Indian Veterinary Magazine
a monthly Magazine
of the people, by the people, for the people
Vol 2 Issue 1 Jan 2026, 06-09
ISSN:3108-1398

Mineral Mixture: The Hidden Key to Better Reproduction, Faster Growth and Higher Farm Income

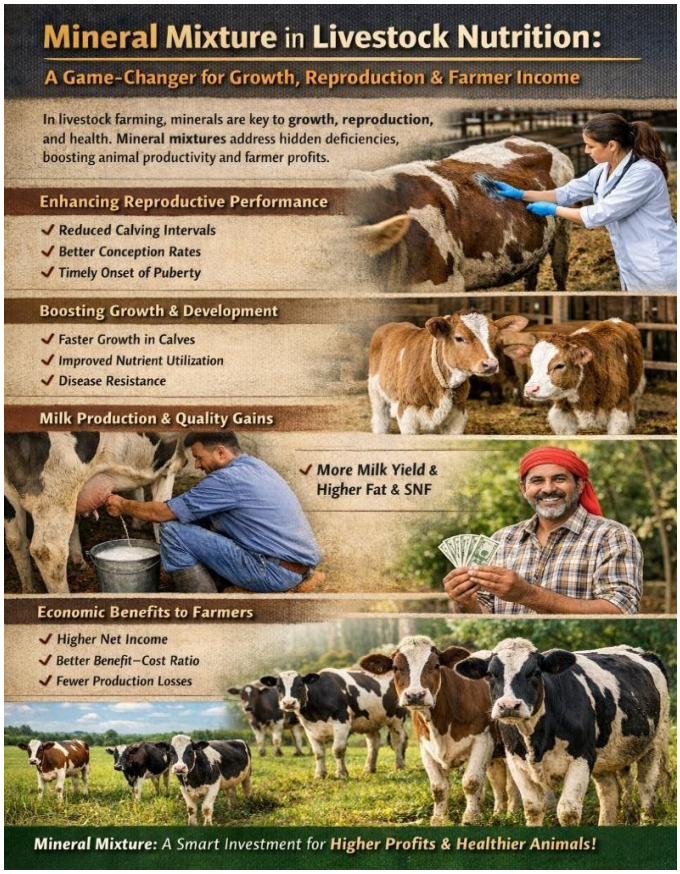
Dr. M. Aravind (PG scholar), Dr.K. Sitara (PG scholar), Dr. P. Shiva Kumar (PG scholar)

Introduction:

Livestock farming is not just about feeding green fodder and concentrates. Many farmers are surprised to learn that even well-fed animals may fail to grow properly, conceive on time, or produce optimum milk. The reason often lies in **hidden mineral deficiencies**. Minerals, though required in small quantities, play a **decisive role** in animal growth, reproduction, immunity and productivity. Supplying these through a **balanced mineral mixture** can transform livestock performance and significantly improve farmers' income.

Why Mineral Nutrition Cannot Be Ignored

Most livestock in India are fed crop residues, grasses and locally available feeds. While these feeds provide energy and protein, they are usually **deficient in essential minerals** such as calcium, phosphorus, zinc, copper, cobalt, iodine and selenium. Over time, these deficiencies weaken the animal's metabolic system, leading to poor growth, weak immunity, reproductive failure and economic losses. Minerals act as **co-factors for enzymes**, help in hormone synthesis, maintain acid-base balance, strengthen bones and support muscle and nerve function. When minerals are deficient, the animal may not show immediate symptoms, but productivity slowly declines a phenomenon often called **"sub-clinical mineral deficiency."**



Mineral Mixture Impact on Reproductive Efficiency:

One of the most important benefits of mineral mixture supplementation is its positive impact on **reproductive performance**.

Animals deficient in minerals often show:

- Delayed puberty in heifers
- Irregular or silent heat
- Repeat breeding
- Long calving intervals
- Low conception rates

Supplementing a balanced mineral mixture helps restore normal reproductive physiology. **Calcium and phosphorus** support uterine muscle tone and embryo implantation. **Zinc and manganese** are essential for ovarian activity and estrus expression. **Copper and selenium** improve hormonal balance and antioxidant defense.

Field studies have shown that animals receiving mineral mixtures exhibit:

- Earlier and clearer estrus signs
- Reduced service period
- Fewer inseminations per conception
- Shorter inter-calving intervals

This means **more calves during the animal's lifetime**, faster herd expansion and better returns to farmers.

Supporting Growth and Development in Young Stock:

Mineral nutrition is especially critical during the **growth phase**. Calves and growing heifers require minerals for skeletal development, muscle growth and immune system maturation. Calcium and phosphorus ensure strong bones and proper frame development. Zinc improves protein synthesis and growth rate. Iron and copper prevent anaemia and weakness.

Calves supplemented with mineral mixtures show:

- Faster weight gain
- Better feed utilization
- Lower disease incidence
- Early maturity and breeding readiness

Healthy young stock reduces rearing costs and ensures a **strong replacement herd** for the future.

Improved Milk Yield and Quality

In dairy animals, mineral mixture supplementation has a direct impact on **milk production and quality**.

During lactation, large quantities of minerals are lost through milk. If these are not replenished, the animal mobilizes minerals from its body reserves, leading to weakness and metabolic disorders.

Regular feeding of mineral mixtures:

- Increases daily milk yield
- Improves milk fat and SNF content
- Reduces risk of milk fever and metabolic stress
- Maintains better body condition during peak lactation

Even a small increase of 0.5–1 litre of milk per animal per day can significantly enhance farm income over a lactation period.

Economic Benefits: More Profit per Animal

The cost of mineral mixture supplementation is **very low compared to its benefits**. On average, mineral mixture costs only a few rupees per animal per day, but the returns are manifold.

Farmers benefit through:

- Increased milk yield and better milk price
- Reduced veterinary expenses
- Lower breeding costs due to fewer repeat inseminations
- Improved longevity and productive life of animals

Studies have consistently shown a **higher benefit–cost ratio** in animals fed mineral mixtures, making it one of the **most economical interventions** in livestock farming.

Health, Immunity and Longevity:

Trace minerals such as selenium, zinc and copper play a vital role in strengthening the immune system. Animals with adequate mineral nutrition show:

- Better resistance to infections
- Faster recovery from diseases
- Lower mortality and culling rates

Healthy animals live longer, produce more over their lifetime and reduce replacement costs directly improving farm sustainability.

Practical Feeding Recommendations

For best results, farmers should use **area-specific mineral mixtures**, as mineral deficiencies vary with soil and fodder type.

General feeding guidelines:

- Calves: 20–25 g/day
- Heifers and dry animals: ~50 g/day
- Lactating animals: 100–200 g/day (based on milk yield)
- Mineral mixture can be mixed with concentrate feed or fed along with jaggery to improve intake.

Conclusion: A Small Supplement with Big Impact

Mineral mixture supplementation is not an expense. It is a **smart investment**. By correcting hidden deficiencies, farmers can unlock the genetic potential of their animals, improve reproduction, enhance growth, increase milk production and secure higher income. In today's competitive livestock sector, **balanced mineral nutrition** is no longer optional it is essential for profitable and sustainable farming.