



Hy-Cal

Nutritional lick powder supplement for cattle

Role of calcium in cattle

Calcium plays a major role in the formation of skeletal structure. In young growing animals, building strong bones and skeleton framework is essential for the animal's life time performance. Calcium plays an important role in breeder animals during the first 6 to 8 weeks of lactation, where most cows are in negative calcium balance i.e. calcium is mobilised from bone to meet the demand for milk production. Calcium requirements of lactating cows are high relative to non-lactating cows because of the high calcium concentration in milk.

Calcium deficiency in cattle

Milk fever (Hypocalcaemia) is caused by low blood calcium levels. As cows calcium requirements increase, large amounts of calcium are mobilised from body reserves such as bone. If mobilisation occurs too slowly, calcium blood levels will drop below optimum and result in milk fever.

Calcium deficiency is likely to affect growing stock because they have a high calcium demand in building their skeleton framework. The high potassium found in cereal crops (and other lush pastures) can inhibit calcium and magnesium uptake, making deficiencies in these minerals even more likely when grazing cereal crops.

Predisposing factors

- Older, high producing cows in good to fat body condition
- Grazing on high oxalate pastures and cereal crops
- Supplementing cereal grain
- Winter months when there is low availability of Vitamin D
- Low levels or poor availability of magnesium which impedes absorption of calcium
- Incorrect calcium to phosphorus ratio in diet

Signs of calcium deficiency

- Hypocalcaemia (downer cows)
 - Mild excitement and staggers
 - Muscle tremors (affecting head and limbs)
 - Lying down, often with head and neck kinked back
 - Depression with cold limbs and staring eyes
- Lazy calvers
- Poor growth rates with high fat yield
- Bone deformities due to calcium deficiency

How does StayDry Hy-Cal work?

StayDry Hy-Cal is a waterproof lick powder nutritional supplement for cattle and sheep. It contains a quality range and balance of minerals and trace elements to supplement ruminants where there is an increased risk of calcium deficiency.

StayDry Hy-Cal is specifically designed to assist with the building of a robust skeletal structure and calcium reservoir. For breeder animals, the aim is to supplement throughout the non-critical production phases such as early to mid-pregnancy, to fill the calcium reservoirs in the bones. Calcium supplementation ceases in the last 3 weeks of gestation, which stimulates parathyroid hormone secretion and skeletal calcium mobilisation before calving. This makes calcium homeostatic mechanisms more responsive at the time of calving, allowing cows to maintain blood calcium concentrations during lactation.

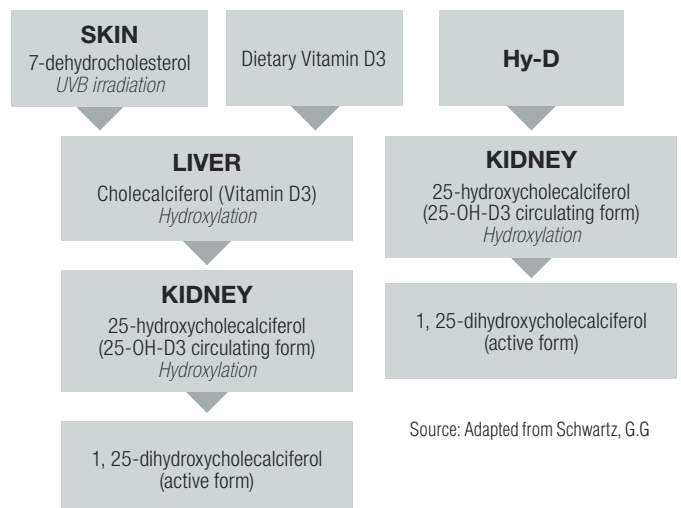
For growing animals, StayDry Hy-Cal is designed to supplement the imbalance of calcium in cereals and dry pastures. It aims to improve growth rates and helps build a robust skeleton framework, which is essential for maximising lifetime performance and health.

Importance of Hy-D

It is well known that in winter there is an absence of Vitamin D. This is further exasperated by crops containing factors such as an excess of beta-Carotene and unbalanced mineral ratios and can lead to the development of rickets. Vitamin D is now also known to play a role in immunity and energy production.

Hy-D (25-hydroxycholecalciferol) is a unique ingredient in StayDry Hy-Cal. Hy-D is more bio available from the diet than Vitamin D3. As a result, animals are able to more efficiently absorb the Hy-D and can then produce more of the active Vitamin D in the body. Improved Vitamin D status means greater bioavailability of the critical minerals, calcium and phosphorus.

Hy-D – a unique mode of action

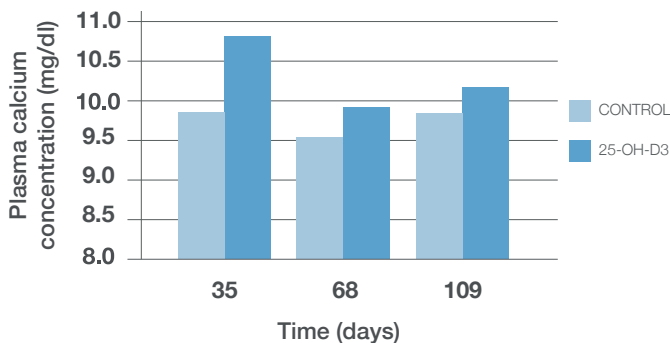


Source: Adapted from Schwartz, G.G

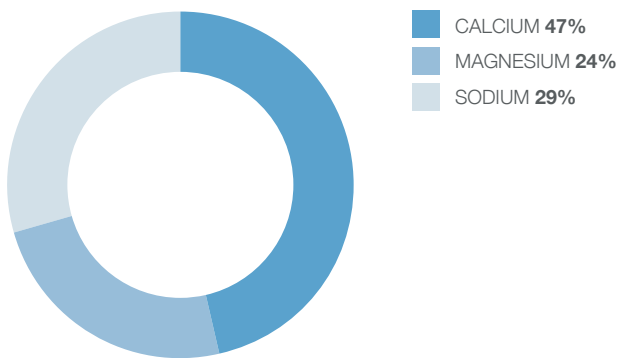
- Hy-D (25-OH-D3) is the circulating available form of Vitamin D3
- 25-OH-D3 is absorbed in a similar way to but more rapidly than Vitamin D3
- By passing the liver, Hy-D ensure optimal plasma levels of 25-OH-D3 and a more efficient production of 1, 25 (OH)2D3 active form of Vitamin D3

The benefit of being more efficiently absorbed than Vitamin D3, means Hy-D can boost the levels of the active Vitamin D metabolites in the plasma of the animals. Higher concentrations of Vitamin D metabolites has been shown in a series of studies at the University of New England to increase the absorption and retention of both calcium and phosphorus (Graph 7) as well reduce the incidence of Hypocalcaemia in livestock.

Graph 7: The effect of Hy-D on heifer plasma calcium concentration (Tomkins et al 2017)



Graph 8: Macro ingredient composition



Key nutrients

Calcium - Key for bone development, muscle contraction and cell metabolism

Cobalt - Essential for Vitamin B12 production and therefore efficient energy utilisation

Copper - Key for energy and red blood cell formation

Hy-D - The most efficient source of 25-hydroxycholecalciferol, which is responsible for absorption, storage and homeostasis of calcium, magnesium and phosphorus in the animal. Essential for bone health and regulation of immune cells

Iodine - Important for fertility, immunity and growth

Magnesium - Helps with calcium and phosphorus utilisation and bone formation. Essential in nerve and muscle function

Manganese - A role in reproductive performance, skeletal development and nerve function

Selenium - Antioxidant for disease and infection fighting. Also synergistic with Vitamin E

Sodium - Aids in the absorption of magnesium and osmotic regulation

Zinc - Important for foot and hoof health and cell development

When to use

Cows

- Cereal crop grazing
- Short green and heavily fertilized pastures
- Pregnant cows until late gestation
- Lactating cows
- Drought feeding programs

Growing stock

- Cereal crop grazing
- Short green and heavily fertilized pastures
- Post weaning
- Dry pasture grazing
- Drought feeding program
- Leaf tissue tests with low Ca:P ratio (<1.4:1)

How to feed

Feeding rate for cattle: 50g/day for a 500kg live weight animal.

More information

- Pack size: 20kg bag
- WHP: Nil
- ESI: Nil
- Antibiotic free
- Hormone free
- Grain free
- Urea free

For more information visit growsolutions.com.au

References:

Tomkins N, McGrath J, Elliot R, Schatz T (2017) Determining the effectiveness of a slow release vitamin D supplementation in beef heifers.



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StayDry

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Nutritional lick powder supplement for sheep

Role of calcium in sheep

Calcium plays a major role in the formation of skeletal structure. In young growing animals, building strong bones and skeleton framework is essential for the animal's life time performance. Calcium plays an important role in breeder animals during the first 6 to 8 weeks of lactation, where most ewes are in negative calcium balance i.e. calcium is mobilised from bone to meet the demand for milk production. Calcium requirements of lactating ewes are high relative to non-lactating ewes because of the high calcium concentration in milk.

Calcium deficiency in sheep

Calcium deficiency in sheep is a well-known disease of both ewes and lambs. Hypocalcaemia in ewes is a particularly complex disease and is dependent on skeletal health, diet, environment, management and the previous history of the ewe. In ewes it is a serious economic disease and can affect the profitability and welfare of a sheep enterprise.

Hypocalcaemia is caused by low blood calcium levels. As the ewe's calcium requirements increase, large amounts of calcium are mobilised from body reserves such as bone. If mobilisation occurs too slowly, calcium blood levels will drop below optimum and result in hypocalcaemia. This can be seen as clinical disease and death commonly known as milk fever. Hypocalcaemia also leads to reduced appetite which can result in pregnancy toxaemia (twin lamb disease).

Calcium deficiency is likely to affect growing stock because they have a high calcium demand in building their skeleton framework. The high potassium found in cereal crops (and other lush pastures) can inhibit calcium and magnesium uptake, making deficiencies in these minerals even more likely when grazing cereal crops.

Predisposing factors

- Older, high producing ewes in good to fat body condition
- Grazing on high oxalate pastures or cereals
- Supplementing cereal grain
- Winter months when there is low availability of Vitamin D
- Low levels or poor availability of magnesium which impedes absorption of calcium
- Incorrect calcium to phosphorus ratio in diet

Signs of calcium deficiency

- Hypocalcaemia
- Stilted, staggy gait
- Muscle tremors (especially shoulders)
- Weak and struggling when approached
- Drowsiness, depression and eventually death
- Poor growth rates with high fat yield
- Bone deformities/fractures

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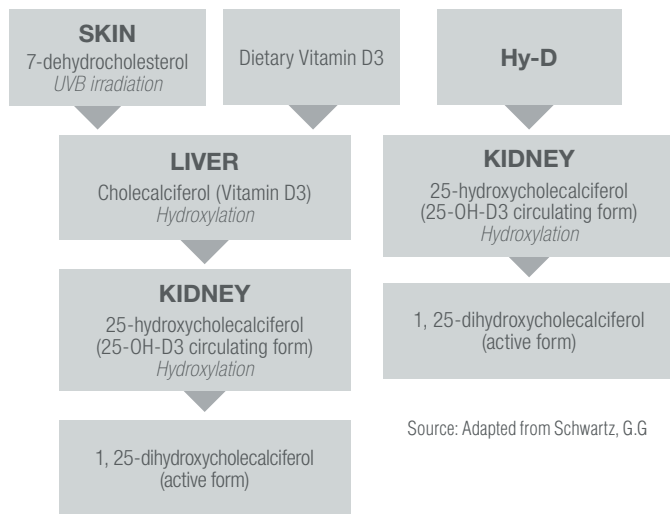
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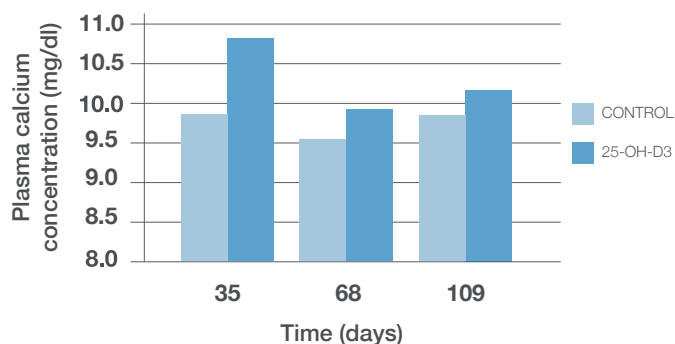
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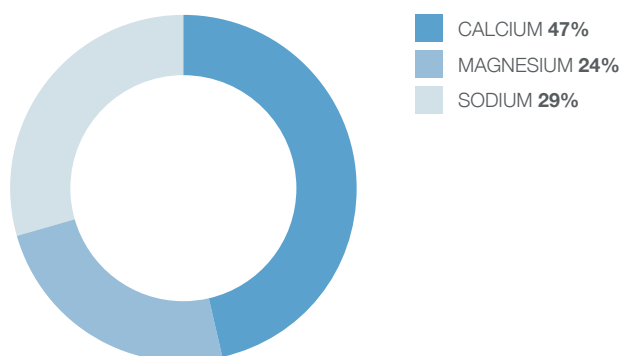
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