

REMARKABLE RESULTS



IMMUNITY



FERTILITY



ENERGY



GROWTH

PROVEN* trace mineral injection for cattle with the added benefit of vitamin B12 in **one convenient injection**

WHAT IS MARKS-MIN?

The proven* trace mineral injection for cattle with the added benefit of vitamin B12 in one convenient injection

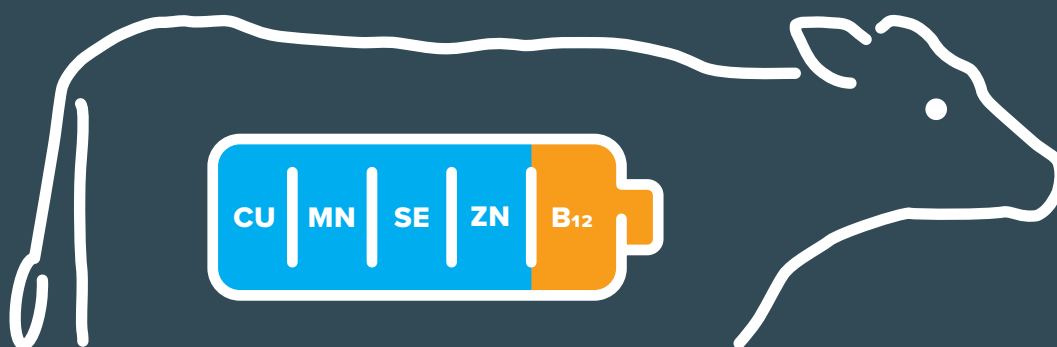
Marks-Min ZMSC with B12 is a trace mineral injection for cattle that contains copper, manganese, zinc and selenium along with vitamin B12, which are required for **optimal health, production and fertility**.

Optimising trace mineral and vitamin B12 levels at critical times, like calving, mating and drying off, can have a positive impact on health, immune status and reproduction of livestock.

Marks-Min ZMSC with B12 provides trace minerals and vitamin B12 in one convenient, rapidly absorbed injection, ensuring essential trace minerals for optimal health are available, together with energy provided by vitamin B12, to help support the best response to trace mineral supplementation.



POWER UP WITH MARKS-MIN ZMSC WITH B12 Trace Mineral with vitamin B12 in a convenient single dose



COPPER

Has a role in:

- ▼ The metabolism of iron
- ▼ Bone development
- ▼ Maintenance of connective tissue
- ▼ Blood formation
- ▼ Disease resistance
- ▼ Reproduction/fertility and retention of placenta

MANGANESE

Has a role in:

- ▼ Protein metabolism
- ▼ Disease resistance
- ▼ Bone, cartilage and connective tissue development
- ▼ Reproduction/fertility, ovulation, sperm development and embryo survival

ZINC

Has a role in:

- ▼ Cell growth and wound healing
- ▼ Skin, hair and hoof growth
- ▼ Lung function
- ▼ Bone and cartilage development
- ▼ Disease resistance
- ▼ Reproduction/fertility, sperm development, udder function and retention of placenta

SELENIUM

Has a role in:

- ▼ Disease resistance
- ▼ Muscle function
- ▼ Reproduction/fertility, sperm development, embryo survival and retention of placenta

VITAMIN B12

Has a role in:

- ▼ B12 is vital for energy production and protein synthesis in ruminant
- ▼ Which is essential to meet the demands of growth and lactation

HOW TO OPTIMISE PRODUCTION BY MANAGING MINERALS

What are trace minerals and why are they important?

Trace minerals are essential to body function, but are only required in very small amounts per day. These minerals may make up only a small portion of an animal's diet, but play an important role in everyday life, especially for the key functions of growth, reproduction and immune defence. Present in the soil to varying degrees, trace minerals are taken up by plants and then absorbed by livestock when consumed.

Copper, selenium, manganese, zinc and cobalt are among the most important trace minerals in livestock.

New Zealand research has shown that pastures throughout the country can be significantly deficient in these minerals.¹ Supplementation of trace minerals to achieve optimum health and performance is an important part of any animal health management plan.

Cobalt, an integral component of vitamin B₁₂, is important for energy production in ruminants. Normally cobalt is taken up through the diet and converted to B₁₂ by rumen micro-organisms. If cobalt levels are low in pasture, B₁₂ levels can fall and this can limit energy available for body processes.

Class of stock and their requirements

Every animal has a requirement for trace minerals and vitamin B₁₂ throughout their life. At key times the demand for these is greater and if levels are not sufficient then production potential may be limited. Production targets to achieve consistent annual calving are already within a tight window, and any limitation to hitting these targets can have long term consequences for production, profitability and sustainability.

Young stock and weaners have a greater requirement for trace minerals due to their rapid growth rates and need to develop strong and robust immune systems.

Animals that are stressed, either due to feed restriction, transport or changed surroundings (i.e. mixing into new social groups), also have increased requirements as they still need to grow and maintain immune function.

Bulls, heifers and cows also have greater requirements for trace minerals and energy heading into the joining season. Trace minerals play an important role in the function of both the male and female reproductive systems. If levels are not sufficient, these complex systems may not function to their full potential.



Trace minerals and vitamin B₁₂ may assist in improving animal immune status, preventing diseases and increasing reproductive rates.

Using an injectable supplement prior to high demand periods can assist in maintaining trace mineral and energy levels to support optimum production.

DOSAGE AND TREATMENT TIMES

Administer by subcutaneous injection (under the skin)

- ▼ Following withdrawal of the first dose, unused product should be discarded after 9 months
- ▼ For all types of cattle

AGE OF CATTLE	INJECTION DOSE RATE
Up to 1 year	1.5 mL per 50 kg
From 1-2 years	1.5 mL per 75 kg
Over 2 years	1.5 mL per 100 kg

Withholding periods

MEAT: Zero (0) days | **MILK:** Zero (0) days

INJECTABLE APPLICATOR

The Marks-Min injectable applicator with forward selectable dose volume has been specifically developed in NZ to be used with all Marks-Min injectable solutions. Applicators are available from your veterinary clinic on purchase of Marks-Min products.

Refer to the 5 mL applicator for calves
Refer to the 12 mL applicator for cattle



TREATMENT PLAN FOR OPTIMUM PRODUCTION

CALVES

- ▼ At day 1
- ▼ At weaning

DAIRY COWS

- ▼ 4 weeks before calving
- ▼ 4 weeks before mating or insemination
- ▼ 4 weeks before drying off

BULLS

- ▼ 3 months before mating
- ▼ At mating

HEIFERS

- ▼ 4 weeks before mating
- ▼ Every 3 months

BEEF COWS

- ▼ 4 weeks before mating
- ▼ 4 weeks before calving

ADDITIONAL

- ▼ Every 2 months in wet conditions

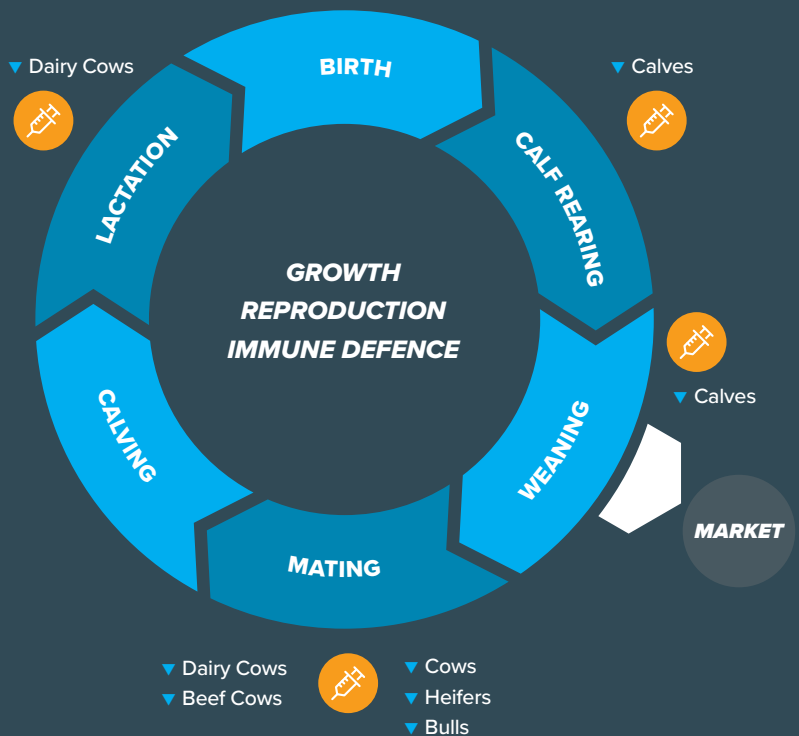


Figure 1: The trace mineral levels of an individual can be a rate limiting factor determining animal performance. Managing trace mineral levels especially during high demand periods is an important part of optimising production potential and managing animal health

OPTIMAL HEALTH AND PERFORMANCE

Trace minerals and vitamin B₁₂

The individual trace mineral status of an animal can be a rate limiting factor determining animal performance. If trace mineral levels are less than optimal, production may suffer with processes such as growth, reproduction and immune defence not functioning to their capacity.

Optimising trace mineral and vitamin B₁₂ levels by using feed or oral supplements may not be successful as there is variation in individual intake, low absorption from the digestive system and competition with other dietary components. This can limit the success of a supplementation program.

Using injectable mineral supplementation can avoid these variables by being rapidly absorbed into the bloodstream and made readily available to support optimal health and production. Minerals not immediately required are stored in the liver and mobilised as required.

Managing trace mineral levels to ensure there is adequate supply, especially during high demand periods, is an important part of maximising production potential and managing animal health.

SUPPORTING OPTIMAL HEALTH AND PERFORMANCE



GROWTH

Marks-Min ZMSC with B₁₂ provides elements (Cu, Mn, Zn, Se) that support growth by aiding bone, joint and muscle development and function and energy metabolism (Vitamin B₁₂)



IMMUNITY

Marks-Min ZMSC with B₁₂ provides elements (Cu, Mn, Zn, Se) that support immune defence by aiding function of the immune system and white blood cells that help resist establishment of infection



FERTILITY

Marks-Min ZMSC with B₁₂ provides elements (Cu, Mn, Zn, Se) that support reproduction by aiding the function of male and female reproductive systems, the process of fertilisation and also the maintenance of pregnancy



ENERGY

Vitamin B₁₂ plays a key role for the production of energy in livestock. Energy is required for all body processes and it is the backbone of all production

Marks-Min[®]

ZMSC with B₁₂

Injectable Trace Minerals with Vitamin B₁₂ for Cattle

**PROUDLY AVAILABLE FROM YOUR LOCAL
PARTICIPATING VETERINARY CLINIC.**

**Boehringer Ingelheim data on file.*

Ref. 1. Knowles and Grace 2014; Knowles, S.O., Grace, N.D. 2014 A recent assessment of the elemental composition of New Zealand pastures in relation to meeting the dietary requirements of grazing livestock. Journal of Animal Science, 92 pp303-310.

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