



General Article

Role of Essential Trace Minerals in Dairy Animal Feeding at a Glance

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Abstract

Trace minerals provide the essential nutrients animals need for metabolic functions such as growth and development, immunity and reproduction. Even moderate deficiencies can adversely impact animal performance.

Key words: *Trace, Minerals, dairy, feed*



Introduction

The present article discusses on the various functions of each trace mineral, as well as signs of a trace mineral deficiency. Therefore, it is of paramount importance that optimum care should be taken for providing essential trace minerals while feeding the dairy animals.

Calcium

It is responsible for the growth of bones. Deficiency causes deformities in the long bones known as **Rickets**. Feeding of calcium is highly essential during the periparturient period. If the pregnant animal does not get requisite amount of calcium then it is supposed to be suffering from **Milk Fever**. For the milch breeds calcium is very needful as it is required for milk production.

Phosphorous

Phosphorous compliments the availability and absorption of calcium. If the animal started consuming unusual things like soil, cloths or urine and feces, it is the indication of acute deficiency of phosphorous in the animal. This disease is known as **PICA**. Phosphorous not only responsible for bones but also essential for brain development and formation of RBC.

Magnesium

Magnesium is responsible for the digestion and absorption of carbohydrates. It also plays an important role in protein metabolism also. Deficiency of calcium results in **Grass Tetany** or **Lactation Tetany**. The affected animal become hyper-sensitive and shows staggering movement. Froths comes out from mouth and nostrils. If untreated the animal succumbs.

Iodine

Iodine is essential for the growth of thyroid gland. Deficiency results in unusual enlargement of thyroid gland. The condition is known as **Goitre**. Deficiency affects the growth and development of animal. Iodine also plays an important role in the reproduction of the animal.

Copper



Copper is required for formation of RBC. Deficiency causes **Anemia**. Copper acts as catalysts in various biochemical reactions taking place in the body.

Zinc

Zinc is essential for activation of Vitamin A. It plays an important role in the maintenance of healthy skin. Deficiency of zinc results in a condition known as **Parakeratosis**. It is also helpful in formation of normal spermatozoa and development of reproductive organs particularly in males.

Cobalt

Cobalt is necessary for the formation of **Hemoglobin**. So when it is inadequately supplemented in diet **Anemia** results. It is also required for development of rumen microbes. It acts as a precursor for vitamin B₁₂. Deficiency of cobalt also leads to **Anorexia**. Coarse and rough hair coat also results due to deficiency of cobalts.

Selenium

Selenium and Vitamin E are inter dependent. Selenium deficiency mostly affects the muscle fibers particularly that of fore and hind limbs. Affected animals show stiff gait. Lesions present in the skeletal muscles. The disease is known as **White Muscle Disease**. Sometimes when the animal suffers from chronic deficiency of selenium cracks develop in the hooves and results in lameness.

Mineral Mixtures

In mineral mixtures, various quantity of trace minerals are given to the animal as they can't get the requisite amount in their normal ration. While ration balancing care should be taken to add different minerals to the feed. Most of the farmers give importance to calcium and phosphorous but seldom give importance to other minerals such as copper, zinc and cobalt, but these are as vital as the other two.

Benefits of feeding mineral mixture



- Increase in milk yield.
- Improvement in the reproductive efficiency.
- Decrease in the calving interval.
- Improvement in the digestion and assimilation process.
- Fastens the growth of calves.
- Animal attains puberty and sexual maturity at an early age.
- Immunity against diseases.
- Overall improvement of herd health.
- Low morbidity and mortality.
- Birth of healthy calves.

Instructions for feeding

For milch animals: 150-250 gm daily

For heifers: 50-100 gm daily

For calves: 25-50 gm daily

Recommendation

While feeding mineral mixtures adding 20-30 gm of common salt is essential. Although mineral mixtures contain balanced amount of minerals but need varies from animal to animal. So while feeding mineral mixture it should be kept in mind that those have deficiency of particular mineral that should be added extra in the ration.



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