- Angus and Angus crosses are more susceptible than other Breeds - Greene et al. (1989)

Mineral Functions & Requirements

TOP COUNTRY

Factorially derived estimates of the magnesium requirements grazing dairy cows in New Zealand

			Diet Req		
	BW (kg)	Milk (kg/d)	High K	Low K	DMI (kg)/d
			g/d		
Lactation	600 (1350 lbs)	10 (22.5 lbs)	22.5 (0.24%)	16.9 (0.18%)	9.4 (21.2 lbs)
		20 (45.0 lbs)	29.4 (0.21%)	23.8 (0.17%)	14.0 (31.5 lbs)
		30 (67.0 lbs)	37.6 (0.20%)	30.1 (0.16%)	18.8 (42.4 lbs)

Suttle, N.F. 2010. Mineral Nutrition of Livestock, 4th Ed. CAB International, Oxfordshire, UK

TOP COUNTRY

Top Country is a family-owned stock feed and supplement manufacturing company that has been actively supporting Australian graziers to improve livestock performance for over 20 years.

We are proud to promote our innovative and passionate approach to improving livestock efficiency in all production systems.

Top Country supply:

- Dry Loose Lick Supplements
- Complete Grain Rations
- Paddock Production Rations
- External Parasite Control Program
- Bulk Delivery
- Covered feeders—for cattle, horses, sheep & goats

The leading edge in livestock feed.

Livestock Nutritionists

TOP COUNTRY

TAMARA FREITAS-KIRK

Livestock Nutritionist

Tamara has been working with Top Country since 2018. She comes from Brazil and has a Bachelor in Animal Science, currently doing her Master in Ruminant Nutrition.

SARA DARROW

Livestock Nutritionist

Sara has been working with Top Country since 2020. She comes from Mundubbera and her family runs a cattle operation & citrus farm. She has a Bachelor of Applied Science majoring in Animal Production and a Bachelor of Agribusiness.

PHILIPPA MCKEE

Livestock Nutritionist

Pip has been working with Top Country since 2020. Her family runs a small stud and commercial Shorthorn herd. She has completed a Bachelor of Animal Science and will be commencing her Masters in Agricultural Business Management in June this year.

KELSEY SMITH

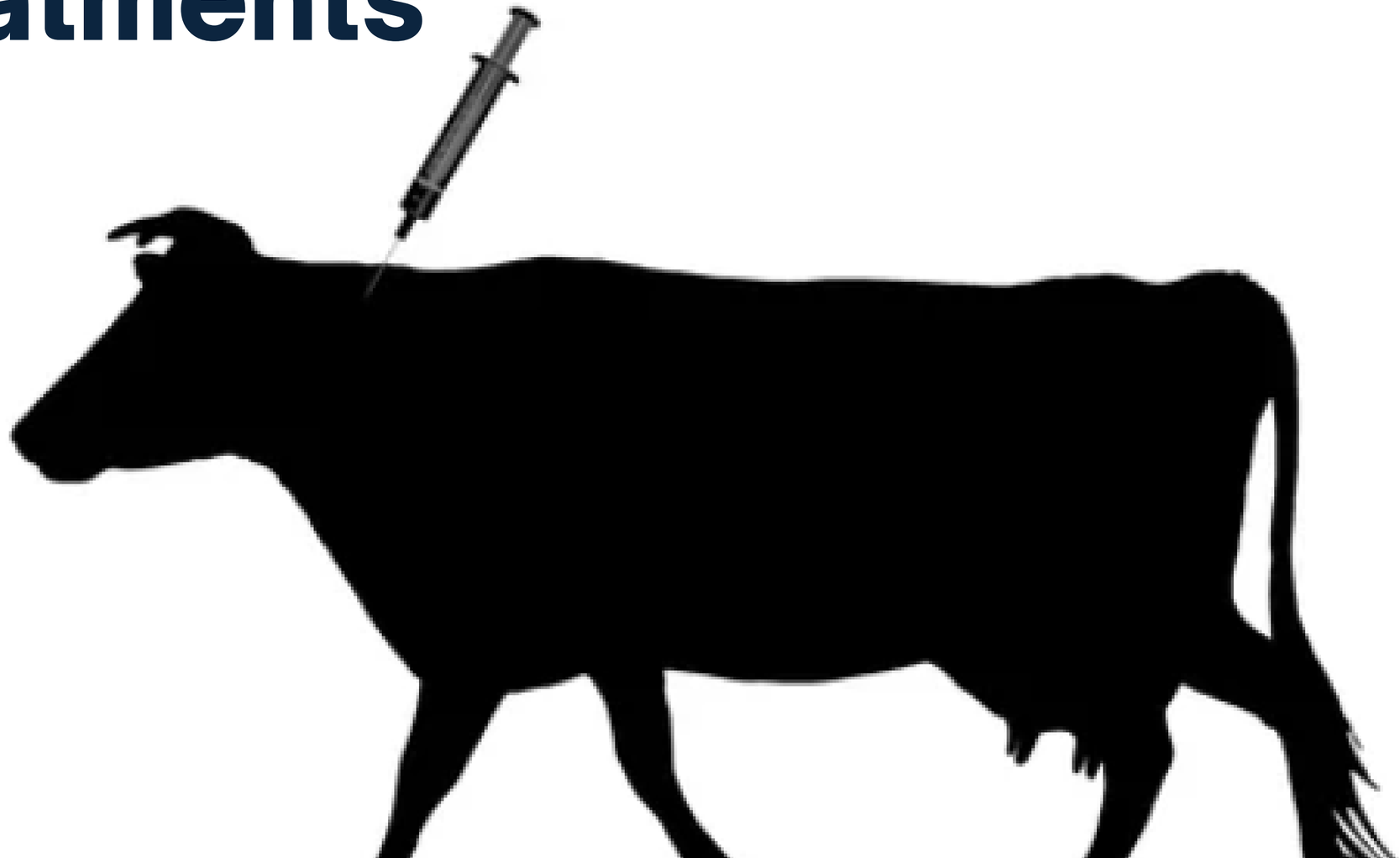
Livestock Nutritionist

Kelsey has been working with Top Country since 2021. She comes from Wagga Wagga, where her family runs a large cattle & sheep operation. She has a Bachelor of Agriculture, currently completing a Graduate Certificate in Animal Science & Graduate Certificate in Agribusiness.

Part 2:

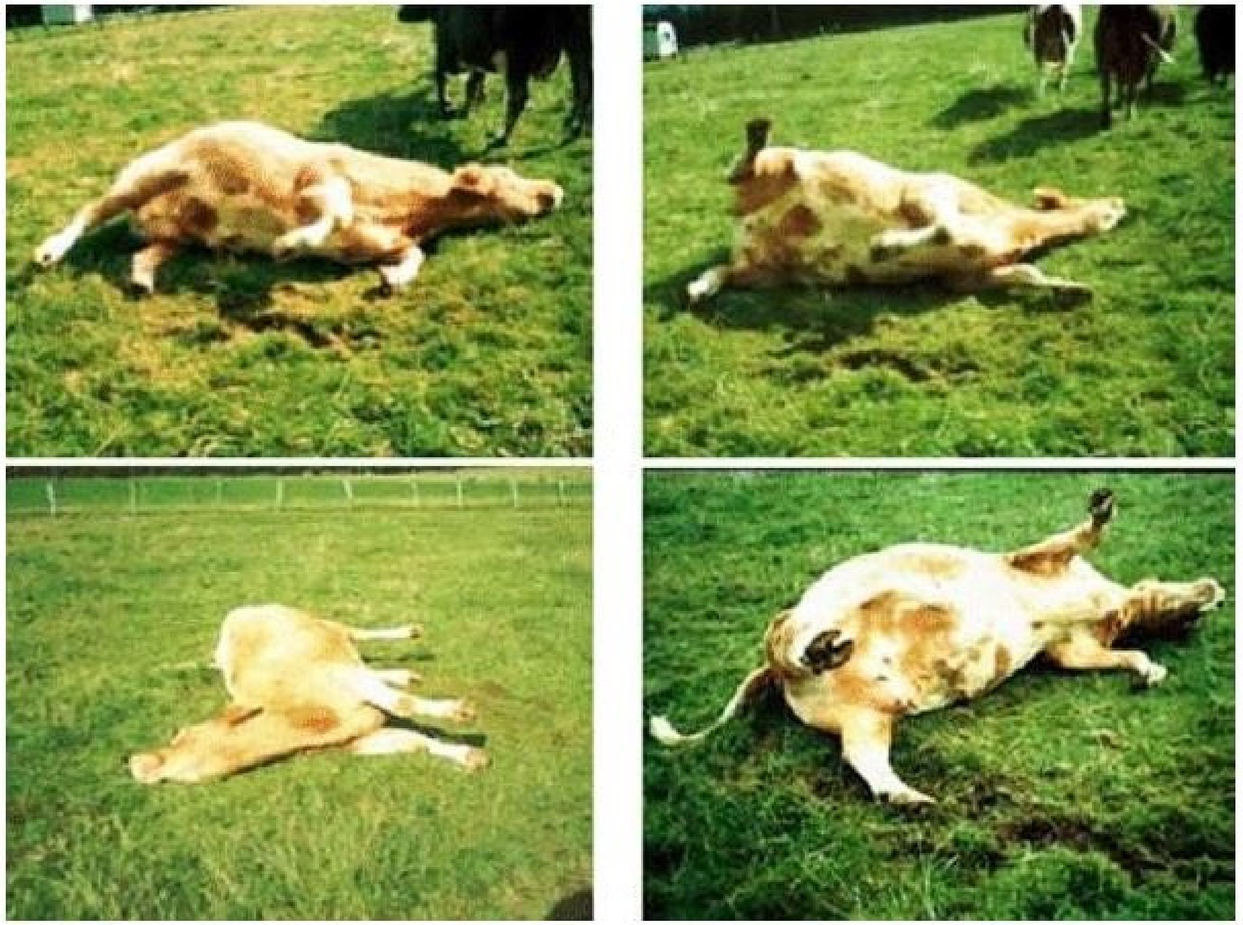
Symptoms and Treatments

TOP COUNTRY



SYMPTOMS

TOP COUNTRY



- Standing away from the herd
- Muscle twitching around the face and ears
- Aggressive behaviour
- Teeth grinding
- Loud heart beat
- Frothing at mouth
- Galloping
- Bellowing
- Stiff legs
- Staggering
- Collapsing

Cow is most often found dead with disturbed soil around its feet indicating paddling/seizure activity before death.

Treatment

Treatment options are available, but the effectiveness varies.

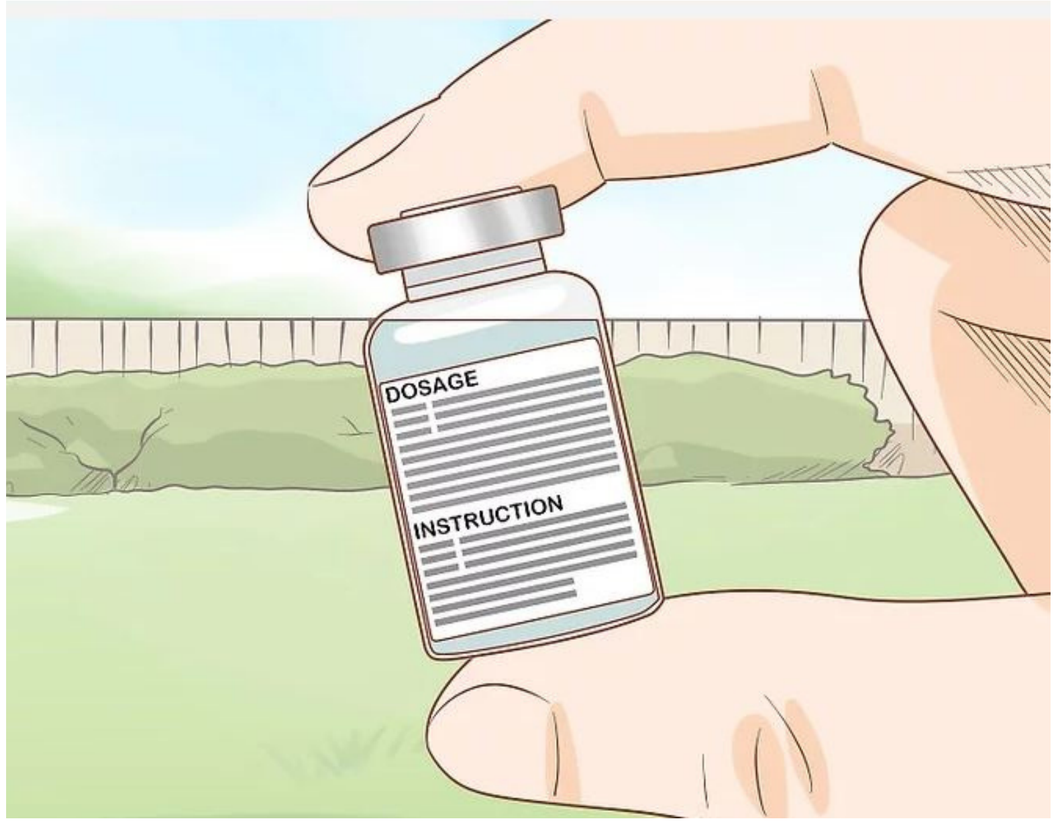
- If treatment is started one or two hours after symptoms develop, the results are usually a quick recovery.
- The treatment is not effective if delayed until the coma stage.
- Clinical improvement should occur in three to five hours of treatment.

Intravenous administration of Magnesium/ Calcium solution delivered slowly

Treated animals should be given adequate shelter and identified so that a response to treatment can be judged. In some cases, repeat treatment may be needed.

TOP COUNTRY

It is often unrewarding



Mitigation of Risk

TOP COUNTRY

- Adjust the time of calving to avoid periods of high grass tetany risk
- Avoid calving older cows in winter and manage older fat cows separately as a high risk group
- Supplementing livestock with high Magnesium mineral dry lick - Top Magnesium

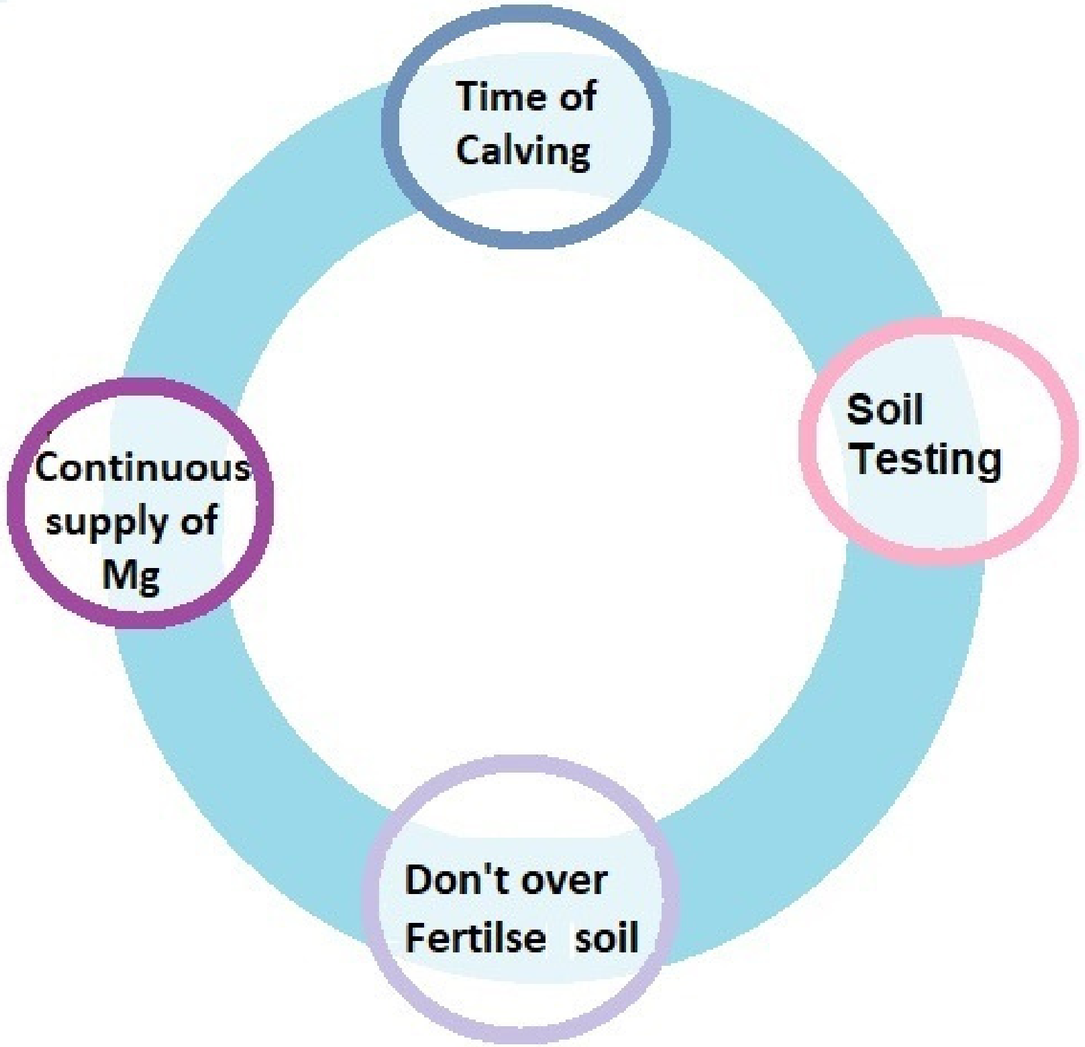
---

- Identify high risk paddocks (e.g. high K-grass dominant, heavy use of fertiliser) and graze with low risk stock
- Allocate 30% of pastures with legumes
- Delay turnout until the forage has slightly matured and is at least 6 inches tall

---

- Provide hay, straw or silage - plenty of roughage to reduce rumen flow rates increasing absorption of Mg
- Manage trigger factors by providing shelter, and avoiding transport or mustering during high-risk times.

Prevention is key to minimizing the risks



- Prevention is the best way to mitigate your losses from grass tetany.
- There are very little readily available stores of Mg in the body.
- Magnesium is a high turnover mineral.
- Prevention means continuous supply of Mg.

Part 3:

Addressing

TOP COUNTRY

Top Magnesium

TOP MAGNESIUM	PROTEIN %	MG %	CA %	P %	ENERGY
Recommended intake: **Cattle:** 300g / head / day	19%	9%	8%	2%	6.86 MJ/KG
Sheep & Goat: 30-50g / head / day					

* This product does not contain Urea & Monensin

Ingredients / Composition:

- **Protein Meal** - High proportion is bypass
- **MonoDiCalcium Phosphate** - Source of Phosphorus
- **Cereal Cracked Grain** - Increase palatability
- **Salt** - Reduce the amount of K and increase Mg uptake
- **Limestone** - Source of Ca
- **Sulphur** - is an essential nutrient required for the normal growth and reproduction of bacteria
- **Magnesium Oxide** - Source of Mg
- **Vegetable Oil** - Dust suppressant
- **Trace Premix** - Essential for animal health

Top Magnesium

TOP COUNTRY

- Prevention is preferable to treatment as grass tetany often occurs without warning.
- Basically, prevention involves supplementing the animals with magnesium during the period of greatest risk.
- Feeding your livestock magnesium supplements, such as Top Magnesium can help address magnesium deficiencies associated with lush grass & winter crops.

Top Feedas

Covered feedas can be:

- **Cost effective**
- **Time saving addition to your business**
- **Keep the integrity & palatability of the supplement**

→ Top Feedas have a 500L tub which will hold 2 weeks worth of supplement for 100 head!

→ This also ensures that cattle have consistent access to supplement when you are unable to make it into the paddock.

SMARTER™ RURAL

SMARTER™
RURAL

Top Tonna

SMARTER™ RURAL

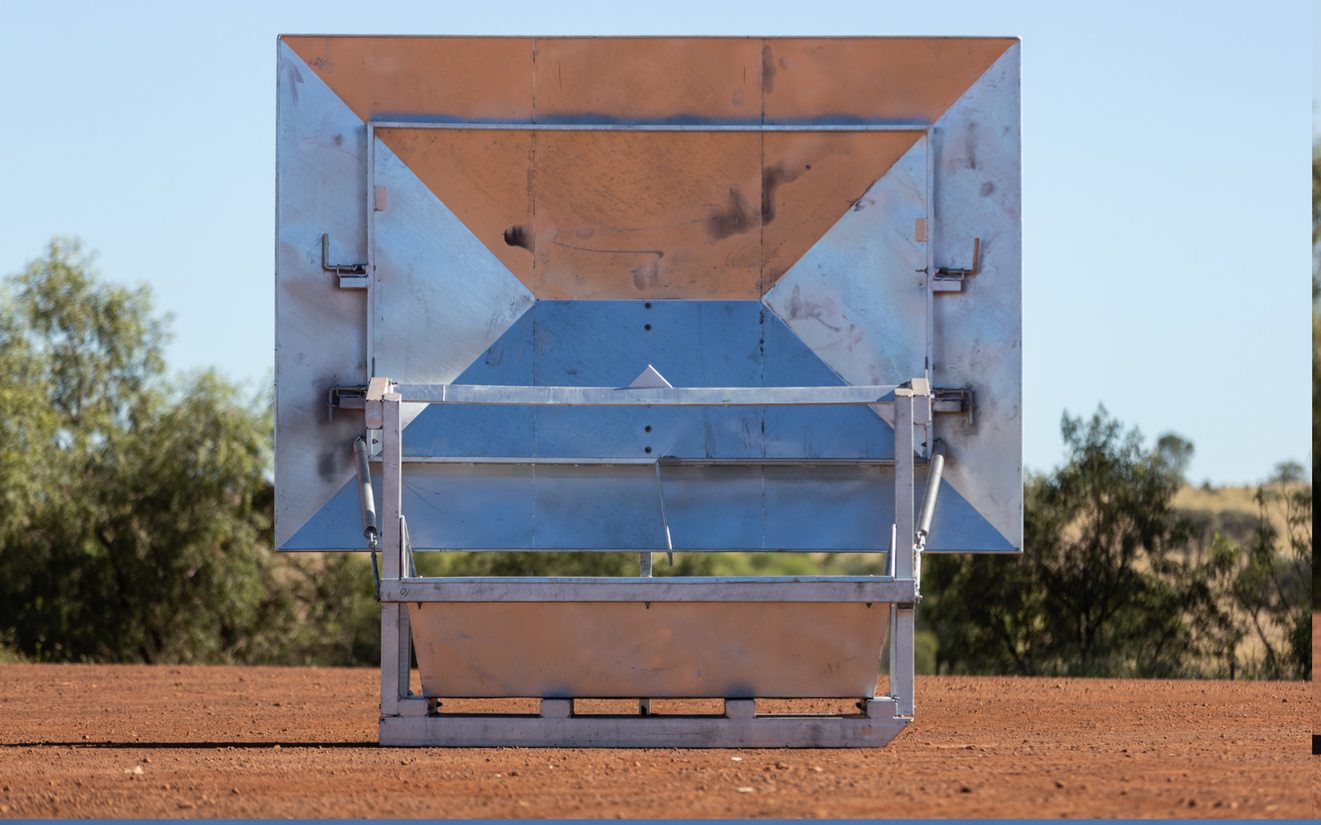
- Capability of holding 1 T of feed in the bin
- Durable - hot dipped galvanised
- Steel covered feeder

One-month supply of supplement for 100 head.

The lid can be tilted for easy access.

Featuring a built-in, easy-pour spike, ideal for 1 tonne bulka bags.

The Top Tonna can easily be moved with a forklift.



SMARTER™
RURAL

Take away messages

TOP COUNTRY

- Soil/ pasture testing
- Effective Magnesium Supplementation program
- Keep a good record for future management

SMARTER™ RURAL

Contact Us

For any questions or
inquiries on our range of products

TOP COUNTRY

SMARTER RURAL

Website

www.topcountry.com.au
www.smarterrural.com.au

Phone Number

07 4622 8330
07 4622 9444

Email Address

admin@topcountry.com.au
admin@smarterrural.com.au

References

- https://www.mainstvetclinic.com.au/farm-animals/grass-tetany
- https://nre.tas.gov.au/biosecurity-tasmania/animal-biosecurity/animal-health/sheep/grass-tetany-grass-staggers
- http://www.flockandherd.net.au/cattle/reader/grass-tetany-review.html
- Sutherland KJ. A comparative study of diagnostic tests for the assessment of herd magnesium status in cattle. New Zealand Veterinary Journal. 1986, 34:133-135
- Elliott MG. Grass Tetany of Cattle in New South Wales
- https://www.fcav.unesp.br/Home/departamentos/clinicacv/AULUSCAVALIERICARCIOFI/magnesio-reduzido-aula-2015.pdf
- Hypomagnesemia Tetany in Cattle - Alsaftli Zelal* - Hama University, Agricultural Faculty, Animal Production Department, Hama, Syria
- Importance of appropriate amounts of magnesium in rations for dairy cowsJosé H. Urdaz, DVM; José E. P. Santos, DVM, PhD; Phillip Jardon, DVM, MPVM; Michael W. Overton, DVM, MPVM


Thank You