



Unit : Hypomagnesaemic Tetany in Cattle

Lesson : 1

Introduction, etiology, Risk factors

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Hypomagnesaemic Tetany in Cattle





Occurrence

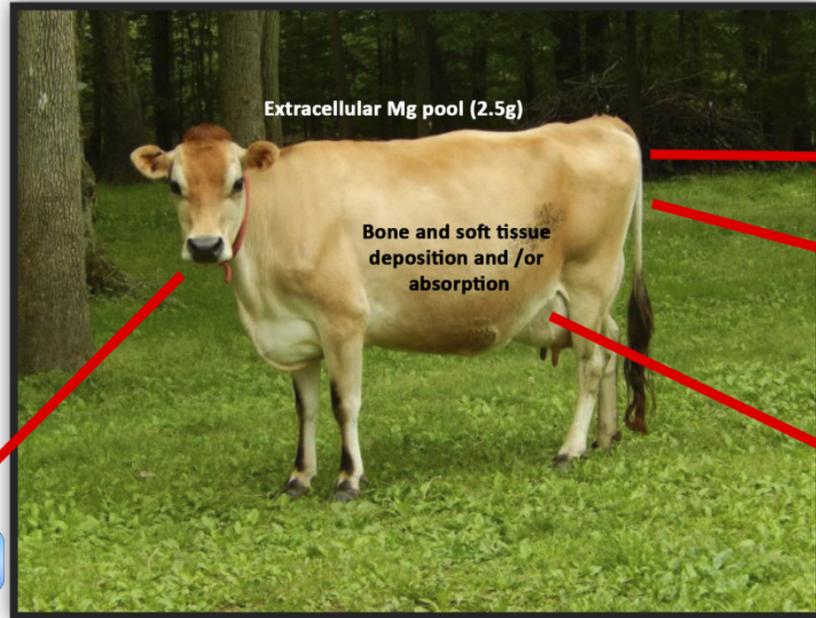
- Occurs most often in dairy cows in early lactation
- Affected cattle are often found to have concurrent low blood calcium.
- Grazing of green grass, small grains and cool season perennial grasses in late winter and early spring (February through April).





Role of Magnesium

- **Magnesium is the major intracellular divalent cation, and is an essential element in a large number of enzymic activities in the body.**
- **Magnesium (Mg) is an important macromineral that has many functions within the body including nerve and muscle function, immune system function and bone health.**



Extracellular Mg pool (2.5g)

Bone and soft tissue
deposition and /or
absorption

Endogenous loss in
faeces (2.8g/day)

Urine loss (0-4g/day)

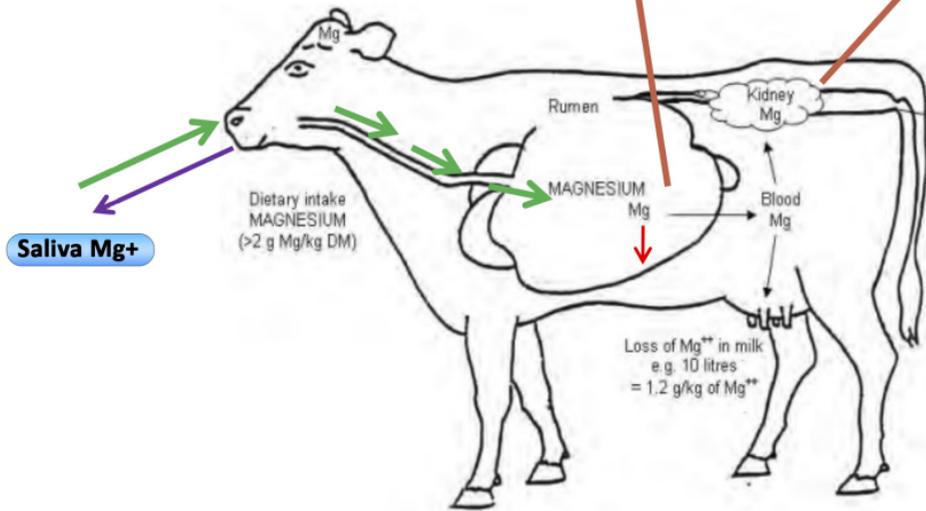
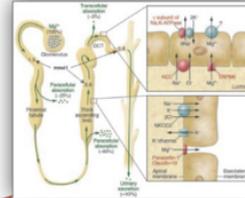
Dietary absorption
via intestine (20%)

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via intestine (20%)



Homeostasis of Magnesium in Ruminants

Active Na⁺ linked ATPase transport (Na:K =5:1)



- Dietary intake
- Renal excretion
- Lactation
- Factors influencing absorption of magnesium
- Na:K ratio in rumen
- Other factors influencing absorption
- Magnesium in pastures and tetany hazard



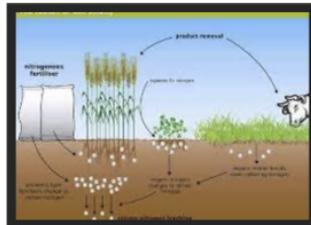
Risk Factors



Lush pasture



Fertilization



Leaching and Acidic soil



Winter season



Cereal pasture



Animal and management risk factors

- 1. Dry matter intake**
- 2. Period of food deprivation**
- 3. Transport or movement**
- 4. Stress and Epinephrine release**



Etiology

- **Etiology is multifactorial.**
- **Inclement weather, transport, or when cows graze short-grass dominant pastures containing <0.2% Mg on a dry-matter basis.**
- **Decrease in plasma Mg concentration when absorption of dietary Mg is unable to meet the requirements for maintenance (3 mg/kg body wt).**



Thank you